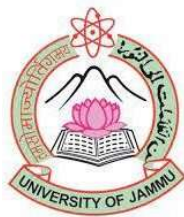


**CENTRE FOR DISTANCE & ONLINE
EDUCATION
UNIVERSITY OF
JAMMU JAMMU**



SELF LEARNING MATERIAL

**MA ECONOMICS SEM-I
Session 2025-26**

**Subject: Development Economics No. of Credits: 6
Course No: ECO-104**

**Unit : I – IV
Lesson No. : 1-29**

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<http://www.distanceeducationju.in>

***Printed and Published on behalf of the Centre for Distance and Online Education, University of Jammu,
Jammu by the Director, CDOE, University of Jammu, Jammu.***

DEVELOPMENT ECONOMICS

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M.A Economics under Non-CBCS (CDOE)

Semester-1

Syllabus for the examination to be held in December 2025, 2026 & 2027

Course Code: ECO-104

Title – Development

Economics

Credits:6

Max. Marks: 100

Internal Assessment: 30

Time: 3 Hours

Semester Exam: 70

Course Outcomes

- To comprehend the evolution of the concept of economic development and economic growth
- To be able to learn about the role of market and states in the process of economic development
- To get familiarized with the different indicators and measures of development and development gap
- To make the students aware of importance of relationship between population, poverty and environment
- To learn various models and theories of economic growth and development and to reinforce its usefulness through the applications to the real-world problems and their solutions
- To be able to gain the factual knowledge about the sectoral contribution in the process of economic development
- To be able to get the procedural knowledge about different investment criteria for developing countries like India

M.A. Economics under Non-CBCS (CDOE)

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UNIT-1: Social and Institutional Aspects of Development

Development and underdevelopment: Perpetuation of underdevelopment- Sustainable Development. Poverty- Absolute and relative measures of poverty and their merits and demerits; Measuring development and development gap, Human Development Index and other indices of development; Inequality - Measures of Inequality- Effects of Inequality; Human resource development: Population problems- Theory of demographic transition, Population as limits to growth and as ultimate source- Population, Poverty and environment: Economic development and institutions- markets and market failure, state and state failure, issues of good governance.

Unit II: Theories of Development

Classical theory of capitalistic development: Growth and stagnation, Marxian Model of Growth and Collapse and Schumpeter theory of Economic Development, Partial theories of growth and development- vicious circle of poverty, circular causation, Dualism-technical and social; Lewis Model, Ranis and Fei model, Dependency theory of development, Strategies of Development-Big push, Balanced growth, Unbalanced growth, Critical minimum effort thesis, Low Level Equilibrium trap.

Unit-III: Sectoral Aspects of Development and role of international trade

Role of Agriculture in economic development, Transformation of agriculture and rural development. Complementarity between agriculture and industry, Rationale and pattern of industrialization in developing countries, Labour markets in developing countries, Choice of techniques and appropriate technology, International trade as an engine of growth, Static and dynamic gains of trade, Prebisch- Singer versus free trade, Import substitution versus Export promotion, Dual Gap analysis, WTO and developing countries.

Unit-IV: Macro Economic Policies, Planning and Development

Role of Monetary and Fiscal Policies in developing countries, Inflation and Economic growth: Empirical Evidence, Aid versus Trade, technology Inflow, MNCs activity in developing countries, Burden of borrowing-IMF and World bank Policies in developing countries, Need for investment criteria-Present versus Future, Alternative investment criteria, Cost-Benefit analysis. Shadow prices, Project Evaluation and UNIDO guidelines, Need for planning- Democratic. Decentralized Indicative planning and Micro Level Planning, Review of Indian Plan Models.

Note for Paper Setting

The term end examination shall be of 70 marks. There shall be two types of questions in each unit, two short answer type (each of 250 words) and two medium answer type (each of 600 words). The candidate will have to attempt one short answer type question and one medium answer type question from each unit. Each short answer type question shall carry 4.5 marks and each medium answer type question shall carry 13 marks.

Basic Reading List

1. Adelman, I (1961), Theories of Economic Growth and Development. Stanford University Press, Stanford.
2. Behrman, S And T.N. Srinivasan (1995), Handbook of Development Economics, Vol. 1. Elsevier, Amsterdam.
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4. Hayami, Y. (1997), Development Economics, Oxford University Press, New York.
5. Higgins, B. (1959), Economic Development, W.W, Norton, New York.
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7. Ray, Debraj (2011), Development Economics, Oxford University Press, Delhi.
8. Thirwall, A.P. (2011), Growth and Development, (9th Edition) Macmillan, U.K.

9. Todaro, M.P. (2011), Economic Development, (9th Edition), Longman London.
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11. Dasgupta, P. A.K. Sen and S. Maglini (1972), Guidelines for Project Evaluation, UNIDO, Vienna.
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13. Sen, A.K. (Ed.) (1990), Growth Economics, Penguin, Harmondsworth

Development and Development Gap: Meaning, Measurement and Perpetuation of Underdevelopment

STRUCTURE

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1.0 Objectives

After going through the lesson, the student should:

- 1) Understand the meaning of development.
- 2) Be able to analyze the difference between economic growth and economic development.
- 3) Understand the concept of sustainable development.
- 4) Be able to understand the perpetuation of under development.
- 5) Be able to understand the different indices to measure development and development gap

1.1 Learning Outcomes

After going through this lesson, you will be able to:

- Understand the changing meaning and scope of economic development.
- Distinguish between economic growth and economic development.
- Explain various indicators used to measure development and the development gap.
- Recognize the importance of sustainable and inclusive development in addressing underdevelopment.

1.2 Introduction

Today the world is characterized by extremely large income inequality among the countries. The standard of living of the countries also differs to a larger extent leading towards a north-south gap. What is economic development? One of the contentious issues before these economies is the meaning and measure of economic development. Over the last many decades, the meaning and concept of development and what exactly it comprises of have changed a lot. In the following lesson we shall discuss how meaning of development has actually evolved and what are the different indicators of development are.

1.3 Meaning of Economic Development

1.3.1 Traditional View

Till 1960s, the term economic development was often used as a synonym to economic growth. Traditionally economic development was meant as the capacity of an economy, whose initial economic condition has been more or less static for a long time to generate and sustain an annual increase in its gross national product (GNP) at a rate of 5% to 7% or more. Another way to look at economic development was to take into account rate of growth of income per capita or per capita GNP growth of income per capita normally measured the overall economic well-being of a population how much of real goods and services is available to the average citizen for consumption and investment. Therefore, development strategies focused on meeting the growth targets in terms of output and very less reference was given to other indicators like poverty, inequality and unemployment.

On the whole, therefore prior to 1970s, development was seen as an economic phenomenon in which rapid gains in overall and per capita GNP growth would “trickle down” to the masses and would create conditions for the wider distribution of economic and social benefits of growth.

1.3.2 The New View of Development

During the 1950s and 1960s while many of the third world nations did realize the economic growth targets but the respective levels of living of the masses remained unchanged. Dudley Seer poses the basic question about the meaning of economic development and asserted: *The questions to ask about a country's development are therefore: What has been happening to poverty? What has been happening to unemployment? what has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been*

growing worse, especially if all three have, it would be strange to call the result “development” even if per capita income doubled.

This resulted in the rejection of the narrow definition of economic development by an increasing number of economists. Who now clamored for the “dethronement of GNP” and advocated direct attack on widespread absolute poverty, unemployment and unequal distribution of income and wealth.

It was in 1970s when a new dimension was added to the development debate, “Redistribution from growth” became a popular slogan. After the disappointment with growth to redistribution, basic needs approach was the next slogan. It emphasized that income increases are not sufficient to reduce poverty. Therefore, mass education, safe water, family planning, health services and other priorities depend on public action. So, the government should provide these services to people so that all human beings should have an opportunity for a full life². It was in 1990s when many other international institutions like World Bank and UNDP which during 1980s championed economic growth as the goal of development, joined the chorus of observers taking a broader perspective. And it was in 1991 when in the meaning of economic development, human development was included. Accordingly human development was considered as an important factor in economic development. In other words, economic development came to be defined in terms of human development which is meant as a process of enlarging people’s choices. And among the most important choice is ability of people to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. If these choices are available, many other opportunities are opened. These three basic chances are reflected in human development.

1.3.3 Sen’s Capability Approach

It was 1998, When Noble laureate in economics, put forth the capability to function is what really matters for status as a poor or non-poor person. He gave a new purpose to economic development. According to Sen, human beings are born with certain potential capabilities. The purpose of

development is to create an environment in which all people can expand their capabilities and opportunities can be enlarged for both present and future generation.

1.3.4 Goulet's core values of Development

One attempt is by Goulet 1971 who has tried to explain the meaning of economic development with three basic components as core values.

- 1) Life sustenance
- 2) Self esteem
- 3) Freedom

- 1) **Life sustenance:** No country may be regarded as fully developed if it cannot provide its entire population with such basic needs as housing, clothing, food and minimal education. The objective of development must be to raise people out of primary poverty and to provide basic needs.
- 2) **Self Esteem:** It is concerned with the feeling of self-respect and independence. No country can be regarded as fully developed if it is exploited by others. Developing countries should seek development for self – esteem.
- 3) **Freedom:** It is the freedom from 3 evils of want, ignorance and squalor, so that people are more able to determine their own destiny.

The advantage of material development is that it expands the range of human choice open to individual and societies at large.

Using all the approaches we can conclude that development is a multi-dimensional concept involving major changes in social structure, popular attitude and national institutions as well as the acceleration of economic growth, the reduction of inequality and the eradication of poverty, better education, more jobs and greater attention to cultural and human values.

1.4 SUSTAINABLE DEVELOPMENT

The concept of sustainable development was popularized as a normative goal by the world commission on environment and development in their 1987 report to the General Assembly of the United Nations our common future (World Commission on Environment and Development, 1987). There sustainable development was defined as a development that “meets the needs of the present without compromising the ability of future generations to meet their own need”. This definition suggests the need to balance two concerns, one having to do with present or intra generational needs and the other having to do with future, or inter-generational needs. Hence sustainable development can be perceived as development that can continue forever or at least for a very long time, say for several generations and can also be known as necessary well-being over a very long time.

Within the international community there have for a long-time discussion on how to complement and extend the traditional national accounts to better reflect the importance of the environment and society. Few of the industrialized countries took the lead on the environmental part of this in 1990s and organized the so-called London Group on Environmental Accounting. One result of their efforts so far is the Environmental and Economic Accounts commonly referred to as SEEA. According to SEEA “Sustainable development is development that ensures non-declining per-capita national wealth by replacing or conserving the sources of that wealth; that is, stocks of produced, human, social and natural capital”.

1.4.1 Measurement

For economists, a development path is sustainable “if and only if the stock of overall capital assets remains constant or risk over time”. As mentioned in Todaro (2010), implicit in these statements is the fact that future growth and overall quality of life are critically dependent on the quality of the environment. The natural resource base of the country and quality of its air, water and land represents a common heritage for all generations. To destroy that endowment indiscriminately in the pursuit of short-term economic goals penalizes both present and especially,

future generations. It is therefore important that development policy makers incorporate some form of economic accounting into their decisions. For example, the preservation or loss of valuable environmental resources should be factored into estimates of economic growth and human well-being. Alternatively, policymakers may set a goal of no net loss of environmental assets.

In other words, if an environmental resource is damaged or depleted in one area, a resource of equal or greater value should be regenerated elsewhere.

An example of environmental accounting is offered by David Pearce and Jeremy Warford. Overall capital assets are meant to include not only manufactured capital (machines, factories, roads) but also human capital (knowledge, experience, skills) and environmental capital (forests, soil quality and rangeland).

By this definition, sustainable development requires that these overall capital assets not be decreasing and that the correct measure of sustainable national income or sustainable net national product (NNP*) is the amount that can be consumed without diminishing the capital stock.

Symbolically:

$$NNP^* = GNP - D_m - D_n$$

Where NNP* is sustainable national income

D_m is the depreciation of manufactured capital assets

D_n is depreciation of environmental capital – the monetary value of environmental decay over the course of a year.

An even better measure, though more difficult to calculate with present data collection methods, would be

$$NNP^* = GNP - D_m - D_n - R - A$$

Where D_m and D_n are as before, R is expenditure required to restore environmental capital and A is expenditure required to avert destruction of environment capital (air pollution, water and soil quality etc.)

1.5 Perpetuation of Underdevelopment

An underdeveloped country is characterized by a low level of per-capita income. The Indian planning commission defines an underdeveloped country as one which is characterized by the co-existence of unutilized or underutilized manpower and of unexploited natural resources. The study of economic development helps us to understand the nature and cause of underdevelopment of low-income countries.

Today's developed economies have been able to take initial advantage of first industrial revolution and were also able to sustain the existence of various cumulative forces against them. But many countries are still left behind, which have now become the prime concern of the World Bank and other development agencies. In the following section, we shall focus on the factors or the forces that have perpetuated in such a way that these poor countries have remained in a state of underdevelopment.

1. Backwardness of Agriculture: Historical experiences show that it was the increased in agricultural productivity in England in the eighteenth century that has laid the basis for the first industrial revolution. And it is also the agriculture growth that is required at least in the initial stages of economic development for the industrial growth to take place. But in underdeveloped countries the agricultural sector is in the backward state. There are many institutional economic, physical as well as climatic conditions that are responsible for it. Survival of feudal relations of production in agriculture has made the situation worse as it has arrested development of agriculture on modern lines. High pressure of population has resulted into sub-division and fragmentation of holdings which has further arrested the use of mechanized way of farming. Even

the extremes of heat and humidity have reduced the soil quality and contributed to low productivity. As all developing countries are situated into tropical regions.

2. Urban Bias: Lipton (1977) states that agriculture condition has remained backward because of urban bias approach of ruling elites. These ruling elites belong to non-rural environment and are not aware about the basic condition and problems of agriculture sector. Also, that they have moved away from the empirical evidence that shows a high correlation between levels of development and industrialization and by early development models that stressed upon the investment in industry as a factor to achieve economic development. Thereby have neglected the agriculture sector which is the main source of employment and income of people of developing countries.

3. Population Size: Rapid increase in population size of underdeveloped is both a cause and an effect of under development over the past many decades, the population of these countries have proven to be a dent on the living standards of the people. Rising population exacerbated the problem of poverty and unemployment and has created a vicious circle. The pressure on agriculture has increased resulting into low agriculture productivity low per-capita income. It has also adversely affected the capital formation of the economics not in terms of physical but also human capital formation which is very low.

4. Circular and Cumulative Causation: This notion was given by Myrdal 1957 that explains the external relations between countries that has resulted into poverty perpetuations in under developed economics. According to Myrdal, there are certain economic and social forces in the form of labour migration, capital movements and trade that tends to produce certain cumulative forces that lead towards expansion of favoured region at the expense of other regions, which then become comparatively worse off, retarding their future development. Thus, these forces retard the development of backward regions.

5. Unequal Exchange Relations: An unequal exchange relation between rich and poor countries also plays a part in the poverty perpetuation process and has given rise to dependency. Poor countries are dependent on rich countries for capital and technology for their industrial growth while they are exporting primary commodities. This has resulted into current indebtedness of the

poor countries since they have to pay for imports which are quite expensive relative to price they receive for their exports. And that there has been a historical tendency for the terms of trade of primary goods relative to manufactured goods to deteriorate. For all these reasons the structure of trade poses severe problems for many developing countries and may keep these poorer and is hindering their development process.

6. Colonialism: As explained by Todaro most African and Asian nations were at one time or another colony of western European countries. These European colonial powers had made a drastic and long-lasting impact on the economics and political and institutional structures of their African and Asian colonies. They were so exploited and that is why they are still poor today. The worst impact of colonization was probably seen in Africa, especially if one also considers the earlier slave trade. Thus, there are many forces that explain the perpetuation of underdevelopment. The existence of these cumulative forces has sustained in such a way that these economies are under developed.

Check Your Progress-I

Based on your understanding of the previous sections, answer these questions in your own words:

Q1. How did the traditional view define economic development?

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Q2. Explain Amartya Sen's Capability Approach and its relevance to the definition of development.

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Q3 Define sustainable development as per the World Commission on Environment and Development (1987).

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1.6 Measuring Development and Development Gap

1.6.1 Various Indicators of Measuring Economic Development

Over the past many decades, development economies have undergone many changes. Rather the term economic development has been evolved from the emphasis on growth in GDP per capita to the redistribution of income, to basic needs to human development and sustainable development. Therefore, the meaning and indicators of measure economic development have changed according to the growing needs and problems of developing economies. The following are some of the measures that are used for measuring economic development and are been used by different institutions and countries to measure their level of development and growth.

1. Per -Capita Income as an Index of Development:

Per Capita income is the average income of an individual of a country in a given year. And as in index, it is being used to make a distinction between developed and developing countries as well as between rich and poor. According to Thirlwall, while there may be an association between poverty and under development and riches and development, there are number of reasons why some care must be taken when using per capita income figures alone as a criterion of development. Apart from the difficulty of measuring income in many countries and the difficulty

of making inter country comparisons, using a single per-capita income figure to separate developed from developing countries is inevitably somewhat arbitrary as it ignores such factors as the distribution of income and quality of life.

Nevertheless, it is still very convenient to have a readily available and easily understandable criterion for classifying countries and perhaps per capita income is the best single index we have. One of the advantages of it is that it focuses on raising a living standards and eradicating poverty. Striking similarities are found between the characteristics of developing countries of Asia, Africa and Latin America if defined on the basis of per capita income excepting some oil producing countries. These include:

1. A high proportion of the labour force engaged in agriculture but low agricultural productivity.
2. A high proportion of domestic expenditure on food and necessities.
3. An export trade dominated by primary products and an import trade dominated by manufactured goods.
4. A low level of technology.
5. High birth rate coupled with a falling death rate.

Also, these countries are facing some common economic problems like poverty and unemployment, poor health and education and so on. Therefore, we conclude that per capita income may be used as a starting point for classifying levels of development.

The measuring of per capita income is a difficult task and there are two main issues that are involved:

1. Problem associated with national income accounting i.e. only goods that are produced and sold in the market are included on the value of national income. However, much of output in developing countries never goes to market especially in agriculture where production is there for self-consumption. If no allowance is made for subsistence sector, this will bias downwards the calculation of national income and therefore PCY.
2. There are conceptual issues like a consideration of prices is also necessary when deciding

what price index should be used as a deflator of money national income in order to obtain an index of real income. The task of converting money income statistics into real income raises all the difficulties not peculiar to developing countries, connected with the use of index numbers, such as which base year to take, how to take into account changes in the quality of product.

3. The other part of the story and probably the major one, concerns the underestimation of living standards in developing countries when their national incomes measured in local currencies are converted into US dollars at the official exchange rate. Since exchange rates are largely determined by the supply and demand for currencies based on goods and assets that are traded, the prices of which tend to be equalized internationally. But purchasing power parity however depends not only on the prices of traded goods but also non-traded goods which are determined by unit labour costs and these tend to be lower in poor countries. Use of official exchange rate underestimates the living standards of the developing countries. To make meaningful international comparisons of income and living standards, therefore what is required is a measure of purchasing power parity which is nothing but indicates how many currency units a particular quantity of goods and services costs in different countries.

2. Physical Quality of Life Index (PQLI)

The Physical Quality of Life Index was given by Morris. D. Morris in 1979. He constructed a composite PQLI for 23 developing countries for a comparative study. He combined three component indicators of infant mortality, life expectancy at age one and basic literacy at age 15 to measure performance in meeting the most basic needs of the people.

The PQLI shows improvement on the quality of life when people enjoy the fruits of economic progress with increase in life expectancy, fall in infant mortality rate and rise in basic literacy rate.

Each indicator is placed on a scale of zero to 100 where 0 represents a worst performance and 100 represented a best performance. The PQLI is measured by averaging the three indicators giving equal weight to each and the index is also scaled from 0 to 100.

If the indicators of life expectancy and basic literacy rate are positive, the best performance is shown as the maximum and the worst as the minimum. Infant mortality rate being a negative indicator for the best indicator is shown as the minimum and the worst as the maximum.

3. Human Development Index (HDI):

According to Human Development Report, human development is the process of enlarging people's choices. In principle these choices can be infinite and change over time. But at all levels of development the three essential ones are for people to lead a long and healthy life, to acquire knowledge and to have access to resources needed for a decent level of living. If these essential choices are not available many other opportunities remain inaccessible. Therefore, human development has two sides:

1. Formation of human capabilities such as improved health, knowledge and skill.
2. The use people make of their acquired capabilities for leisure, productive purposes or being active on cultural social and political affairs.

If the scales of HD do not finely balance the two sides, considerable human frustration may result. According to Human Development Report 1991, Income is clearly only one option that people would like to have but it is not summing total of their lives. Therefore, it was 1990 when United Nations Development Programme (UNDP) formulated and measured Human Development Index (HDI) in its human Development Report (1990).

HDI does not replace GNP as a measure but adds considerably to an understanding of the real position of a society in many respects. HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country and not economic growth alone. The HDI can also be used to question national policy choices asking how two countries with the same level of GNI end up with different Human Development.

Thus, Human Development Index is a summary measure of key dimensions of human development. It measures the average achievement in a country in three basic dimensions of human

development: a long and healthy life, access to knowledge and a decent standard of living. According to HDR 2010, HDI is the geometric mean of normalized indices measuring achievements in each dimension (power to HDR 2010, simple arithmetic mean of the three dimensions indices was used).

In HDR 2010, the ability to enjoy a long and healthy life is defined in terms of life expectancy at birth which is the same as in earlier Reports. However, in HDR2010 certain changes were made to standard of living dimension whereas GDP per capita PPP is replaced by GNP per capita PPP and while in knowledge dimension mean years of schooling replaces literacy rate and expected years of schooling replaces by current enrollment rate. Minimum and maximum value (goal posts) is set in order to transform the indicators into indices between 0 and 1. The maximum values are the highest observed values in the time series (1980-2012). The minimum values can be appropriately conceived of a subsistence values. For example, Goal Posts for the Human Development Index in Report 2013.

Table 1: Goal Posts for the Human Development Index in Report 2013

Indicator	Observed Maximum	Minimum
Life Expectancy Years	83.6 (Japan, 2012)	20.0
Mean Years of Schooling	13.3 (US, 2010)	0
Expected Years of Schooling	18.0 (Capped at)	0
Combined Education Index	0.971 (New Zealand, 2010)	0
GNI per Capita (PPP\$)	87, 478 (Qatar, 2012)	100

Source: HDR, 2013

Having derived the minimum and maximum values, the sub-indices are calculated as follows:

$$\text{Dimension Index} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (1)$$

For education, equation (1) is applied to each of the two sub-components, and then a geometric mean of the resulting indices is created. For calculating income index, log of income continues to be taken as before.

$$\text{Therefore HDI} = \left(I_{Life}^{1/3} \right) \left(I_{Education}^{1/3} \right) \left(I_{Income}^{1/3} \right) \quad (2)$$

Human Development Report 2013 measured HDI for 187 countries. In terms of Human Development, Norway ranks first with HDI value of 0.955 followed by Australia with HDI value of 0.938. India with a HDI score of 0.554 ranked 136th among 187 countries.

4. Inequality Adjusted HDI

This measure was introduced in HDR 2010. Inequality Adjusted HDI (IHDI) takes into account not only a country's average human development as measured by health, education and income indicators but also how it is distributed. The IHDI accounts for inequalities in HDI dimension by 'discounting' each dimension's average value according to its level of inequality. The IHDI equals the HDI where there is no inequality across people but falls further below the HDI as inequality rises. In this sense IHDI is the actual level of human development (taking into account inequality), while the HDI can be viewed as an index of the potential human development that could not be achieved if there is no inequality. The loss in potential human development due to inequality is the difference between HDI and IHDI and is expressed as percentage.

According to HDR 2010, India's average loss in HDI is 29.6% - its loss in HDI is 41 percent in education and 31 percent in health.

5. Gender Inequality Index

It was in 1995, Human Development Report launched two Global Gender indices Gender Related Development Index (GDI) and Gender Empowerment Measure (GEM). The GDI tried to capture achievements through the same set of basic capabilities like HDI life expectancy, educational attainment and income but adjusted the HDI for gender inequality. The Greater the gender disparity in basic human development the lower was a country's GDI compared to HDI.

On the other hand, GEM attempted to measure women's political participation, economic participation and her power over economic resources. GEM indicated whether women are able to actively participate in economic and political life. However, due to various drawbacks pointed out by some critics like the measures combines absolute and relative achievements. Thus, a country with low absolute income scores poorly even with perfect gender equality and since extensive imputations were needed to fill in missing data, it was in 2010, when HDR introduced a new measures Gender Inequality Index (GII) to address to above criticisms.

According to Human Development Report 2010, the Gender Inequality Index (GII) reflects gender-based disadvantage in three dimensions reproductive health, empowerment and the labour market for many countries as data of reasonable quality allows. The index shows the loss in potential human development due to inequality between female and male achievements in these dimensions. It varies between 0, where women and men fare equally and 1 where either gender fares as poorly in all measured dimensions:

- 1. To measure Health Dimension:** The two indicators measured are maternal mortality rate and adolescent fertility rate. Both these indicators shall reflect female reproductive health index.
- 2. To measure the empowerment dimension:** Female and male population with at least secondary education and female and males shares of parliamentary seats as indicators are used. Both these indicators individually for male and female shall measure the female empowerment index and male empowerment index.
- 3. The third dimension is labour market:** The indicator that is used is female and male labour force participation rates. Thus, measuring separately female labour market index and male labour

market index. Gender inequality index is then measured by taking into consideration:

- a) **Female Gender Index:** It comprises of female reproductive health index female empowerment index and female labour market index.
- b) **Male Gender Index:** It comprises of male empowerment index and male labour market index. HDR 2010 presented GII for 138 countries. Netherlands tops the list as the closest to gender equality followed by Denmark while India occupies 122nd position.

6. Multidimensional Poverty Index:

Human Development Report 1997 introduced the concept of Human Poverty Index (HPI). It attempts to measure the different features of deprivation in the quality of life to arrive at an aggregate judgement on the extent of poverty in a community. It measures deprivation in basic human development in the same dimensions as the HDI.

The variables used for measuring HPI were probability at birth of not surviving to age 40; adult illiteracy rate and unweighted average of population not using improved water sources and children under weight for age.

Thus, HPI reflected the aggregate deprivations in health, education and standard of living. It could not identify specific individuals, households or larger groups of people as jointly deprived. To tackle this problem, HDR 2010 introduced a new measure Multi-Dimensional Poverty Index (MPI) to replace HPI.

The MPI is the product of the multi-dimensional poverty head count (the share of people who are multi dimensionally poor) and the average number of deprivations each multi dimensionally poor household experiences (the intensity of poverty). It has three separate dimensions consisting of 10 indicators each with equal weights within its dimension. These are as follows:

1. **Health:** To measure health, the indicators used are nutrition level and child mortality rate.

2. Education: To measure education the indicators used are years of schooling and children enrolled.

3. Standard of Living: It is reflected through access to electricity, cooking fuel, and access to clean drinking water, access to adequate sanitation, floor and assets.

HDR 2010 estimates that about a third of the population in 104 countries, or almost 1.75 billion people, experience multidimensional poverty. More than half live in South Asia, though the rates are highest in Sub-Saharan Africa, with significant variations across States.

1.6.2 Various dimensions of measuring Development Gap

Deprivation in developing countries, according to Thirlwall, is not simply a matter of low levels of per-capita income. There are many other dimensions to the development gap between rich and poor countries. The developing countries not only have very low income but the level of education, health and nutrition is also low and income distribution. Let us discuss the development gap that exists between developed and developing economies in terms of these valuables.

1. Per-Capita GNP

One of the most common ways to define developed and developing countries is by per capita income. Several international agencies including OECD and United Nations offer classification of countries by their economic status but the best-known classification is given by World Bank. In World Bank's classification countries with a population of at least 30,000 are ranked by their levels of Gross National Income per capita.

Generally speaking, the developing countries are these with low, lower-middle or upper middle income. According to World Bank indicators, 2012 low-income countries are defined as having a per capita gross national income in 2012 of \$1035 or less; low middle income countries have income between \$4086 to \$12615 and high-income countries have income of \$12,616 or more.

While there are few of the countries group as other high income are sometimes classified by UN as

developing countries like Kuwait, Qatar and United Arab Emirates. Hence it shows that there exists a huge income gap between developed countries and developing countries. According to World Bank indicator 2012 India stands 164 in terms of income with a per capita income \$1530 only. It means India is a developing country while developed countries like US stands 18th with a per capita income of \$50,120. Thus, there exists an income gap between the two economies.

2. Education

According to Thirlwall another dimension of the development gap is the difference in educational opportunities between rich and poor countries, which is identified through high level of illiteracy and low level of human capital formation. This leads towards adverse consequences for the growth and development process. Since education and economic development has a strong positive relationship, this kind of low human capital formation is further widening the gap between developed and developing countries. The below table shows the relative under provision of educational facilities and opportunities in many poor countries, and the low rate of literacy in the poorest countries. The first three columns show the percentage of the enrollment in primary, secondary and tertiary.

Table 2: Enrollment Rate and Literacy Rate

Countries	Enrollment rate (2012)			Literacy rate (2012)	
	Primary	Secondary	Tertiary	Male	Female
Low Income	108	43	9	70	56
Middle Income	108	71	27	89	78
High Income	103	102	73	100	100

Source: World Bank Indicators, 2013

Huge discrepancy in the provision of secondary education is observed with only 43% of the age group

has received education on low-income group and the percentage is even lesser for tertiary education level. A huge gender gap is also evident in terms of adult literacy in both low income and middle-income economies. As against this it is high income groups that are enjoying the fruits of education.

3. Health and Nutrition

Health and Nutrition level is another dimension of development gap that exists between developed and developing countries. Most of the people in the world are suffering from various types of malnutrition including 1 billion people suffer from Protein Energy deficiency. According to United Nations Food and Agriculture Organization (FAO) in Rome, one billion people suffer from iodine deficiency and 1 billion people do not have an access of clean drinking water. Most of the empirical evidences suggest that high returns to investment in nutrition and health in terms spent in school and cost savings from treating the consequences of malnutrition and poor health. Thus, health and economic development has a positive relationship. Better health leads to increased productivity and development. In developing countries malnutrition among children is particularly serious because it stunts growth and mental development and adds another twist to vicious circle of poverty.

Table3: Health Indicators for the year 2012

Countries	Health Expenditure as a % of GDP	Life Expectancy		Maternal Mortality rate	Infant Mortality rate
		Male	Female		
Low Income	5.6	58	61	95	32
Middle Income	5.7	67	71	46	22
High	12.0	76	82	6	3

Income					

Source: World Bank Indicators 2013

There are various indicators that give the status of health sectors. The following table presents some selected health related statistics including total expenditure on health as a percentage of GDP; life expectancy rate and maternal mortality rate and infant mortality rate. The analysis of the table suggests there is a huge gap between developed and developing countries in terms of these health indicators, clearly depicting poor health sector of developing nation with low life expectancy and high maternal and infant mortality rate is a cause of concern. This gap may widen up in future if developing countries will not increase their total expenditure on health as a percentage of GDP which is just 5.6% of GDP while for developed nations it is more than 11 percent.

4. Inequality:

Inequality is a common phenomenon that exists in developing countries and is more severe. The average income of developing countries is not only low but is also unequal than in developed countries. There are normally two types of inequality that exists; one is vertical inequality which deals with how income is distributed across individuals and households and another is horizontal inequality which is concerned with how different groups in society are treated, based on race, religion, language, class, gender and so on.

According to Kuznets, that in many of the present developed countries, the degree of inequality first increased and then decreased in the later stages of industrialization, giving an inverted U-shaped curve. Some other empirical works show that degree of inequality is greater in developing countries than was in developed nations. On the other hand, horizontal inequality, according to Steward (2001), is not only responsible for much conflicts within societies, but it also affects the development process in a number of ways. For example, some goods may be denied access to public goods such as education and health care. If these inequalities are not tackled then it may further widen the development gap between rich and poor countries.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What do you understand by the term “development gap”? Provide an example.

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Q2. Why is per capita income considered an incomplete measure of development?

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Q7. What is the significance of the Multidimensional Poverty Index (MPI) in measuring poverty?

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1.7 Let us sum up

Different economies in the world have achieved a different level of economic development and accordingly one can find wide development gap that exist between rich and poor countries. In view of economist has been trying to look into the causes of the gap and coming up with different indicators of economic development so that a proper pathway is selected. And due to which the

meaning of economic development has evolved from just income growth to human development.

1.8 Key words

- **Economic Development:** A process of improving the economic well-being and quality of life of a nation, involving growth, reduction of poverty, inequality, and improvement in health, education, and living standards.
- **Sustainable Development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- **Human Development Index (HDI):** A composite index measuring average achievement in three basic dimensions: health (life expectancy), education (mean and expected years of schooling), and standard of living (GNI per capita).
- **Per Capita Income:** The average income earned per person in a given area in a specified year, used as an indicator of economic well-being.
- **Underdevelopment:** A state where countries experience low levels of income, industrialization, education, health care, and infrastructure, often characterized by widespread poverty and inequality.
- **Development Gap:** The difference in levels of development between the world's richest and poorest countries, measured through economic and social indicators.

1.9 References/ Suggested Readings

1. Human development Report (2013), United Nations Development Programme, New York
2. Human development Report (2012), United Nations Development Programme, New York.
3. Meier, G.M(1995), *Leading issues in Economic Development*, Oxford Printing Press, Mumbai
4. Misra and Puri (2011), *Indian Economy*, Himalaya Publishing House, New Delhi. Streeten, Paul(2003), "Shifting Fashion in Development Dialogue", Readings in Human Development ed. Sakiko Fukuda-Parr and A.K Shiva Kumar, Oxford Printing Press, New York.

5. Thirlwall A.P. (2006), *Growth and Development*, Palgrave, New York
6. Todaro, M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.
7. World Bank Indicators (2013), World Bank.

1.10 Hints to Check your Progress (CYP)

CYP-I

- Q1. See sub-section 1.3.1 Traditional View
- Q2. See sub-section 1.3.3 Sen's Capability Approach
- Q3. See sub-section 1.4 Sustainable Development

CYP-II

- Q1. See section 1.6.2 Various Dimensions of Measuring Development Gap
- Q2. See sub-section 1.6.1 Per Capita Income as an Index of Development
- Q3. See sub-section 1.6.1 Multidimensional Poverty Index

1.11 Examination Oriented Questions

1. What is the new meaning of economic development?
2. Explain how economic growth is different from economic development.
3. Evaluate alternate indicators as good measure of economic development.
4. What do you mean by development gap? Does development gap really exist between developed and developing countries? Explain.
5. Write a short note on Human Development index.

6. What is the importance of education and health in the economic development of a country?

Poverty: Concept and its Measurement**STRUCTURE**

2.0 Objectives

2.1 Learning Outcomes

2.2 Introduction

2.3 Poverty: Concept and Measurement

2.3.1 Concept of Poverty

2.3.2 Measurement of Poverty

2.4 Poverty: Its Causes, Dimensions, and Policy Implications

2.5 Let us sum up

2.6 Glossary

2.7 References/ Additional Readings

2.8 Hints to Check your Progress (CYP)

2.9 Examination oriented questions

2.0 Objectives

After going through the lesson, the student will

1. Able to understand the concept of poverty.
2. Shall learn the different measures of poverty.

3. Become familiar with the methods of poverty measurement, including their strengths and limitations.
4. Gain insight into how poverty is quantified and the various approaches used to assess the extent of poverty in different regions.
5. Be able to describe the effects of poverty on economic development and the well-being of individuals in developing countries.

2.1 Learning Outcomes

After going through this lesson, you will be able to:

1. Understand the concepts of absolute and relative poverty
2. Describe various methods used to measure poverty and their limitations
3. Explain how poverty is measured using different indices and tools.
4. Recognize the challenges and complexities involved in accurately measuring poverty.
5. Understand the socio-economic implications of poverty on individuals and communities in developing countries.

2.2 Introduction

Before 1970s, economic development was seen typically in terms of planned alteration of the structure of production and employment and the entire focus was on the process of industrialization and casual reference was given to other economic social indicators like poverty and inequality. But it was only during 1970s, economic development came to be redefined in terms of the reduction or elimination of poverty and inequality. It was realized that economic growth alone cannot trickle down and remove the twin problems of poverty and inequality in the developing countries. And today it has been realized that both these social evils are the major economic problems confronting the developing countries. It is these two problems that are dealt in this lesson in detail.

2.3 Poverty: Concept and Measurement

The World Bank defines poverty as the inability of the people to attain a minimum standard of living as the name suggests, economic development was originally thought of as economic growth, but in recent years it has increasingly come to be thought of as poverty reduction. The World Bank proclaims that our dream is a world free of poverty, and increasingly works to direct all of the activities towards poverty reduction. Poverty is a multi-dimensional concept. Poverty has been in existence since immemorial time but the description, interpretation and methodology to measure the incidence of poverty has changed from time to time with development. There is no reliable, scientific and universal definition of poverty. There are numerous definitions of poverty. Calorie based poverty or the food energy method line are widely used around the world. The association with food appears to be attractive, in part because poor people do indeed spend much of their budget on food, but perhaps also because there is more political support for anti-poverty programs that involve food than for measures based on goods. The nutritional basis in the involvement of nutritional scientists in setting the norms also appears to add legitimacy to the lines and the counts that are based on them. The problem here, however is that consumers in different countries may choose different combinations of foods and other goods which then require different incomes to meet nutritional requirements. In practice to measure the extent of absolute poverty on the third world, World Bank takes the figure of \$1.25 a day.

2.3.1 Concept of Poverty

Absolute Poverty

A poverty line indicates deprivation in an absolute sense, i.e., the value of a set level of resources deemed necessary to maintain a minimal standard of well being. With such a definition, poverty is eliminated once all households command resources equal to or above the poverty line. Absolute poverty is expressed in terms of specific minimum calorie requirements i.e., the minimum physical quantities of cereals, pulses etc. are then determined for a subsistence level and then the physical

quantities is converted into monetary terms. By aggregating all the quantities, per capita consumer expenditure is determined. The population, whose income level or expenditure is below this figure, is considered to be below the poverty line. The \$1.25 /day per capita poverty line is one example of an absolute poverty line, but most countries determine their own absolute poverty lines as well. (World Bank takes the figure \$1.25 /day). Therefore, Absolute poverty is defined as the number of people who are unable to command sufficient resources to satisfy basic needs.

Relative Poverty

The role of contemporary living standards in the measurement of poverty has long been recognized. Adam Smith (1776), for example, observed in a widely quoted passage.

“By necessities, I understand not only the commodities which are indispensably necessary for the support of life but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without”.

This consideration underlines an explicitly relative standard of poverty. As pointed out by Townsend (1973), “Individuals and families are in poverty whose resources, over time, fall seriously short of the resources commanded by the average individual or family in the community in which they live”. The relative approach has been widely used in developed countries in recent years. Income distribution of the population in different groups is estimated and a comparison of the levels of living of the top 5 to 10 percent with the bottom 5 to 10 percent of the population reflects the relative standards of poverty. If for example the poverty threshold may rise with the general level of income, it means that it is a matter of keeping up with the Jones's, rather; it is a reflection of the interdependence of living standards. The measure on money income ignores other aspects of deprivation. No account is taken of poor-quality housing, school or health care, which may or may not be associated with low income.

Many wealthier countries, on the other hand, set poverty lines, based on relative standard. In the U.K, for example, the poverty line is 60% of the median income levels (after taxes and benefits), an approach broadly adopted in the European Union.

“Relative poverty is having less than the others”.

2.3.2 Measurement of Poverty

1) Head count Ratio (H)

It is the proportion of the population below the poverty line. It ranges from 0 (No one is poor ideal) to 1 (everyone is poor).

$$H_I = \frac{\text{No. of poor (H)}}{\text{Total population}}$$

Total population

The lower the (H), the lower will be H_I . Over time, the index does not change if individuals below the poverty line become poorer or richer, as long as they remain below the line.

Head count ratio tells us the percentage of people below the poverty line.

For example, consider two populations with 10 people in each with a poverty line of \$1/day.

Table1: Example of how depth of poverty varies between two populations with same head count ratio

Population 1		Population 2	
Person (i)	Y ₁ (\$)	Person(i)	Y ₁ (\$)
1	2.0	1	4.0
2	1.9	2	3.8
3	1.9	3	2.5
4	1.8	4	2.5
5	1.2	5	1.5
6	0.8	6	0.9
7	0.6	7	0.9
8	0.5	8	0.8
9	0.5	9	0.7
10	0.4	10	0.7
HH	0.5	HH	0.5

$$1) \frac{0.2 + 0.4 + 0.5 + 0.6}{5} = 0.44\$$$

$$2) \frac{0.1 + 0.1 + 0.2 + 0.3 + 0.3}{5} = \$0.2$$

The average deviation from poverty from the poverty line is \$0.44 for population 1 and \$0.2 for population 2. Thus, the headcount ratio only suggests that the level of poverty is the same for both the populations, but the position is worse for population 1 than population 2.

2) Income Gap Ratio

It was designed to focus on the depth of poverty below a nominal poverty line. It is the average deviation from the poverty for people who are below the poverty line. Therefore, it does not include those above it.

For each individual in the population the deviation from the poverty line can be found as.

$$\text{Deviation Of per Capita Income Relative to poverty line} = \frac{Z - y_i}{Z}$$

Z = Poverty line

Y_i = Income of person i (by definition $y_i < Z$)

If $y_i = \$0.8$ and Z (poverty line) = \$1.0

$$\text{Deviation} = \frac{1.0 - 0.8}{1.0} = 0.2$$

Deviation of 20% of the poverty line for this individual. One of the problems with the Income Gap measure is that the average depth of poverty below the poverty line population can be same for population 3 and population 4 but there can be a greater degree of variation in the depth of poverty for population 4 than population 3. Another problem is that if we remove any individual whose income is just below the poverty line it will worsen the poverty.

3) Poverty Gap Index

To overcome this difficulty, economists therefore attempt to calculate a poverty gap that measures the total amount of income necessary to raise everyone who is below the poverty line up to that line. Figure below illustrates how we could measure the poverty gap as the shaded area between the poverty line PV, and the annual profile of the population. Even though in both the countries 50 per cent of the population fall below the poverty line, the poverty gap in country A is greater than the country B. Therefore, it will take more of an effort to eliminate absolute poverty in country A. To measure the poverty gap index, one way is to multiply the headcount ratio by the income gap ratio. It is a combination of both headcount (HH) and income gap ratio (IGR). $P_1 = \text{Headcount Ratio} * \text{Income Gap Ratio}$

The PGI adjusts or weights the value of the IGR to take into account the proportion of the population that are classified as poor in terms of the poverty line being used. Therefore, the lower the value of P_1 , the better, and a P_1 value of Zero means nobody is poor. One of the problems of PGI is that it is insensitive to transfers among the poor. If the second poorest in country B (with 120) gave 20 to the poorest, the PGI would not change (would be like in Country A). Another problem is that PGI do not capture differences in the severity of poverty amongst the poor and ignore “inequality among the poor”.

Measuring the Poverty Gap

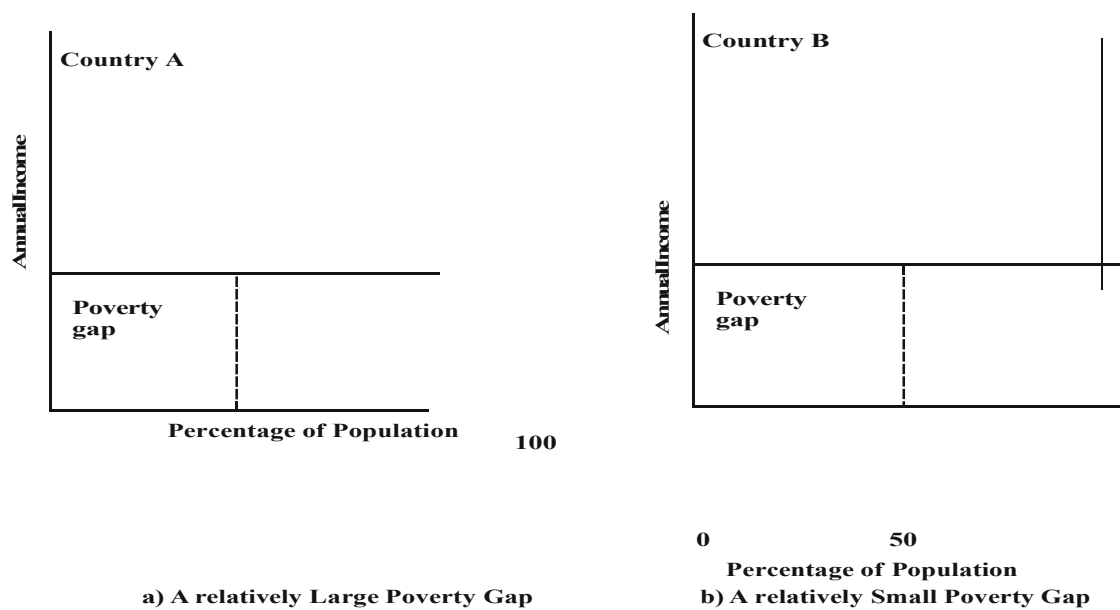


Figure 2.1 : Measuring the Poverty Gap

4. Other measures

a. Foster- Greer- Thorbecke Measure

The headcount index, the PG and PGI and the squared poverty gap index all belong to the Foster-Greer-Thorbecke class of measures.

Using similar notation:

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^N (Y_i - Y_p)^{\alpha}$$

Y_i is the y of poor person Y_p

is the poverty line

N = total population

It follows the principal of monotonously means that if you add y to someone below the poverty line all other Y held constant poverty can be no higher than it was.

5) Human Poverty Index

HDR, 1997 introduced a human poverty index is an attempt to bring together in a composite index the different features of deprivation in the quality of life to arrive at an aggregate judgment on the extent of poverty in a community. It includes many aspects like lack of freedom, inability to participate in decision making, lack of personal security, inability to participate in sustainability and intergenerational equity etc, which cannot be measured. However, given the fact that the issues of poverty in the development countries involve hunger, illiteracy, epidemics and the lack of health services or safe water, the HPI constructed by HDR focuses on the deprivation in the following three elements of human life longevity, knowledge and a decent standard of living.

1) Deprivation of a long and healthy life measured by the probability at birth of not surviving to age 40 (times 100).

2) The adult illiteracy rate.

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3) The deprivation index based on the average of two variables: the percentage of population without access to safe water and the percentage of underweight children under 5 years of age. The symbols used for above dimension are P_1 , P_2 and P_3 . The formula for the HPI is given by:

$$HPI = \left[\left(P_1^3 + P_2^3 + P_3^3 \right) \div 3 \right]^{1/3}$$

According to UNDP, Human development report 2004, at the start of the third millennium, over 1 billion people still lack access to safe water, nearly 1 billion are illiterate and a half a billion will die before the age 40.

The UNDP calculates, however, that the cost of eradicating poverty across the globe is relatively small compared with global income, and that political commitment, not financial resources is the real abstract to poverty eradication. Basic Social Services could be made calculable to all people in developing countries at the cost of 40 billion over 10 years. A further \$40 billion over 20 years could eradicate income poverty across the world. A cost of \$80 billion is less than 0.3 % of global world income of \$32,000 billion.

5) Multidimensional Poverty Index:

HPI reflected the aggregate deprivations in health, education and standard of living. However, it could not identify specific individuals, households or larger group of people as jointly deprived. To tackle this problem, HDR 2010 introduced a new measure Multi Dimensional Poverty Index (MPI) to replace HPI.

The MPI is the product of the multi dimensional poverty head count (the share of people who are multi dimensionally poor) and the average number of deprivations each multi dimensionally poor household experiences (the intensity of poverty). It has three separate dimensions consisting of 10 indicators each with equal weights within its dimension.

These are as follows:

1. Health: To measure health, the indicators used are nutrition level and child mortality rate.

2. Education: To measure education the indicators used are years of schooling and children enrolled.

3. Standard of Living: It is reflected through access to electricity, cooking fuel, and access to clean drinking water, access to adequate sanitation, floor and assets.

HDR 2010 estimates that about a third of the population in 104 countries, or almost 1.75 billion people, experience multidimensional poverty. More than half live in South Asia, though the rates are highest in Sub-Saharan Africa, with significant variations across States.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. How is absolute poverty different from relative poverty?

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Q2. What is the significance of the Head Count Ratio in measuring poverty?

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Q3. Explain the Income Gap Ratio and its limitations.

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Q4. What is the Human Poverty Index and what dimensions does it include?

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2.4 Poverty: Its Causes, Dimensions, and Policy Implications

Poverty is one of the most pressing challenges facing both developed and developing nations today. It affects billions of people globally, manifesting in various forms and dimensions. Traditionally, poverty was defined by income levels, but contemporary understanding has evolved to consider multiple factors that contribute to an individual's or community's lack of access to basic needs such as healthcare, education, food, and sanitation. This expanded view of poverty encompasses social, economic, and political dimensions, including health, education, gender inequality, urban-rural disparities, and the consequences of globalization.

Understanding the complexity of poverty requires a broad, multifaceted approach. This discussion will explore the various causes and dimensions of poverty, its impact on individuals and societies, and potential policy solutions to mitigate its effects.

Causes of Poverty

1. **Economic Factors:** At its core, poverty is often the result of insufficient economic opportunities. Countries with stagnant or declining economies, especially in the developing world, struggle to provide their citizens with the necessary resources to meet basic needs. Lack of access to employment opportunities, inadequate wages, and limited economic growth create conditions where individuals and families find themselves trapped in poverty.
2. **Educational Inequality:** Education is a key factor in breaking the cycle of poverty. Inadequate access to quality education perpetuates poverty by denying individuals the skills and knowledge needed to improve their economic prospects. Education inequality is particularly pronounced in rural and underdeveloped areas, where schools may lack basic resources or trained teachers. Without proper education, children grow up with limited job prospects, continuing the cycle of poverty in future generations.
3. **Health Inequality:** Health and poverty are intricately linked. Poor health not only exacerbates poverty but can also be a key cause of it. Individuals with poor health are less likely to engage in productive work, thus limiting their earning potential. Diseases such as malaria, tuberculosis, and HIV/AIDS disproportionately affect poor communities, reducing their ability to generate income and support their families. Additionally, access to healthcare services is often limited in poor regions, further entrenching poverty.
4. **Social and Political Factors:** Governance issues, corruption, and weak institutions can exacerbate poverty. Ineffective policies, lack of social safety nets, and political instability prevent the implementation of programs aimed at reducing poverty. Corruption, in particular, drains resources that could otherwise be used for poverty alleviation. Additionally, political exclusion, where certain groups (such as ethnic minorities or women) are denied equal access to opportunities, compounds social inequalities and perpetuates poverty.

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Dimensions of Poverty

Poverty is not a singular concept but a multi-dimensional issue that affects various aspects of human life. Understanding these dimensions is crucial to designing effective poverty reduction

strategies.

1. **Absolute vs. Relative Poverty:** Poverty can be understood in both absolute and relative terms. **Absolute poverty** refers to a condition where individuals cannot meet basic life necessities such as food, shelter, and clothing. It is often measured using a poverty line, such as the \$1.25 per day figure used by the World Bank. On the other hand, **relative poverty** refers to individuals whose standard of living is significantly lower than the average in their society. This form of poverty is often observed in wealthier countries where the issue is defined by societal expectations rather than mere survival.
2. **Health and Poverty:** Health is a central element in understanding poverty. Poor health not only increases vulnerability to diseases but also limits economic participation. For example, in many poor regions, individuals are more likely to experience chronic illnesses that diminish their ability to work, leading to a loss of income and a further slide into poverty. Access to basic healthcare services is essential for breaking the poverty cycle, but this is often lacking in impoverished areas.
3. **Education and Poverty:** Education is considered one of the most effective tools for lifting individuals out of poverty. However, the relationship between poverty and education is a vicious cycle. Children born into poverty often lack access to quality education, which limits their future job prospects. Without education, individuals are more likely to remain in low-wage jobs, unable to improve their economic standing. Education inequality is one of the most significant barriers to poverty alleviation, especially in developing countries.
4. **Gender and Poverty:** Poverty is experienced differently by men and women. Women in many regions face barriers to accessing education, healthcare, and economic opportunities due to cultural and social norms. Gender inequality is a major driver of poverty, particularly in rural and conservative areas where women are often excluded from the workforce or denied ownership of assets. Empowering women through education, economic opportunities, and legal reforms is essential for tackling poverty in a comprehensive way.
5. **Urban vs. Rural Poverty:** Poverty is often more acute in rural areas where access to services such as education, healthcare, and employment is limited. Urban poverty, on the other hand, is characterized by overcrowding, inadequate housing, and a lack of basic infrastructure. The growing urbanization of poverty presents challenges in terms

of service delivery and infrastructure development, as cities struggle to accommodate the increasing number of impoverished residents.

The Impact of Poverty

The effects of poverty extend far beyond economic deprivation, influencing virtually every aspect of an individual's life. These impacts can have long-lasting consequences on health, education, and social cohesion.

1. **Economic Impact:** Poverty reduces the economic capacity of individuals and communities, limiting access to opportunities for growth. People living in poverty often have limited access to financial services, such as savings accounts, loans, and insurance, which further limits their ability to invest in education, healthcare, or business ventures.
2. **Social Impact:** Poverty can contribute to social instability. It often breeds resentment and conflict, as marginalized groups may feel excluded from the benefits of society. In the worst cases, this can lead to civil unrest or social violence. The social stigma attached to poverty also leads to discrimination, further excluding poor individuals from opportunities for advancement.
3. **Psychological Impact:** Living in poverty can have profound psychological effects. Constant stress due to financial insecurity can lead to mental health issues such as depression and anxiety. This, in turn, can affect one's ability to work, interact socially, and care for family members, creating a vicious cycle of poverty and mental health challenges.

Policy Implications for Poverty Reduction

1. **Social Safety Nets:** Governments must create comprehensive social safety nets to protect the most vulnerable members of society. These could include unemployment benefits, child support, food assistance, and healthcare services. Effective safety nets ensure that individuals and families can meet their basic needs during times of economic hardship.
2. **Education Policies:** To break the cycle of poverty, education must be prioritized. Governments should invest in providing free, quality education at all levels, with

particular attention to rural areas and marginalized groups. Education policies should focus not only on access but also on the quality of education, ensuring that students are equipped with skills that will enable them to enter the workforce.

3. **Healthcare Access:** Universal access to healthcare is vital for reducing poverty. Health interventions that focus on preventative care, maternal and child health, and the treatment of chronic illnesses are essential for improving the well-being of poor populations. Expanding access to affordable healthcare can prevent individuals from falling deeper into poverty due to medical expenses.
4. **Gender Equity Programs:** Gender inequality must be addressed as a central part of poverty alleviation strategies. Policies should focus on empowering women, providing them with access to education, economic opportunities, and legal rights. Promoting gender equality benefits not only women but also the wider economy, as women play a key role in driving economic growth.
5. **Economic Growth and Employment:** Economic policies should focus on generating employment opportunities, particularly in sectors such as agriculture, manufacturing, and services. Job creation programs that target youth, women, and rural populations can help reduce poverty by providing sustainable income sources. Moreover, policies should support small and medium-sized enterprises (SMEs) as key drivers of employment and economic development.

Poverty is a multi-dimensional issue that requires a comprehensive approach for its eradication. By addressing the various causes of poverty, such as economic inequality, education, health, and gender disparities, and by implementing effective policies, nations can make significant strides toward reducing poverty. The challenge lies in ensuring that economic growth is inclusive, benefits all segments of society, and translates into tangible improvements in the lives of the impoverished. As the global community continues to work toward poverty reduction, it is essential that poverty is understood not only as a lack of income but also as a complex interplay of various social, economic, and political factors.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

1. What are the key economic, social, and political causes of poverty, and how do they interact to perpetuate poverty in developing countries?
2. Explain the differences between absolute and relative poverty. How do these concepts affect the way poverty is measured and addressed in various regions?
3. Discuss the impact of education and healthcare on poverty reduction. What role do these sectors play in breaking the cycle of poverty, particularly in rural areas?
4. How does gender inequality contribute to poverty? Explore the ways in which empowering women can help reduce poverty and improve overall economic development.
5. What role do government interventions, such as social safety nets and poverty alleviation programs, play in reducing poverty? How can policies be designed to ensure that economic growth leads to inclusive development?

2.5 Let Us Sum Up

- **Poverty and Inequality:** Poverty and inequality are the key economic issues in developing countries, often worsened by high economic growth rates that fail to distribute wealth equally.
- **Growth and Poverty:** While economic growth is essential, it alone cannot eliminate poverty or inequality. Distribution of wealth and income is equally crucial.
- **Government Intervention:** Due to the persistent challenges of poverty and inequality, government intervention is necessary to reduce poverty and ensure equitable economic development.
- **Economic Growth vs. Poverty Reduction:** Past experiences have shown that rapid economic growth does not automatically lead to poverty reduction, requiring targeted policies to address these issues.
- **Poverty as a Multi-dimensional Issue:** ⁴⁸ Poverty is not just about low income. It involves various aspects like lack of access to education, healthcare, and other essential services.
- **Global Focus on Poverty Reduction:** International organizations, particularly the World Bank, are increasingly focusing on poverty reduction as a primary goal for development.

- **Need for Comprehensive Measures:** A comprehensive approach to poverty reduction includes measuring poverty accurately and addressing the root causes, such as education and health deficiencies.
- **Role of Economic Policies:** Effective economic policies must focus on both growth and poverty alleviation, ensuring that wealth distribution reaches all sectors of society, especially the marginalized.

2.6 Glossary

- **Absolute Poverty:** A condition where individuals lack the basic resources to maintain a minimum standard of living, defined by fixed criteria such as income or calorie intake (e.g., \$1.25/day).
- **Relative Poverty:** Poverty defined in relation to the average living standards in a society. It highlights inequality, where individuals have significantly less than others in their community.
- **Poverty Gap Index (PGI):** An index that measures the intensity of poverty by calculating the shortfall of income from the poverty line for individuals below it. It accounts for both the number and depth of poverty.
- **Gini Coefficient:** A measure of income inequality, ranging from 0 (perfect equality) to 1 (perfect inequality), often used to quantify the distribution of income within a population.
- **Lorenz Curve:** A graphical representation of income distribution. The more the curve deviates from the line of equality, the greater the income inequality.
- **Human Poverty Index (HPI):** A composite index developed by UNDP to measure poverty based on three dimensions: life expectancy, education (adult illiteracy rate), and standard of living (access to basic services).
- **Headcount Ratio (H):** The proportion of the population living below the poverty line. It provides a simple measure of how many people are considered poor but doesn't capture the severity of their poverty.
- **Multidimensional Poverty Index (MPI):** ⁴⁹ A measure that considers deprivations in health, education, and standard of living, providing a broader view of poverty beyond income levels. It includes indicators like nutrition, child mortality, and access to services.

2.7 References/ Additional Readings

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3. Misra and Puri (2011), *Indian Economy*, Himalaya Publishing House, New Delhi.
4. Ray, Debraj (2012), *Development Economics*, Oxford India.
5. Thirlwall A.P. (2006), *Growth and Development*, Palgrave, New York.
6. Todaro, M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.

2.8 Hints to Check your Progress (CYP)

CYP-I

- Q1. See sub-section 2.3.1
- Q2. See sub-section 2.3.2
- Q3. See sub-section 2.3.2
- Q4. See sub-section 2.3.2

CYP-II

- Q1 - See sub-section 2.4
- Q2 - See sub-section 2.4
- Q3 - See sub-section 2.4
- Q4 - See sub-section 2.4
- Q5 - See sub-section 2.4

2.9 Examination oriented questions

1. Define the concept of absolute poverty and relative poverty.
2. Explain the different measures of inequality.
3. Write a short note on measurement of poverty by headcount method and income gap method. Also explain their demerits.
4. Define poverty Gap.

Inequality: Concept and its Measurement

STRUCTURE

3.0 Objectives

3.1 Learning Outcomes

3.2 Introduction

3.3 Inequality: Concept and Measurement

3.3.1 Concept of Inequality

3.3.2 Principles for measuring Inequality

3.3.3 Measurement of Inequality

3.3.4 Effects of Inequality

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3.6 Let's sum up

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3.8 Suggested Readings

3.9 Hints to check your progress (CYP)

3.10 Exam Oriented Questions

3.0 Objectives

By the end of this lesson, you will be able:

- To define inequality in its various forms, including economic, social, and political dimensions.
- To explore the disparities in income distribution both within countries and globally.
- To examine the underlying causes of inequality, such as structural, economic, and social factors.
- To investigate the different methods for measuring inequality, including the Gini coefficient and Lorenz curve.
- To analyze the effects of inequality on economic growth, social stability, and human development.
- To understand the role of policies, such as redistributive measures and labor market reforms, in addressing inequality.
- To assess theoretical perspectives on inequality, including Kuznets' hypothesis and modern interpretations of its impact on growth.

3.1 Learning Outcomes

- Understanding the concept and different dimensions of inequality.
- Gaining insights into the relationship between inequality and economic development.
- Acquiring knowledge of tools for measuring inequality, such as the Gini coefficient and Lorenz curve.
- Developing a critical understanding of the causes and consequences of inequality at both national and global levels.
- Analyzing how inequality influences human capital development, political stability, and economic growth.

- Gaining an understanding of the effectiveness of various policies aimed at reducing inequality.
- Evaluating key theoretical frameworks on inequality, including those proposed by Kuznets and Piketty.

3.2 Introduction

Inequality is a multifaceted concept that has long been a focal point in economic development discussions. At its core, inequality refers to the disparity in access to resources, opportunities, and outcomes among individuals or groups within a society. This inequality manifests in various forms, including economic, social, and political dimensions, each influencing and exacerbating one another. Over time, scholars have explored the effects of inequality not only within countries but also on a global scale, shedding light on its intricate relationship with economic growth, social stability, and individual well-being.

Economic inequality is perhaps the most widely recognized, reflecting the unequal distribution of income and wealth. Within-country inequality describes the gap between the richest and poorest individuals within a nation, while global inequality looks at the disparities between nations themselves. The unequal distribution of resources is not merely a statistical anomaly; it influences access to education, healthcare, and employment, thereby perpetuating a cycle of disadvantage for many. Social inequalities, such as those based on race, gender, or class, further deepen these economic divides, creating systemic barriers to upward mobility.

The study of inequality has evolved, with economists like Simon Kuznets offering theories that highlight the relationship between income distribution and economic growth. His **inverted-U hypothesis** suggests that inequality tends to rise in the early stages of development but declines as economies mature. Despite this, the persistent issue of inequality continues to challenge policymakers and development economists, prompting calls for redistributive policies and reforms aimed at fostering a more equitable society. As global inequality reaches unprecedented levels, understanding its causes and consequences

has never been more critical, offering vital insights into the broader dynamics of human development and social justice.

3.3 Inequality: Concept and Measurement

3.3.1 Concept of Inequality

In simple words, inequality is the fundamental disparity that permits one individual certain material choices, while denying another individual those very same choices. Loungani in his research paper has described the different concepts of inequality. The famous slogan “the rich are getting richer and poorer are getting poorer” is cross-country inequality which explains inequality of average incomes. In other words, it describes that average incomes of the advanced nations have continued to rise, while average incomes at the other end of the income distribution, particularly in countries like Sub-Saharan have stagnated or fallen. Another concept of inequality is within-country inequality which simply explains the difference between rich and the poor within a country. The third concept is global inequality which focuses on inequality of incomes between persons rather than between countries.

3.3.2 Principles of Inequality Measurement

If there is a great deal of disparity in the incomes of people in a society, the signs of such economic inequality are often quite visible. It is easy to measure the inequality of the society comprises of just two individuals. But if we try to measure inequality between more than two individuals, then it is quite difficult.

A good measure of inequality should possess the following four criteria:

- 1 Anonymity Principle:** Simply means that it does not matter who is earning the income. A situation where Ram earns x and Govind earns y should be viewed as identical to one in which Ram earns y and Govind earns x . Thus, permutations of incomes among people should not matter for inequality judgment: this is the principle of inequality. Formally this means that we can always arrange our income distribution so that

$$y \leq y_1 \leq y_2 \leq \dots \leq y_n$$

which is the equivalent of arranging individuals so that they are ranked from poorest to richest.

2. **Population Principle:** It states that the measure of inequality should not be based on the number of income recipients. It is a way of saying that population size does not matter all that matters are the proportions of the population that earn different levels of income.
3. **Scale Independence Principle:** It simply means that our measure of inequality should not depend on whether we measure income in dollars or in cents or in rupees or for that matter, on whether the economy is rich on average or poor on average.
4. **The Dalton Principle:** It states that holding all other incomes constant if we transfer some income from a richer person to a poorer person (but not so much that the poorer person is now richer than the originally rich person), the resulting new income distribution is more equal.

3.3.3 Measurement of Inequality

There are two principal ways usually used to measure income distribution: the personal or size distribution of income and the functional or factor share distribution. One of the most common measures usually used by economists is the personal or size distribution of income. It deals with households and how much the income they receive irrespective of whether the income was earned through wages or from profits, rents, interest. It also ignores whether the income was earned from agriculture, manufacturing or services. According to Todaro, economists and statisticians therefore like to arrange all individuals by ascending personal income and then divide the total population into distinct groups or sizes. As against this functional or factor share distribution captures the share of different factors of production such as labour, capital, land and so on in national income. Instead of looking at individuals or households it attempts to explain the percentage of income received by labour and compares it with percentage of total income distributed in the form of rent, interest and profit. However, this measure has lost its

relevance as it fails to take into account the influence of market forces indetermination of factor prices.

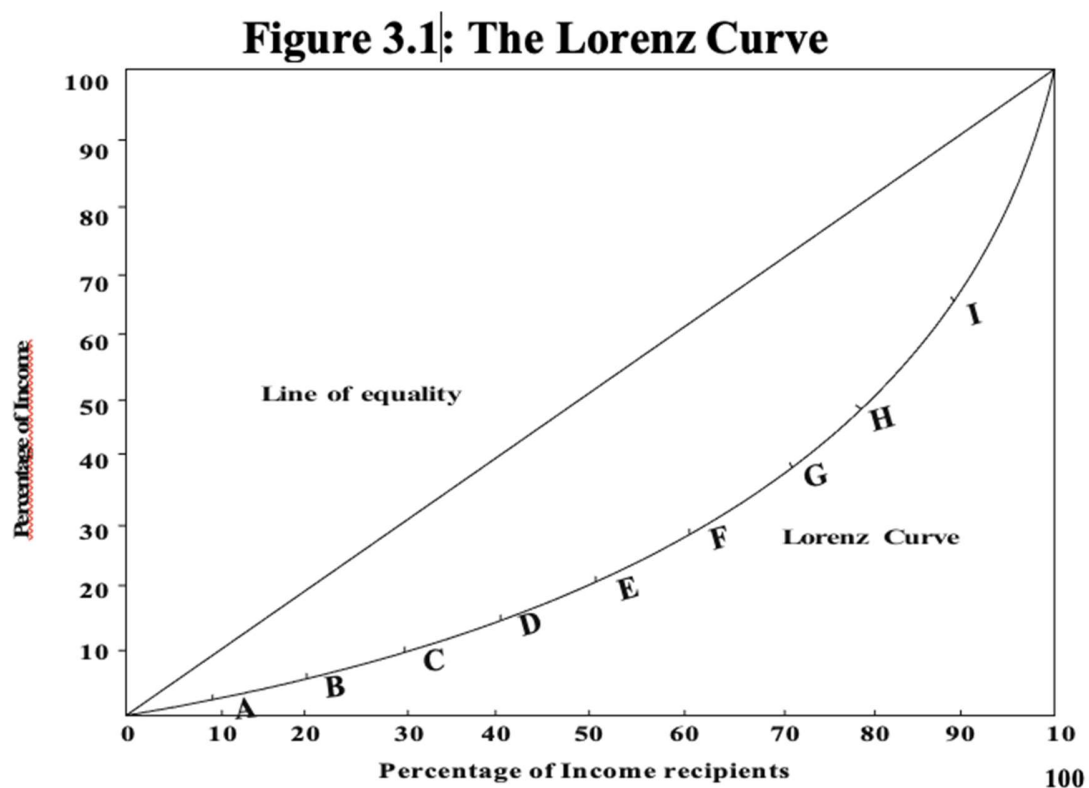
Following are the different ways through inequality can be measured on the basis of size distribution. Some of the most popular measures are:

1. The Lorenz Curve:

The Lorenz curve is the graphical representation of distribution of income in any society. As shown in figure below the number of income recipients are plotted on the horizontal axis, not on absolute terms but in cumulative percentages arranged in increasing order of income. In the figure 2.2 below for example shows that point 20 we have the poorest 20% of the population at point 60 we have the bottom 60% and at the end of the axis all 100% of the population has been accounted for on the vertical axis, we measure the percentage of national income accruing to any particular fraction of the population thus arranged. It is also cumulative upto 100%, meaning that both axes are equally long. The entire figure is enclosed in a square and a 45° diagonal line is drawn from the lower left corner i.e. the origin of the square to the upper right corner. At every point on the diagonal the percentage of income received is exactly equal to the percentage of income recipients. If everybody had the same income, Lorenz curve would coincide everywhere with the 45° line, that is, with the diagonal of the box. The poorest 10% would then have the same 10% line. With increasing inequality, Lorenz curve starts to fall below the diagonal in a loop that is always bowed out to the right of the diagram. Thus the

diagonal line i.e. 45° line shows perfect equality in size distribution of income. The more the Lorenz curve away from the diagonal, the greater is the inequality.

In figure 3.1, we have plotted the Lorenz curve. Both the horizontal and vertical axes are divided into 10 equal segments. The bottom 10% of the population is receiving only 1.8% of the total income. Point B shows that the bottom 20% is receiving 5% of the total income, and so on. Since no country exhibits either perfect equality or perfect inequality in its distribution of income, the Lorenz curve for different countries shall be somewhere to the right of the diagonal as shown in figure.



Gini Coefficients:

Named after the Italian statistician who first formulated it in 1912, Gini coefficients are aggregate inequality measures. It is the short hand summary measure of the relative degree of income inequality in a country and can be 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. As shown in figure 2.3.

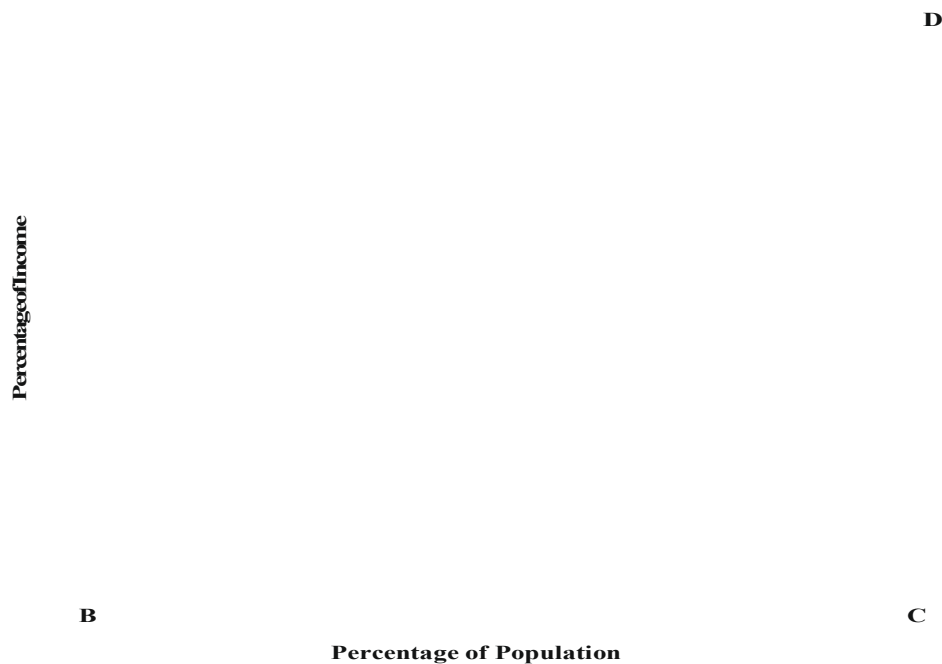


Figure 3.2 : Estimating Gini Coefficient

In figure 2.3, this is the ratio of the shaded area A to total area of the triangle BCD. The values of Gini Coefficient lie between 0 and 1, 0 is the state of perfect equality and 1 is a state of perfect inequality. According to Todaro, Gini coefficient for countries with unequal income distribution lies between 0.50 and 0.70, while countries with relatively equitable distribution, it lies between 0.20 to 0.35. Gini coefficient is among the class of measures that satisfy four principal criteria's for measuring income inequality.

1. The Range:

Range is the value given by the differences in the incomes of the richest and the poorest individual divided by the mean to express it independently of the units in which income is measure. Thus,

$$R = \frac{1}{\mu} (y_m - y_1)$$

Where, μ is the mean y $y_m - y_1$ is difference in the incomes of the richest and poorest

individuals. One of the draw backs of this measure is that it fails to satisfy the Dalton Principle.

2. The Kuznet Ratios:

Kuznet ratios are given by Simon Kuznet in his pioneering work on income distribution in developed and developing countries. It is the ratio of the incomes received by the top 20% and bottom 40% of the population. The ratios are essentially the prices of the Lorenz curve and serve as a useful shorthand in situations where detailed income distribution data is missing.

3. Coefficient of Variation:

Coefficient of variation is the most common measure of dispersion which is simply sample standard deviation divided by sample mean. It is the measure of inequality that satisfies all the four criteria and so it is Lorenz consistent.

$$C = \frac{s}{\bar{y}}$$

The coefficient of variation is also used to measure convergence of income convergence of other development indicators life expectancy and literacy.

3.3.4 Effect of Inequality

Before 1950s, the analysis of the development problems was entirely focused on industrialization and growth and has overlooked the study of distribution of income. It was in 1955 when Kuznet examined how economic development affects income distribution on the long run. Popularly known as Kuznets inverted U- hypothesis, income inequality tends to increase in the early stages of economic development and decrease in the later stage.

Gini coefficient

Figure 3.3 : The inverted -U Kuznet Curve

As illustrated in figure 2.4, inverted- U Kuznet curve is a longitudinal plot of changes in the distribution of income as measured by Gini coefficient seemed, when per capita GNP expanded, to trace out an inverted U- shaped curve in some of the cases Kuznet has studied. The explanation as to why inequality worsens during the early stages of economic growth can be attributed to nature of structural change.

However after 1990s it was realized by few economists that distribution is an important dimension of the development. The central problem is not any more in considering the degree of income inequality as the result of economic development but mainly focus on the role of distribution of income and wealth in the process of economic growth i.e. how inequality can effect economic growth. Our present section shall focus on this issue.

1. Inequality and Saving and Growth

As mentioned in Ray (2012), in an extremely poor country, due to high inequality, redistributive policies may bring down the rate of saving and therefore the rate of growth. Without redistributive policies, there is a section of population which saves i.e. they have the desire and means to accumulate wealth. However, for the medium income countries, the picture is entirely different. Redistributive policies may generate a surge of savings at the national level, because they create a large ambitious middle class with international aspirations. A redistributive policy here raises the average savings, because the relatively low saving rates of the poor (who can't afford to save) and the rich (who don't need to save) are transformed into the high savings of those with aspirations.

2. Inequality, Political Redistribution and Growth

High inequality might retard economic growth by setting up political demand for redistribution. This redistribution can be of two types. The first policy could be land reforms. If land is held very unequally, the government may have the option to simply take the land from large land owners through ceiling of land holding and distribute it among small and landless workers. But for full implementation of such policies requires extra political will. And since these elected government officials with large land holdings are common in developing countries, the enactment of a policy is very difficult. With this difficulty, most governments resort to redistribution policies with a different route. That is they increase tax on increments to stock of wealth rather than the existing wealth base. Thus, marginal rates of tax on high income tend to be on the high side, there are excise duties and sales taxes on the purchase of various commodities and business and corporate profits are also taxed. These taxes altogether tend to bring down the rate of saving and investments and therefore retard economic growth.

3. Inequality and demand composition

Level of consumption and even the pattern of consumption in an economy depends not only on the income but also on the distribution of income in an economy. With the increase in income not only consumption increases but there is also a shift in the pattern or composition of consumption. Evidence suggests that as income increases, the share of food items in consumption tends to fall.

As income rises, a new range of consumption items forms the part of the budget (like purchase of durable goods, jewelry) and it tends to increase with an increase in income. There are different products that are demanded by consumers must be produced and supplied. In general, these

products set up derived demands for factors of production and so influence the division of payments into wages, return on capital equipments, rents on properties and so on. With a high degree of inequality, the economy shall demand more of luxury goods. If their luxury goods are produced from capital intensive techniques this would lead towards more returns to capital and thereby maintain or further increase inequality.

4. Inequality, Capital Markets and Development

In unequal societies, the poor often lack access to credit markets because they lack collateral to comfort lenders. Since credit is a pre-requisite to start a small business, educate oneself or one's children to buy inputs. Thus one can say that these poor find it difficult to borrow even if they have the potential to carry on the business. So incentive to work is affected and they remain in the state of poverty and again one can say inequality begets inequality.

5. Inequality and Human Capital

Inequality has a built-in capacity to beget inefficiency. It does not permit people at the lower end of the wealth or income to fully exploit their potentialities. More inequality implies more is the inability of a section of population to become entrepreneurs, even though he has the potential and willingness to become. Low level of wealth becomes an obstacle even to have better educational choices. Even bank does not provide loans, since population at lower end faces the problem of collateral to get loan. In addition to that inequality also prevents the buildup of adequate nutrition which results into low productivity and further low income and low human capital formation of low-income group people.

6. Inequality Begets Inequality

Another effect of inequality is that it captures an intrinsic tendency for inequality to beget itself. In the society where inequality is high, majority of individuals are shut out from access to credit, so that the labour market is flooded with high labour supply and low demand for labour. This results into reinforcing the inequalities. Those who are at the lower end are unable to acquire wealth, while rich entrepreneurs make high profit of the fact labour is cheap. Thus, high inequality not only give rise to inefficient outcomes. It tends to beget inequality.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What are the main principles for measuring inequality?

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Q2. How is the Gini Coefficient derived and what does it indicate?

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Q3. What does the Kuznet Ratio measure in the context of income inequality?

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Q4. Discuss how inequality affects the development of human capital in a country.

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3.4 Causes of Inequality

Inequality in society is not simply a result of random fluctuations or individual choices; it is a product of a complex interplay of structural, economic, and social factors. These factors influence the distribution of wealth, income, and opportunities within a society, contributing to disparities in access to resources and life outcomes. In this section, we will explore three primary causes of inequality: **structural factors**, **economic policies**, and **social factors**.

3.4.1 Structural Factors

Structural factors refer to the inherent features of the economic and social systems that shape inequality in a society. These factors are deeply embedded in the functioning of the economy, the labor market, education systems, and broader societal institutions. Inequality arising from structural factors is often systemic, and its effects can be long-lasting and self-perpetuating.

1. Economic Structure and Industrialization

One of the most significant structural factors contributing to inequality is the economic structure of a country. The shift from an agrarian economy to an industrial one is typically accompanied by changes in the distribution of wealth and income. In an industrial economy, there tends to be a concentration of wealth in the hands of those who own the means of production, particularly capital-intensive industries. This concentration of wealth exacerbates income inequality, as those without capital or access to high-paying industrial jobs are left behind. The gap between skilled and unskilled workers grows, leading to greater wage disparities.

As countries industrialize, the division of labor also evolves. Certain sectors, such as technology, finance, and manufacturing, tend to offer higher wages, while others, such as agriculture or low-skill services, remain low-paying. This bifurcation of the economy deepens inequalities, as those employed in high-wage sectors accumulate wealth, while those in low-wage sectors remain stagnant.

2. Technological Change

Technological change, while often a driver of productivity and economic growth, also plays a critical role in exacerbating inequality. Automation and advances in technology have displaced many low-skill jobs while increasing the demand for high-skill workers. This creates a widening gap in income between those who have the education and skills to thrive in a technology-driven economy and those who do not.

The digital divide is another example of how structural factors shape inequality. Access to digital technologies and the internet has become a crucial factor in determining educational and employment opportunities. In societies where access to technology is uneven, individuals and communities without access face greater barriers to social mobility, perpetuating cycles of poverty and inequality.

3. Labor Market Segmentation

The segmentation of the labor market is another important structural factor contributing to inequality. In many economies, the labor market is divided into two distinct segments: a primary sector, which consists of well-paying, stable, and secure jobs, and a secondary sector, which is characterized by low wages, job insecurity, and poor working conditions.

This segmentation often correlates with other forms of social inequality, such as gender, race, and ethnicity. For example, women and minorities are disproportionately represented in the secondary labor market, where they are subject to lower wages and limited opportunities for advancement. As a result, labor market segmentation reinforces social inequalities and limits upward mobility for large segments of the population.

4. Access to Education and Skills Development

The structure of the education system is another critical factor that shapes inequality. Education is a key determinant of social and economic outcomes, and unequal access to quality education often leads to unequal life opportunities. In many societies, educational opportunities are closely linked to socioeconomic status. Children from wealthier families typically attend better-funded schools, have access to private tutoring, and benefit from extracurricular activities that enhance their educational experience. In contrast, children from lower-income families often attend underfunded schools with fewer resources, limiting their academic performance and future prospects.

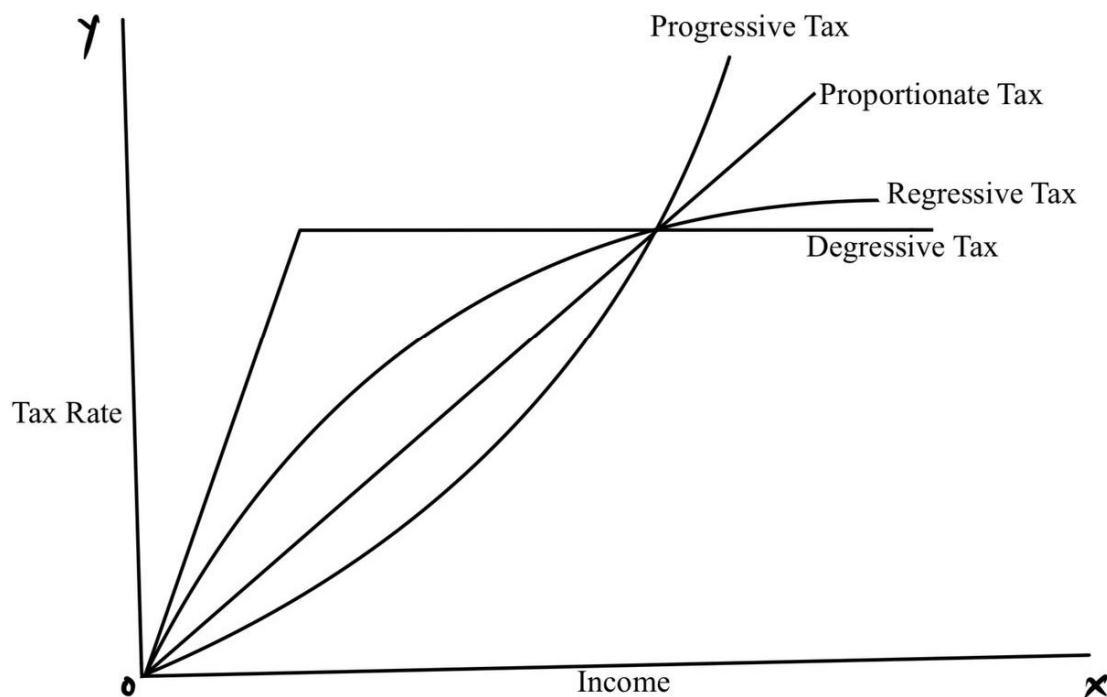
Inadequate access to education, particularly higher education and vocational training, limits individuals' ability to participate in the labor market and contribute to the economy. As the demand for skilled workers increases, those without access to quality education become increasingly marginalized. This creates a cycle of inequality, where individuals born into disadvantaged backgrounds are often unable to break free from the constraints of poverty.

3.4.2 Economic Policies

Economic policies, particularly those related to taxation, welfare, and labor markets, play a decisive role in shaping the distribution of wealth and income in a society. These policies either exacerbate or mitigate existing inequalities,⁶⁵ depending on how they are designed and implemented.

1. Taxation Policies

Taxation is one of the most direct ways in which governments can influence income distribution. Progressive tax systems, where the wealthy pay a larger percentage of their income in taxes, are



designed to reduce inequality by redistributing wealth from the rich to the poor. However, in many countries, regressive tax systems—where the poor pay a higher proportion of their income in taxes—can exacerbate inequality.

The structure of taxation, including the rates on personal income, corporate income, and capital gains, directly affects the level of income inequality. For instance, in economies where taxes on capital income are lower than taxes on labor income, wealth accumulation tends to be more concentrated in the hands of the wealthy, exacerbating income inequality. Conversely, progressive taxation systems that tax wealth and capital more heavily tend to reduce disparities.

This diagram illustrates four types of taxation systems, each representing how tax rates vary with income:

1. **Progressive Tax:** In this system, the tax rate increases as income rises. It is depicted by the curve that slopes upwards. Progressive taxation ensures that higher-income individuals contribute a larger percentage of their income to taxes. This type of tax system is designed to reduce income inequality by taxing the wealthy at higher rates.
2. **Proportionate Tax:** Also known as a flat tax, this system imposes the same tax rate on all income levels. The tax rate remains constant, regardless of the income. The line for this system is a straight, upward-sloping line, indicating that everyone pays the same percentage of their income.

3. **Regressive Tax:** In a regressive tax system, the tax rate decreases as income increases. This means that higher-income individuals pay a lower percentage of their income in taxes. The regressive tax curve slopes downward, illustrating how the tax burden becomes heavier for low-income earners, which tends to widen income inequality.
4. **Degressive Tax:** This system starts at a higher rate for lower incomes, then decreases at higher income levels, creating a U-shape curve. The tax rate declines as income increases, but it doesn't decrease as sharply as in the regressive tax system. It represents a middle ground between progressive and regressive taxation.

Each of these tax systems has different implications for income distribution and economic equity. Progressive taxes aim for fairness by reducing the gap between rich and poor, while regressive taxes can exacerbate inequality by shifting the tax burden onto the less wealthy.

2. Welfare and Social Safety Nets

Welfare programs, social safety nets, and public services such as healthcare, unemployment benefits, and housing assistance are vital tools for reducing inequality. These programs help lift individuals and families out of poverty, providing a basic standard of living for those who are economically disadvantaged. In countries with comprehensive welfare systems, income inequality tends to be lower, as these policies act as redistributive mechanisms.

However, in many developing countries or nations with limited welfare systems, the absence of such policies leaves the most vulnerable populations without support, deepening economic divides. Moreover, welfare policies that are poorly targeted or inadequately funded can fail to reach those who need assistance the most, reinforcing inequality rather than alleviating it.

3. Labor Market Policies

Labor market policies, including minimum wage laws, union rights, and labor protections, are crucial determinants of income distribution. In countries with strong labor protections and minimum wage laws, workers tend to earn a fairer wage, reducing the income gap between the richest and poorest. However, in countries with weak labor protections or where the minimum wage is set too low, the working poor are often left behind, contributing to income inequality.

Additionally, policies that promote full employment and support for job creation are vital in reducing inequality. Economic policies that foster job creation, particularly in sectors that provide stable and well-paying jobs, can reduce the income gap by providing opportunities for upward mobility.

4. Trade and Globalization

Trade policies, particularly those that promote or restrict international trade, have profound effects on income inequality. Globalization, driven by free trade agreements and the opening of international markets, has led to economic growth in many countries. However, the benefits of globalization have not been evenly distributed. While some sectors and countries have benefited immensely from trade, others have seen their industries collapse due to competition from low-wage countries.

In developed economies, globalization often leads to a decline in manufacturing jobs, which were traditionally a source of middle-class employment. This shift to service-based economies has created a divide between high-skill, high-wage workers and low-skill, low-wage workers, exacerbating income inequality.

5. Privatization and Deregulation

Privatization and deregulation policies, particularly those that affect key industries such as energy, healthcare, and finance, can have a significant impact on inequality. In many cases, privatization of public goods and services leads to increased prices for consumers, disproportionately affecting the poor. Deregulation can also reduce protections for workers, increasing job insecurity and wage disparity.

In economies where privatization and deregulation policies have been aggressively pursued, the wealth generated by privatized industries often flows to a small number of corporate elites, further concentrating wealth and exacerbating inequality.

3.4.3 Social Factors

Social factors, including race, gender, ethnicity, and family background, play a fundamental role in shaping the distribution of wealth and income in society. These factors are often deeply entrenched in social norms, institutional practices, and cultural values, leading to systemic inequalities.

1. Discrimination and Social Exclusion

Discrimination based on race, gender, ethnicity, and other social categories is a key driver of inequality. In many societies, certain groups face barriers to education, employment, and political participation due to discriminatory practices. For example, women, racial minorities, and ethnic groups are often excluded from high-paying jobs, political power, and other resources, perpetuating cycles of poverty and inequality.

The systemic exclusion of these groups from key opportunities leads to unequal access to education, healthcare, and wealth accumulation. This entrenched discrimination limits the ability of disadvantaged groups to improve their social and economic standing, reinforcing inequality across generations.

2. Gender Inequality

Gender inequality is one of the most pervasive forms of social inequality. In many societies, women face barriers to full participation in the labor market, education, and political life. The gender pay gap, limited access to leadership roles, and discrimination in hiring and promotion are just a few examples of how gender inequality contributes to overall societal inequality.

Furthermore, women are more likely to be employed in low-wage, informal, or part-time work, which exacerbates income inequality. Cultural norms that assign women primary responsibility for unpaid domestic labor also limit their economic independence and opportunities for upward mobility.

3. Intergenerational Inequality

Intergenerational inequality refers to the way in which the economic status of one generation affects the opportunities available to future generations. In societies where wealth is concentrated in the hands of a few, children born into wealthy families tend to have access to better education, healthcare, and job opportunities, while children born into poor families are often trapped in a cycle of poverty.

This form of inequality is reinforced by the inheritance of wealth, which allows the rich to maintain their advantage over multiple generations. The lack of social mobility in such systems perpetuates inequality across generations, making it difficult for individuals from disadvantaged backgrounds to escape poverty.

4. Education and Social Capital

Education is one of the most powerful tools for breaking the cycle of poverty. However, unequal access to education, particularly higher education, contributes to social inequality. Children from low-income families often attend underfunded schools with fewer resources and lower-quality education. This limits their ability to access higher education and good-paying jobs in the future.

Moreover, social capital—the networks, relationships, and trust within a community—also plays a role in perpetuating inequality. Those with greater social capital are better able to access job opportunities, political influence, and resources, while those without such networks remain marginalized.

The causes of inequality are multifaceted and deeply entrenched in the structure of society. Structural factors such as economic structure, technological change, and labor market segmentation shape the distribution of wealth and income. Economic policies, including taxation, welfare, and labor market regulations, influence the level of inequality, either exacerbating or mitigating disparities. Social factors, including discrimination, gender inequality, and intergenerational wealth transfer, further perpetuate inequality by limiting access to resources and opportunities for large segments of the population. Understanding these causes is crucial for designing effective policies that address inequality and promote a more equitable society.

3.5 Theoretical Perspectives on Inequality

Theoretical perspectives on inequality offer frameworks that attempt to explain the causes, consequences, and implications of income and wealth disparities within societies. These perspectives are shaped by various economic, social, and political theories that explore the dynamics of inequality. They attempt to contextualize inequality within larger historical, political, and economic systems and offer insights into how and why inequalities emerge, persist, and influence human development. Some of the most prominent theoretical perspectives on inequality include classical and modern economic theories, sociological theories, and historical and developmental theories. In this section, we will explore these theories in detail, emphasizing how they contribute to our understanding of inequality and its impact on society.

1. Classical Economic Theories

Classical economics laid the foundation for understanding inequality in terms of distribution and market forces. Economists such as Adam Smith, David Ricardo, and Karl Marx offered differing perspectives on the causes of inequality, each influenced by the political economy of their time.

1.1 Adam Smith and the Invisible Hand

In his seminal work *The Wealth of Nations* (1776), Adam Smith introduced the idea of the **invisible hand**, which suggested that individuals pursuing their self-interest in a competitive marketplace would unintentionally promote the public good. According to Smith, inequalities could emerge in a free-market economy, but they were seen as a natural result of differing abilities, talents, and efforts. Smith believed that market mechanisms would, over time, correct these inequalities as wealth trickled down to all sectors of society.

Smith's theory of inequality is based on the notion that individuals, acting in their own self-

interest, are motivated to maximize their income through innovation and competition. The disparities between the wealthy and the poor would, in theory, balance out due to the productive benefits of the market system, which would ultimately increase prosperity for all, including the lower classes. However, Smith did not completely dismiss the potential harms of inequality, acknowledging that extreme disparities could destabilize society.

1.2 David Ricardo and Comparative Advantage

David Ricardo's theory of comparative advantage, formulated in the early 19th century, emphasizes the benefits of specialization and free trade. In Ricardo's view, international inequality arises from differences in productivity between nations. He argued that nations should specialize in producing goods where they had a comparative advantage, as this would lead to more efficient use of resources, greater wealth, and higher standards of living for all.

However, the implications of Ricardo's theory for income inequality are somewhat mixed. While international trade may increase the wealth of all nations involved, the distribution of these benefits may not be even. Inequality may arise within countries because some industries and individuals benefit more from trade than others, particularly those in capital-intensive industries or high-skilled labor markets. Ricardo's theory, therefore, explains how inequality between nations might be reduced through trade, but it also highlights how domestic inequality can be exacerbated.

1.3 Karl Marx and the Theory of Exploitation

Karl Marx, in his *Das Kapital* (1867), offered a radically different view of inequality compared to Adam Smith and David Ricardo. Marx argued that inequality was an inherent and unavoidable result of capitalist systems. According to Marx, capitalism functions through the exploitation of labor, where workers (the proletariat) are paid less than the value of what they produce, while capitalists (the bourgeoisie) accumulate wealth by extracting surplus value from labor. This exploitation, Marx argued, leads to a concentration of wealth and power in the hands of the few, while the majority remain impoverished and disenfranchised.

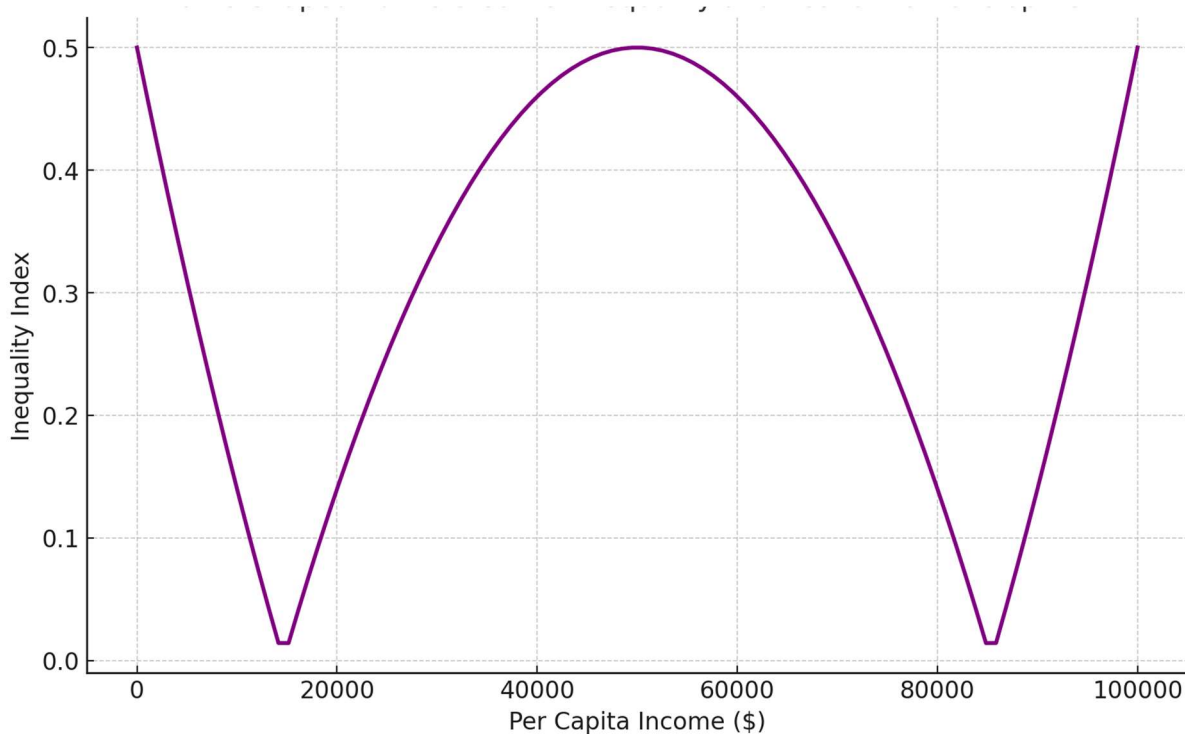
Marx's theory of inequality is rooted in the notion of class struggle. He viewed inequality as structural and systemic, arguing that capitalism⁷¹ inherently produces unequal outcomes due to the unequal relationship between labor and capital. Unlike Smith, who saw inequality as a natural consequence of market forces, Marx believed that inequality was exploitative and unjust. He contended that only through the overthrow of capitalism and the establishment of socialism could inequality be eliminated, as wealth would then be distributed according to need rather than ownership of the means of production.

2. Modern Economic Theories

The modern era has introduced new perspectives on inequality, especially as economies have evolved from agrarian to industrial to post-industrial societies. Modern economists have attempted to incorporate the dynamics of globalization, technological change, and education into their understanding of inequality.

2.1 The Kuznets Curve

The Kuznets Curve is one of the most well-known theories of inequality in economic development. Simon Kuznets, a Nobel Prize-winning economist, proposed that inequality first increases and then decreases as a country develops economically. In the 1950s and 1960s, Kuznets used data from industrializing countries to argue that inequality follows an inverted U-shape trajectory over time. In the early stages of industrialization, inequality tends to increase as



economies shift from agriculture to industry, but as economic growth continues and more people benefit from education, healthcare, and social mobility, inequality decreases.

The **Kuznets Curve** reflects the view that inequality is a natural consequence of economic development. In the early stages of growth, urbanization and industrialization create a divide between those who are employed in modern industries and those in traditional agricultural sectors. As industrialization matures and more of the population benefits from education and economic expansion, inequality narrows, leading to a more equitable distribution of income. However, critics of Kuznets argue that his theory is overly simplistic and does not take into account the role

of social and political factors in determining inequality, such as labor rights, taxation, and welfare policies.

The diagram above illustrates the U-shaped Kuznets Curve, a key concept in development economics that describes the relationship between economic growth and income inequality over time. The curve shows how inequality behaves as an economy develops, reflecting the dynamic process of industrialization and social change.

Understanding the Curve

- **Initial Increase in Inequality:** The curve begins at the bottom left, where income levels are low. As an economy starts to industrialize and grow, the early phases of development often lead to an increase in inequality. This occurs because economic growth initially benefits a small portion of the population, often those in urban areas or industrial sectors, while a large part of the population remains in traditional agricultural sectors. During this phase, a few individuals or businesses accumulate wealth, exacerbating income disparities.
- **Turning Point and Decline in Inequality:** After a certain level of economic development, the curve reaches its peak, indicating the highest level of inequality. At this stage, the initial growth phase has concentrated wealth in the hands of a few. However, as economic growth continues, more people benefit from development. With increasing urbanization, industrialization, education, and access to better jobs, a larger portion of the population starts to participate in the economy's growth. As a result, the benefits of economic development become more evenly distributed, leading to a decrease in inequality. The curve then slopes downwards, signifying the reduction in income disparities.

The Kuznets Hypothesis

The U-shaped curve represents Simon Kuznets' hypothesis, which posits that inequality increases in the early stages of industrialization and decreases later on as economies mature. Kuznets believed that this pattern was an inevitable part of economic development, with inequality serving as a transient phase that occurs before the broader ⁷³benefits of growth are felt by all sectors of society. He suggested that, over time, as countries develop and reach higher levels of economic and social progress, factors like education, access to technology, and more equitable policies contribute to reducing inequality.

Criticisms and Relevance

While the Kuznets Curve provides a useful model for understanding income inequality during development, it has been critiqued for being overly simplistic. In reality, inequality does not always follow this predictable pattern. Factors such as political systems, social policies, international trade, and globalization can all influence how inequality evolves in different countries. For example, in some countries, rapid industrialization may lead to sustained or even increased inequality due to lack of social safety nets or unequal access to resources.

Despite these criticisms, the Kuznets Curve remains an important framework in understanding the relationship between economic growth and inequality. It underscores the complex nature of development, showing that while inequality may be a byproduct of growth in the early stages, it is not a permanent feature. It suggests that policies aimed at redistributing wealth, improving access to education, and fostering inclusive growth can help to reduce inequality as economies continue to develop.

In conclusion, the Kuznets Curve offers a theoretical understanding of how inequality evolves as societies transition from agrarian to industrial economies. It highlights the cyclical nature of economic development and inequality, with growth potentially leading to both increased disparities and, over time, greater equity.

2.2 Human Capital Theory

Human capital theory, developed by economists such as Gary Becker, views education and training as key factors in explaining income inequality. According to this theory, individuals with higher levels of education and specialized skills are more likely to earn higher wages, leading to income disparities between those with and without education. Human capital theory posits that inequality arises from differences in individuals' investments in education and skills, which are rewarded in the labor market.

This theory highlights the role of education as a mechanism for social mobility, suggesting that policies aimed at improving access to education can reduce inequality by enabling individuals from disadvantaged backgrounds to improve their economic standing. However, critics argue that human capital theory overlooks structural inequalities in the education system, such as racial and class-based discrimination, that prevent equal access to educational opportunities.

2.3 Endogenous Growth Theory

Endogenous growth theory, introduced by economists such as Paul Romer and Robert Lucas, emphasizes the role of technological innovation and knowledge accumulation in driving long-term economic growth. This theory posits that technological progress is a key determinant of

economic development, and the distribution of knowledge and access to technology is crucial in shaping inequality.

In an economy where knowledge and technological expertise are central, individuals and countries with access to cutting-edge technologies and innovation will accumulate wealth, while those without such access will remain disadvantaged. This results in a widening income gap between countries and individuals. The theory suggests that policies promoting innovation and technology can drive growth and reduce inequality, but without targeted efforts to ensure equal access to these resources, inequality may persist or even worsen.

3. Sociological Theories of Inequality

Sociological theories of inequality focus on the social structures, relationships, and cultural practices that contribute to the distribution of wealth and power in society. These theories argue that inequality is not simply a result of economic processes but is also deeply embedded in social institutions such as family, education, and the labor market.

3.1 Social Stratification Theory

Social stratification theory explains inequality in terms of the hierarchical structure of society. It posits that society is divided into different layers or strata based on factors such as class, race, gender, and education. These divisions result in unequal access to resources and opportunities, leading to social and economic inequality.

Max Weber, a key figure in social stratification theory, argued that inequality is not just about economic class but also about status and power. According to Weber, social position is determined by not only one's economic standing but also one's social status and political power. Weber's theory suggests that individuals may experience inequality in different ways, depending on their position within these multiple dimensions of stratification.

3.2 Theories of Racial and Gender Inequality

Sociological theories of racial and gender inequality highlight how race and gender intersect with class to produce unique forms of disadvantage. In many societies, individuals from marginalized racial or ethnic groups face systemic discrimination that limits their access to education, employment, and political power. Similarly, gender inequality persists in many societies, where women are often paid less than men for equal work and face barriers to leadership roles.

Theories of racial and gender inequality focus on how social and cultural norms, institutions, and policies perpetuate these disparities. For example, Critical Race Theory examines how laws and institutions are structured to benefit dominant racial groups, while Feminist Theory explores how

gender norms and patriarchal systems restrict opportunities for women. These theories argue that inequality is deeply rooted in historical and social contexts, and to address it, changes must be made at the institutional and cultural levels.

4. Developmental Perspectives on Inequality

Developmental theories of inequality emphasize the role of historical processes and global systems in shaping patterns of inequality across countries. These theories are particularly concerned with the dynamics between developed and developing nations and the role of international institutions in perpetuating or mitigating inequality.

4.1 Dependency Theory

Dependency theory, developed by scholars like Andre Gunder Frank and Immanuel Wallerstein, argues that inequality between countries is a result of the exploitative relationship between wealthy, developed nations and poor, underdeveloped nations. According to this theory, the global economic system is structured in such a way that developing countries are dependent on developed nations for trade, technology, and capital. This dependency ensures that wealth is continually extracted from poor countries to enrich wealthy ones, perpetuating global inequality.

Dependency theory challenges the idea that inequality is an inevitable byproduct of development. Instead, it suggests that underdevelopment is a result of historical processes of colonization, exploitation, and unequal exchange. To reduce global inequality, the theory advocates for structural changes in the global economic system, such as more equitable trade relationships and the redistribution of wealth.

4.2 World Systems Theory

World Systems Theory, developed by sociologist Immanuel Wallerstein, expands on the ideas of dependency theory by analyzing the global economy as a system of interconnected countries with different roles. Wallerstein divided the world into three categories: core, semi-periphery, and periphery. Core countries are the most economically developed and control global trade, while peripheral countries are the least developed and remain dependent on the core for economic growth.

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According to World Systems Theory, inequality arises because the core countries exploit peripheral nations for cheap labor, raw materials, and markets. As a result, the wealth generated by the global economy is concentrated in the core, while the periphery remains impoverished. To address global inequality, World Systems Theory calls for restructuring the global economic system to ensure more equitable distribution of resources and opportunities.

Theoretical perspectives on inequality provide a comprehensive framework for understanding the complex and multifaceted nature of income and wealth disparities. Classical economic theories, such as those proposed by Smith, Ricardo, and Marx, offer early insights into the causes of inequality, with different interpretations regarding the role of markets, capital, and labor. Modern economic theories, including the Kuznets Curve, human capital theory, and endogenous growth theory, attempt to contextualize inequality within the broader process of economic development and technological change. Sociological theories highlight the social, racial, and gender dynamics that underpin inequality, while developmental perspectives focus on the global systems that perpetuate disparities between nations. Understanding these theoretical frameworks is crucial for designing policies and interventions that address inequality and promote more equitable and inclusive societies.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

1. Explain how structural factors, such as labor market segmentation and access to education, contribute to income inequality within a society.
2. How do economic policies like taxation, welfare, and labor market regulations impact the distribution of wealth and income? Discuss with examples of progressive and regressive taxation.
3. Discuss the Kuznets Curve theory. How does it explain the relationship between economic growth and income inequality? Critically analyze its implications in the modern context.
4. Evaluate the role of social factors, such as discrimination based on race, gender, and ethnicity, in perpetuating inequality. How do these social divisions intersect with economic inequalities?
5. Compare and contrast the classical and modern economic theories on inequality, focusing on the views of Adam Smith, Karl Marx, and Simon Kuznets. How do these theories explain the causes and effects of inequality in society?

3.6 Let's Sum Up

- **Inequality is multifaceted** – It includes economic, social, and political disparities within and between nations.
- **Inequality arises from structural factors** – Economic systems, labor markets, education, and access to resources influence inequality.
- **Economic policies play a significant role** – Taxation, welfare, and labor market regulations can either reduce or exacerbate inequality.
- **Social factors deepen inequality** – Discrimination based on race, gender, and class perpetuate unequal opportunities and outcomes.
- **Theoretical perspectives help explain inequality** – Classical and modern economic theories, such as those by Smith, Marx, and Kuznets, offer different insights into the causes and effects of inequality.
- **Inequality affects growth and development** – High inequality can hinder economic growth, reduce human capital, and lead to political instability.
- **Measurement tools like the Gini coefficient and Lorenz curve** – These help quantify and visualize income inequality within societies.
- **Policy interventions are crucial** – Redistributive measures, education reforms, and labor rights policies can reduce inequality and promote more equitable growth.

3.7 Glossary

- **Inequality** – A disparity in the distribution of wealth, income, or resources among individuals or groups in a society.
- **Gini Coefficient** – A measure of income inequality ranging from 0 (perfect equality) to 1 (perfect inequality).
- **Lorenz Curve** – A graphical representation of income distribution that shows the cumulative percentage of income earned by the bottom x% of the population.
- **Progressive Tax** – A tax system where the rate increases as income increases, aiming to reduce inequality.
- **Regressive Tax** – A tax system where the rate decreases as income increases, often exacerbating inequality.
- **Kuznets Curve** – A theory that suggests income inequality rises during early stages of economic development and falls as development progresses.

- **Social Stratification** – The hierarchical arrangement of individuals or groups in a society based on factors like wealth, income, education, and occupation.
- **Human Capital Theory** – A theory suggesting that education and skills development lead to higher income, contributing to inequality based on access to education.

3.8 Suggested Readings

- "Capital in the Twenty-First Century" – Thomas Piketty, 2013
- "The Wealth of Nations" – Adam Smith, 1776
- "Das Kapital" – Karl Marx, 1867
- "Inequality: What Can Be Done?" – Anthony B. Atkinson, 2015
- "The Price of Inequality" – Joseph E. Stiglitz, 2012
- "The Globalization of Inequality" – François Bourguignon, 2016
- "The Spirit Level: Why More Equal Societies Almost Always Do Better" – Richard Wilkinson and Kate Pickett, 2009

3.9 Hints to Check Your Progress (CYP)

CYP-I

1. Q1: What are the main principles for measuring inequality?
 - Refer to Section 3.3.2 – Principles for measuring inequality. Key principles include anonymity, population principle, scale independence, and the Dalton principle. Understand how each principle guides the measurement of income inequality.
2. Q2: How is the Gini Coefficient derived and what does it indicate?
 - Refer to Section 3.3.3 – Measurement of Inequality. The Gini Coefficient is derived by calculating the area between the Lorenz curve and the line of equality. A higher value indicates greater inequality, and a value of 0 indicates perfect equality.
3. Q3: What does the Kuznet Ratio measure in the context of income inequality?
 - Refer to Section 3.3.3 – Kuznet Ratios. This ratio measures the income disparity between the top 20% and bottom 40% of the population, providing a shorthand for assessing inequality.

4. Q4: Discuss how inequality affects the development of human capital in a country.
- Refer to Section 3.4.3 – Social Factors and Section 3.5 – Theoretical Perspectives. Discuss how access to education, healthcare, and other resources influences the development of human capital, and how inequality limits access to these opportunities.

CYP-II

1. Q1: How do structural factors such as labor market segmentation and access to education contribute to income inequality?
 - : Refer to Section 3.4.1 – Structural Factors. Focus on how the economic structure, technological changes, and labor market segmentation create inequalities between different sectors and social groups.
2. Q2: How do economic policies like taxation, welfare, and labor market regulations impact the distribution of wealth and income?
 - Refer to Section 3.4.2 – Economic Policies. Pay particular attention to how progressive and regressive taxes affect income distribution, and the role of welfare and labor protections in reducing inequality.
3. Q3: Discuss the Kuznets Curve theory. How does it explain the relationship between economic growth and income inequality?
 - Refer to Section 3.5 – Theoretical Perspectives. Discuss the U-shaped curve, explaining how inequality increases initially with growth and later decreases as the benefits of development are distributed more broadly.
4. Q4: Evaluate the role of social factors, such as discrimination based on race, gender, and ethnicity, in perpetuating inequality.
 - Refer to Section 3.4.3 – Social Factors. Explain how systemic exclusion and discrimination limit opportunities for marginalized groups and contribute to unequal wealth distribution.
5. Q5: Compare and contrast the classical and modern economic theories on inequality.
 - Refer to Section 3.5 – Theoretical Perspectives. Focus on the views of Adam Smith, Karl Marx, and Simon Kuznets, and how their theories explain the causes and consequences of inequality.

3.10 Exam Oriented Questions

1. Discuss the concept of inequality and explain its various dimensions, such as economic, social, and political inequality. Provide examples for each.
 - Define inequality and its importance in the context of economic development.
 - Explain economic inequality (disparities in income and wealth within and between nations).
 - Discuss social inequality (discrimination based on race, gender, and class leading to unequal access to opportunities).
 - Address political inequality (inequality in political participation and representation, such as voting rights and power structures).
2. Explain the principles for measuring inequality. How does the Gini Coefficient and Lorenz curve help in quantifying income distribution?
 - Introduce the four principles for measuring inequality: Anonymity, Population, Scale Independence, and Dalton.
 - Explain how the Lorenz Curve represents the cumulative distribution of income and how it reflects inequality.
 - Define the Gini Coefficient and its relationship to the Lorenz Curve.
 - Discuss the significance of the Gini Coefficient's value (0 for perfect equality, 1 for perfect inequality).
3. What are the main causes of inequality in society? Discuss the structural, economic, and social factors that contribute to income disparity.
 - Explain structural factors such as the shift from agrarian to industrial economies, technological changes, and labor market segmentation.
 - Discuss economic policies, including taxation systems (progressive vs. regressive taxes) and welfare programs.
 - Address social factors like education access, social capital, and systemic discrimination (race, gender, and class).
 - Discuss how these factors are interrelated and mutually reinforcing in perpetuating inequality.
4. Critically assess Simon Kuznets' theory on inequality. How does the Kuznets Curve explain the relationship between economic growth and income inequality?

- Introduce the Kuznets Curve and explain the inverted U-shape theory: inequality rises during early economic development and then decreases as development progresses.
 - Discuss Kuznets' hypothesis in the context of industrialization and urbanization.
 - Critique the theory by considering modern examples of countries where inequality may not follow the expected pattern.
 - Discuss the limitations of Kuznets' theory in explaining inequality in today's globalized economy.
5. Evaluate the role of government policies in reducing inequality. How do redistributive policies, taxation, and labor market reforms impact the distribution of wealth and income?
- Discuss the role of redistributive policies such as welfare programs, unemployment benefits, and public services in reducing inequality.
 - Explain the impact of taxation: progressive taxes (increasing tax rates for higher incomes) vs. regressive taxes (disproportionate burden on low-income earners).
 - Discuss labor market reforms, including minimum wage laws, labor rights, and union protections, and how these impact income distribution.
 - Consider globalization and trade policies as government policies that affect the wealth distribution and income inequality in both developed and developing countries.

Population Growth : Theory and Economic Development

STRUCTURE

4.0 Objectives

4.1 Learning Outcomes

4.2 Introduction

4.3 Concept of HRD

4.4 Theory of Demographic Transition

4.5 Population and Economic development

4.5.1 Population as a limit to growth

4.5.2 Population as an ultimate source

4.6 Population, Poverty and Environment

4.7 Let us Sum Up

4.8 Glossary

4.9 References/ Additional Readings

4.10 Hints to Check your Progress (CYP)

4.11 Examination oriented questions

4.0 Objectives

After going through the lesson, the student should:

- 1) Understand the concept of HRD.
- 2) Describe the different stages in a demographic transition and their relationship with economic growth
- 3) Understand the two-way relationship of population growth and economic development whether population growth is a hindrance or stimulus to economic development.
- 4) Be able to understand the environment poverty and population linkage.

4.1 Learning Outcomes

After going through this lesson, you will be able to:

1. Understand the concept of Human Resource Development (HRD) and its role in promoting economic development.
2. Explain the Theory of Demographic Transition and identify its stages with reference to economic modernization.
3. Evaluate the dual role of population growth as both a hindrance and a stimulus to economic development.
4. Analyze the interrelationship between population, poverty, and environmental degradation, using empirical and theoretical perspectives.

4.2 Introduction

The most compliant factor of production available to any economy is its population. There are two

different schools of thought that focused on the relationship between population growth and economic development. On one side, economists like Simon view population as the vital and essential component of economic development. And on the other hand, economists like Malthus warn about dangers of over- population. However, it is well organized that a sufficiently educated labour force would seem to be absolutely necessary for sustained growth and achieving human development.

4.3 Concept of Human Resource Development (HRD)

The process of economic development is not a simple affair. It is not simply a matter of the availability of physical resources of labour and capital. Though factors such as physical capital, labour and other physical resources etc impinge on economic development, the rate of economic development that is attainable is perhaps more strongly depends not only availability of these resources but also on the Human Resource Development. Human resource development plays a vital role in economic development. Rather the effective use of physical capital itself depends upon human resources.

4.3.1 Indicators of Human Resource Development

There are some indicators that have been employed to measure human resource development. Any activity which augments man's productive capacity contributes to the human resource development. Schultz lists five such categories through which human resource development can take place:

- a) Formally organized education at elementary, secondary and higher levels.
- b) Better health facilities which increase the strength, stamina and vigor and vitality of the people.
- c) On the job-training increases the skill and efficiency of the workers and lead to an increase in production and productivity.
- d) Various study and extension programmes for adults.
- e) Migration of individuals and families to adjust to changing job opportunities.

4.4 Theory of Demographic Transition

Theory of demographic transition is one of the famous concepts in economic demography that explain the process by which fertility rates eventually decline to replacement level. The theory is based on actual population movements of developed nations. It attempts to explain that before economic advancement took place in developed nation these countries have more or less passed through same three stages of modern population history. In the first stage, both birth rate and death rate is high. This is the stage wherein the countries before their economic modernization had faced stable or very low population growth rate. Generally speaking, this stage depicts economical backwardness of a country. Countries in this stage of demographic are agriculturally transition dominated economies with very low per capita income. Since most of the people are illiterate and poor, for them children contribute to the household economy, to family income and are insurance for adults in old age. Under these circumstances, birth rate tends to be high. Further, with limited medical facilities, limited knowledge of sense of cleanliness, poor food and unhealthy atmosphere leads to high death rate. Hence, high birth rate marked by high death rate results into stable population growth. The second stage of demographic transition represents the beginning of a transition from slow growing population to rapidly increasing population to declining rates.

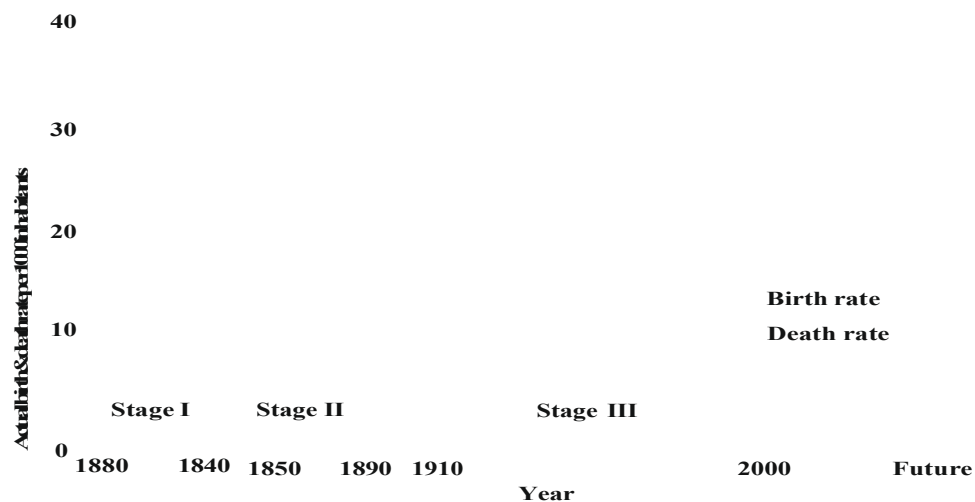
The figure represents the three historical stages of the demographic transition in Western Europe derived from Todaro and Smith. It depicts that before the starting of 19th century birth rates hovered around 35 per 1000 while death rates stood around 30 per 1000 therefore resulting into 0.5% population growth per year.

This stage is also known as the stage wherein economic growth actually starts taking place. Due to which death rate declines because of improved food production and improved health and sanitation, general personal hygiene, special efforts by government to check various diseases like small pox, malaria. As against this, birth rate still remains high because of agrarian nature of society and high illiteracy rate, resulting into population explosion. It is being said that the populating growth rate is near 2% or more at this stage.

In stage three, birth rate falls due to access to contraception, increases in income, modernization of agriculture, urbanization and better education. And due to the forces of modernization and economic development, death rate also begins to fall with a decline in fertility rate. Both social and economic factors deter a large number of people from having many children, leaving with little or no population growth. As shown in figure 1, Stage II, actual starting of Western Europe's demographic transition was around the first quarter of the 19th century featuring slowly falling death rate and high birth rate marking towards very high population growth.

Stage III marks the era of modernization which began only in late nineteenth century. Both birth rate and death rate showed a falling tendency. And it only at the second half of the 20th century, the birth rate is showing fluctuating tendency while death rate remains fairly stable and is rising.

Figure 4.1: The Demographic Transition in Western Europe



Source : Todaro and Smith (2006)

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. Why is Human Resource Development (HRD) considered essential for economic development, beyond just having physical capital and labour?

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Q2. List any three indicators of HRD mentioned by Schultz and explain how they contribute to development.

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Q3. Explain the three stages of the Demographic Transition Theory, highlighting the social and economic conditions typical of each stage.

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4.5 Population and Economic Development

There are two schools of thought that explain the relationship of population growth to economic growth and development. One school of thought attributes population as a hindrance to economic growth while the other school of thought explains that population is not a real problem rather it acts as a stimulus to economic growth and development.

4.5.1 Population as a limit to Growth

The following part of the section stage deal with points that explain the negative impact of population growth to the growth of an economy⁸⁸

1. Excessive pressure on land: Empirical evidences depict that excessive population growth lowers down the per-capita income in most of the developing countries especially of those who are dependent on agriculture. Due to high growth in population, cultivable land per capita has declined. Not only this it has also given rise to one major economic problem that is sub-division and

fragmentation of holding causing low farm productivity. Thereby hindering the growth of agriculture sector.

2. Population Growth and Shortage of Food: Due to rapid population growth feeding the population is one of the most difficult tasks. Additional food requirements are needed for growing masses. However, there exists low agricultural productivity thus supply of food being limited; this leads toward heavy import of food grains. Therefore introduction of new technologies, provision of price incentives to farmers can go a long way to increase the production and productivity of agriculture.

3. Population Growth, Poverty and Inequality: There are some argument and empirical evidences that suggest that high population growth can exacerbate the problem of poverty and inequality in developing countries. It can worsen inequality of the population growth among the poor is disproportionately large. Population can affect poverty through unemployment, low wages for those in work, fragmentation of land holding and most important it is the poor who suffer the most than rich due to the overstretching of social services like school health, family planning, water and sanitation.

4. Population Growth and Environmental Degradation: Rapid population growth also puts a pressure on environment as there is an increasing pressure on marginal lands migration to overcrowded slums, overgrazing, overcutting of wood and overexploration of soils takes place. Not only this it also exacerbates the problems of air, water pollution, depletion of ground water, soil erosion and flooding causing a serious damage to the environment.

5. Population Growth, Health and Education: It is said that large size of family can restrict the opportunities of parents to provide better education and health to their ward. Same is also applicable to the nation as a whole. At macro level, rapid increase in population causes the given education expenditure to be spread more thinly which in turn affects the human resource development to take place. High fertility also affects the health of both mother and child and has increased the risk of low birth weight that may lead towards high mortality rate.

6. Population Growth and Economic Growth: Empirical evidences suggest a strong negative relationship between growth and economic growth. Due to heavy pressure on agriculture and natural resources, an increase in growth of population lowers the per capita income of the most of the developing countries.

7. Population Growth and Capital Formation: Rapid population growth lowers down the rate of savings which in turn affects the capital formation. As population increases, per capita income declines. On the other hand, expenditure on consumption increases which leads towards low savings and consequently low capital formation. Also high population growth shifts the age structure of the population more towards young population that is those who are dependent, thereby, increasing consumption and lowering down saving rates.

4.5.2 Population as an Ultimate Source

One of the contentious issues before the policy makers is to know the relationship between population growth and economic development. One school of thought that has developed that population growth is not a serious problem rather there are other issues that need special consideration. They also emphasized that rather population growth is a desirable phenomenon. In the following section we shall deal with such issues.

1. Other Issues: As mentioned in Todaro, that the real problem of developing countries is related to one or all of the following issues:

a. Underdevelopment: According to this line of argument, as long as the vast majority of people in developing countries remain poor, uneducated and physically and psychologically weak, the large family will constitute the only real source of social security. Therefore, policies should be directed to motivate people for limiting their family size.

b. World Resource Depletion and environmental degradation: As mentioned in Todaro, population can only be an economic problem in relation to the availability and utilization of scarce natural and material resources. The fact is that developed countries, with less than one quarter of the world's population, consume almost 80 per cent of the world's resources. For example, the average North America or European consumer uses up, directly or indirectly, almost 16 times as much of the world's food, energy and material resources as his or her counterpart in developing countries.

c. Problem of Population distribution: According to this view, it is not the population growth or number of people that is causing problem but problem is with respect to population distribution. There are regions around the world like sub-Saharan Africa, where there is the problem of under population in terms of potential resources. While, there are other regions which are affected by over population. Therefore, efforts should be made to bring about more spatial distribution of the population.

d. Subordination of women: One of the problems of developing countries is that the women are the worst effected from evils like poverty, poor education, lack of jobs and also less mobility and have restricted access to birth control. They are considered to be inferior to men and they do not have any say in the decision making. All these factors result into high population growth. Therefore, the problem can be resolved by empowering women. If they are educated and their health and economic status is improved then and only then they will understand the benefits of small family.

2. A deliberate contrived false issue: According to this line of argument, over concern of developed nations into population growth in developing countries is a deliberate attempt to hold down the development of developing countries. They are pressurizing developing nation to control the population even though they themselves went through a period of sizable population increase that accelerated their development.

3. Population growth as a desirable phenomenon: One of economic argument put forwarded is that population growth is essential for stimulating consumer demand, to generate economies of scale in production, to lower production cost and to provide a good number of low-cost labour to achieve higher output. Economists like Boserup in their theory of agricultural development come up with the different view that it is the growing population in an economy which causes the agricultural development to take place. She explains that in the pre industrial stage, growing population does not create any obstacle in the way of investment needed for agricultural development. The investment likely to be made in raising of new fields, minor irrigation work, digging of canals and drainage etc is acquired by conversion of labour into capital assets and therefore, a growing population is welcome in these stages of agricultural development (as mentioned in Sadhu, Singh and Singh, 2012). According to arguments forwarded by neo-Marxist pronatalist, in many rural areas of developing countries there is a problem of unused but arable land. In most of the regions of tropical Africa and Latin America, only 12 per cent of total potential arable land is under cultivation and this is due to low rural population density. Therefore, for these regions' population growth is a desirable phenomenon. As mentioned by Todaro, there are some non-economic reasons also which explain that population growth is desirable. Firstly, there are countries which have under populated border regions and for them they need more people to protect against expansionists intentions of neighboring countries. Secondly, there are some ethnic, racial and religious groups who favour large families. Lastly, military and political powers are often seen as dependent on a large and youthful population.

Hence it is not the population growth that is the problem but there is a need to make the population more skilled and healthier so that better economic growth can take place and that this population

will now not be considered as burden rather it will act as a stimulus to the economic development.

4.6 Population, Poverty and Environment

In the history of the world, the poverty, population and environmental nexus have been the concern of all societies. How they related to each other.

What kind of relation does one expect between them is a complex question, theoretically value loaded and empirically often complex to establish. Figure 4.2 below shows the possible direct linkages between economic and environmental attributes in the form of P - P - E spiral.

Figure 4.2 : Poverty, Population and Environment (P-P-E) Linkage

It clearly shows the two-way linkages between population change and other elements of the system i.e. poverty and environmental. The linkage between poverty and population is two ways in the sense that poverty affects population through lack of confidence in and insecurity of old age necessitates the need for many children. Poor being uneducated, without the power to control fertility, often results into more population growth. It is also seen that it is the poverty that compels the need for more children for help in fields and homes. High population growth also affects the poverty. More populations mean unemployment, low wages, increasing landlessness, overstretching of social services like school, health water and sanitation: thereby, affecting the poor more than that of others. Therefore, improved education health care and general economic growth many reduce population pressure and also poverty.

On the other, there are empirical evidences that suggest a two-way linkage between poverty and environment. The most popular argument is that poor people generally have a more tendency to overuse resources like land, forests and water, thereby degrade the environment. Since, they are not aware of the environmental issues and consequences of their today's actions. On the other hand, there are evidences that suggests that environment degradation in the form of soil erosion, salination, flooding hurts the poor more through declining yields, less employment, loss of fish catches, shortage of drinking water and fuel woods. Various argument have also tried to establish a link between population affecting environment adversely through increased pressure on marginal lands, overgrazing, over exploitation of soils, overcrowded slums, problem of water supply and excessive use of pesticides and fertilizers etc. thereby degrading the environment badly.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1 Describe two ways in which population growth can hinder economic development, with examples.

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Q2 What are the main arguments for viewing population growth as a positive force in economic development

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Q3 Explain the Poverty–Population–Environment (P–P–E) linkage and how it demonstrates the interrelationship between these three factors.

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4.7 Let us sum up

Thus, one can conclude that population can act both as a stimulus and hindrance to economic development. It is a stimulus if the population is not just population but is Human capital and can skillfully contribute to economic development. On the other hand, it can become an obstacle if proper job opportunities are not provided and also if people remain uneducated, then it turns out to be a burden on economy.

4.8 Key words

- Human Resource Development (HRD): The process of enhancing the knowledge, skills, health, and abilities of people to improve their economic productivity.
- Demographic Transition Theory: A model describing the shift from high birth and death rates to lower rates as societies develop economically.
- Population Explosion: A rapid increase in population typically occurring when death rates fall but birth rates remain high, common in developing countries.
- Capital Formation: The accumulation of capital assets such as tools, machinery, and infrastructure that contribute to economic production.
- Environmental Degradation: The deterioration of the environment through overuse of natural resources, pollution, and deforestation, often linked to overpopulation

4.9 References/ Additional Readings

1. Cypher, James and Dietz, Jame (2004), *The Process of economic Development*, Routledge Taylor and Francis, New York.
2. Human Development Report (2013), United Nations Development Programme, New York.
3. Meier, G.M(1995), *Leading issues in Economic Development*, Oxford Printing Press, Mumbai
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5. Thirlwall A.P. (2006), *Growth and Development*, Palgrave, New York.
6. Todaro, M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.
7. World Bank Indicators (2013), World bank.

4.10 Hints to Check your Progress (CYP)

CYP-I

- Q1. Review the concept and significance of Human Resource Development (HRD) in Section 4.3.
- Q2. Look at the five indicators of HRD listed by Schultz.
- Q3. Carefully study the three stages described in Section 4.4, especially their economic and social characteristics.

CYP-II

1. Revisit Sections 4.5.1 and 4.5.2 to understand how population can act both as a burden and a stimulus to development.
2. Refer to the arguments supporting population growth, especially those by Boserup and the neo-Marxist view.
3. See Figure 4.2 and the discussion in Section 4.6 for the explanation of the Poverty–Population–Environment (P–P–E) linkage.

4.11 Examination oriented questions

1. Write a short note on Human Resource Development. Write a short note on Human Resource Development.
2. Do you population growth can be a limit and as a stimulus to economic development.
3. What is the link between population, poverty and environment?
4. Describe briefly the theory of Demographic transition. At what stage in this transition do most developing countries seem to be? Explain your answer.

Institutions and Economic Development

STRUCTURE

5.0 Objective

5.1 Learning Outcomes

5.2 Introduction

5.3 Meaning of Institutions

5.4 Market and Market Failure

5.4.1 Role of Market

5.5 State and State Failure

5.5.1 Role of State

5.5.2 State Failure

5.6 Issues of Good Governance

5.7 Let up sum up

5.8 Glossary

5.9 References/Additional Readings

5.10 Hints to Check your Progress (CYP)

5.11 Examination oriented questions

5.0 Objectives

After going through the lesson the student will

1. Able to understand the meaning of institution.
2. Shall learn the role of markets in economic development of a country.
3. Get familiarize with the market failure.
4. Able to understand the role of state in economic development of a country.
5. Be able to describe the state failure.
6. Be able to understand the issues of good governance.

5.1 Learning Outcomes

After reading this chapter, students will be able to:

1. Understand the role of institutions in fostering economic development.
2. Differentiate between market and state failures with real-world examples.
3. Analyze the concept of good governance and its components.
4. Evaluate how institutions, markets, and governments interact in the development process.

5.2. Introduction

A good institutional structure of an economy plays an important role in the economic development of a country. Only efficient institutions are growth promoting. Economists like Pasner and Chu defined two types of efficiency: substantive efficiency which means a rule that promotes allocative efficiency and procedural efficiency which means a rule that is designed to reduce the cost or increase the accuracy of using the system of rules. Thus, both these efficiencies if presented in an institution leads towards economic development. However, it is found that in many developing countries the rule of law and the protection of property right is in rudimentary.

5.3 Meaning of Institutions

The term institution is defined in different ways. One of the most popular definition is given by North (1990). He defines institutions as the formal and informal rules of governing human interactions. Empirical evidences have tried to measure institutions by three ways- the quality of governance which includes the degree of corruption, political rights, public sector efficiency and regulatory burden: the extent of legal protection of private property and how well such laws are enforced: and the limits placed on political leaders. The other foremost modern exponents of the view that institutions are of primary importance in understanding the development process, and why some countries are rich today and others poor, are Acemoglu et al. (2001, 2002) Acemoglu (2008) identifies three important characteristics of good institutions:

- The enforcement of property rights and the rule of law, so that individuals have the incentive to save, invest and take risks (as argued above)
- Constraints on those in positions of power so that they cannot expropriate the resources of a country for their own benefit.
- Equal opportunities for all, so that everyone has the incentive to better themselves and to participate productively in society.

Both state and market can be called as institutions as well as organization. State is an institution as it consists of a set of rules for governance. And on the other hand market is also an institution as it comprises of rules for controlling voluntary transactions under the parameters of prices. State acts as an organization as it is a functional body consisting of various agencies and bureau organized according to those rules. While market acts as a functional body by organizing various marketing agents, such as retailers and wholesalers, to bridge between consumers and producers.

5.4 Market & Market Failure

5.4.1 Role of Market in the Development Process

Economists for a long time have believed that there exists an invisible hand in a free market based economy, which brings a state of equilibrium in market. A market is the organizational framework that brings together those who demand a product and those who supply a product at an agreed price. It is at this price that ensures maximum profit to seller and maximum benefit to consumer. Market price acts as a signal to producers. If the demand for a good increases the price tends to rise and producer will be inclined to supply more.

And if demand falls, the price tends to fall in response and thereby producer will supply less. Therefore market efficiency relies on prices acting as signals, on suppliers' response and on the mobility of factors of production.

Market Mechanism has to play a very important role for efficient allocation of resources. According to Thirlwall market plays two major roles i.e. allocation role and creative role. The allocation role can be explained with the help of indifference curve and production possibility curve.

Figure 5.1 : Welfare Maximization



If the consumer consume to the point where the marginal utility of consumer is equal to the price of a good and producer produce to a point where marginal cost of production is equal to price, then resources will be optimally allocated since the marginal utility of production is equal to marginal cost, society then reaches at its highest level of utility consistent with production possibilities. As shown in figure 5.1, at point 1, marginal utility of production is equal to marginal cost to the society.

This is what is called as allocation role of markets. Another important function that market plays is that of creative function introduced by Kaldor (1972). According to Kaldor, it is the market that provides an environment for change that expands the production possibilities that is market ensures dynamicity that brings out the competitive forces and ensures innovations and technical progress is always at the forefront. Thus, the market provides incentives to economic growth. However, there are certain objections that are raised against functioning of the market or what is said is that markets in LDCs are permeated by imperfections of both structure and operation. Commodity and factor markets are often badly organized and the existence of distorted prices often means that producers and consumers are responding to economic signals and incentives that are a poor reflection of the real cost to society. Therefore, market is said to lead to a misallocation of resources or we can call it as market failure. There are various kinds of market failure.

1. Market Imperfections: Sometimes the market does not necessarily work in the way it should i.e. there is a widespread imperfection in the markets of developing countries. A market price does not provide a perfect guide to the social optimum allocation of resources. The prices of labour and capital can be either above or below its opportunity cost. Price of goods may not reflect its marginal cost of production. Tariffs imposed, subsidies given and monopolistic tendencies, all result into distorting free market prices. Under such circumstances decisions taken by the private producers with respect to its production shall not result into efficient allocation of resources.

2. Presence of externalities: There is a presence of substantial externalities both positive and

negative in markets of LDCs. It is generally seen that there are certain goods that are sometimes underprovided and others are over provided from a social point of view i.e. their values in terms of social benefit and social cost is not reflected in the price. Infrastructure projects such as transport, irrigation, power generation and social capital like education and health has a high social return than private return therefore market under provide them as they have no incentive to produce them. As against this the goods with negative externality i.e. where the private return is greater than social return, the market often over provide such kind of goods these negative externalities for e.g. pollution generated by firm are the cost to the society.

3. **Asymmetric Information:** In most of the developing countries, markets are often incomplete in the sense that they do not provide complete information to both the producers and consumers. There is an imbalance of knowledge between producers and consumers. In many developing countries, producers are not clear about the market size, the presence of other producers and imprecise availability. Even the consumers are not sure about availability of products, their substitutes and also even about the quality of goods. Therefore, the production and consumption decisions taken by both producers and consumers under such circumstances lead towards inefficient allocation of resources.
4. **No Market Public Goods:** Public goods are those goods which are non-rival and non-excludable by nature. It is because of this peculiar nature of public goods that the market would either not provide at all or would under provide it for example defense, law and order and the provision of basic infrastructure such as roads, sewer, drinking water. These goods are important for development objective but private suppliers will not provide them because of difficulty in charging up and even capturing the externality.
5. **Unequal Distribution of Income:** In most of the developing countries, there exists unequal distribution of income. Market mechanism have tend to exacerbate the problem further in providing social justice to the vulnerable and disadvantaged people which can cause civil unrest and political instability. Market fails to provide all sorts of public goods with low private returns and over

provides those goods with low social returns. Therefore, the market yields undesirable results in terms of social objectives other than resource allocation.

Therefore, markets may be incomplete or missing altogether for public goods. As the actual cost of providing these goods may be less than what society is willing to pay.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. (a) Explain the allocation and creative roles of the market in economic development.

(b) How does market price act as a signal in resource allocation?

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Q2. (a) Define market failure.

(b) Discuss two reasons why markets fail in developing countries.

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5.5 State and State Failure

5.5.1 Role of State in Economic Development

According to Thirlwall, all the different types of market failure in the past have led development economists to argue for government intervention in the development process as well as causing most developing countries to interfere with the market mechanism and to adopt various forms of

planning for the allocation of resources.

As mentioned in Thirlwall the state has four different roles to play in the development process:

1. To provide public goods.
2. To correct market imperfections.
3. To protect the vulnerable and ensure an equitable distribution of income.
4. To provide an institutional environment in which markets can flourish.

1. To Provide Public Goods: One of the important role of the state is to provide public goods as market either not provide at all or it would under provide them because of non-excludable and non-rival feature of these goods. As each public goods such as roads, sewers, clean water and defense, law and order are though important for economic development but it is difficult to charge them for the market.

2. Optimum Allocation of Resources: The state can play an active role in bringing about optimum allocation of resources so that economic development can take place in a desired manner. Since the market can misallocate the resources in favour of rich due to profit motive whereas production of essential commodities meant for masses can be neglected.

3. Removal of Economic Inequalities: One of the important roles of state is to ensure an equitable distribution of income not only between people, between groups between regions but also across generations. As described by Stewart in 2001 that moral duty of any state is to help the poor and disadvantaged people in order to maintain civil and political stability. Since this may deter investment and growth. It is also essential for the state to maintain a balance between present consumption and investment to future so that present growth should not be at the cost of future generations

4. Filling Information Gap between Buyers and Seller: During the early stage of economic development, the developing countries cannot rely on the market mechanism for providing information to producers about size of local markets, presence of other producers, availability of inputs and also to consumers with respect to quality, availability and substitutes of products.

This information can be provided by government only so that efficient allocation of resources can take place.

5. Providing Appropriate Institutional Environment for Market: State can play a vital role in providing appropriate institutional environment for the efficient working of markets. Rather both should complement each other. According to World Development Report 1997, development cannot take place without effective state and that state should act more as a partner and facilitator for the market. It also emphasized that it is good economic policies well developed human capital and openness to the World economy that go a long way for sustainable growth and development. And it is the state which can improve the capability of markets even.

Thus, the state should provide law and order and also maintain macroeconomic stability, invest in basic social services and infrastructure; protect the poor sections of society and also environment.

5.5.2 State Failure

As explained by Todaro, the principle economic argument of market failure and presumed role of government in reconciling the divergence between private and social valuations of benefits and costs, the experience of government policy in many LDCs has shown government failure rather than market failure. There are certain areas where government has actually failed to converge the private and social valuations.

1. Factor Prices, Choice of Techniques and Employment Creation

The two main objectives of developing countries is to achieve rapid industrial growth and to increase employment opportunities. Due to the conflict between different government policies, there has been a neglect employment creation in the interest of industrial growth.

2. Rural-Urban Migration

Government policies of developing economies have strongly favoured urban development causing a major divergence between private and social valuations. Urban development policies

have resulted into widespread rural-urban migration. Thereby putting up a strong pressure on urban areas causing increasing urban unemployment, problem of congestion and also higher social assets of living. On other side, agricultureremains stagnated causing a lost to agriculture output. This has resulted into net socialloss to society in terms of agriculture output and heavy social cost of urban way of living.

3. Demand for Education and the Employment Problem

As explained by Todaro (2006), that economic signals and incentives in manyLDCs have exaggerated the private valuations of the returns to education at the secondary and tertiary levels to a point where the private demand for even more qualification is in excess of what government can manage for society. The tendencyto ration scarce high paying employment opportunities by the level of completed education and the policy of most LDC governments to subsidize the private cost ofeducation at the higher levels have together led to a situation in which social returns toinvestment in further quantitative educational expansion seem hardly justified in comparison to other alternative investment opportunities.

4. Structure of the Economy

Most of the policies of LDCs have lead to exaggeration of socially incorrectsignals and incentives. Policies like import substitution which included special taxconcessions to foreign investors, over- valued foreign exchange, protectionism i.e.pampering domestic industries through imposition ofhigh tariffs on imports, and quotaslead to inefficiency in the economy in the form of industrial stagnation and on theother hand heavy emphasis on urban industrial growth also lead to stagnation in agriculture.

Not only this, one also observes institutional weaknesses of the planning processes in most of the LDCs. Wide gap between plan formulation and plan implementation are also attributed to lack of political will on the part of the governmentsof LDCs. Thus as a result of government failure, many international organizationshave started advocating the role of market as an instrument of

promoting efficiency and growth. An important dimension of the New Consensus is on the role of governments should be to alleviate poverty, providing health and education and providing congenial environment for proper functioning of the market.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. (a) Mention any three important roles of the state in economic development.

(b) Why is the provision of public goods considered a key function of the state?

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Q2. (a) What is meant by ‘state failure’?

(b) Explain any two examples of state failure mentioned by Todaro.

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5.6 Issues of Good Governance

Today all the major development institutions emphasized on promoting good governance as a part of their agenda. It is nowadays seen as a means through which economic growth and development could be achieved. According to IMF, “Good Governance is important for countries at all stages of development. Approach should be to concentrate on those aspects of good governance that are most closely related to our surveillance over macro-economic policies namely, the transparency of government accounts, the effectiveness of public resource management and the stability and

transparency of the economic and regulatory environment for private sector activity". IMF is primarily concerned with macroeconomic stability, external viability and orderly economic growth.

In general sense, good governance is nothing but an ideal governing system that is inevitable for political, economic, social and cultural development of a country. Here ideal governing system implies ideal orientation of state that works best to achieve self-reliance, sustainable development and social justice that results into working government efficiently. A corrupt government or poorly governed countries are the hindrances in the way of achieving economic development. It is the good governance that can help these LDC to eradicate poverty and many other social evils.

There remains considerable confusion over a basic question: what is good governance? A Keefer (2009) note there is no agreed definition of governance.

There are number of definition that are given by various international agencies to define the meaning and as well as what to include in the concept of good governance.

On one hand, World Bank (2007), by contrast, highlights efficient and effective public management, transparency and accountability and the objective of development, steering clear of more political components. It also includes discussion of technical capacity, leadership and the delivery of public services.

On the other hand, according to United Nations Economic and Social Commission for Asia and the Pacific the issues that needs to be included under the concept of good governance are

- 1. Participation:** Participation by both men and women is a key cornerstone of good governance. Participation should be direct or through legitimate intermediate institutions or representatives.
- 2. Rule of Law:** Good governance requires fair legal framework that are enforced impartially. It also requires full participation of human rights, particularly those of minorities.
- 3. Transparency:** It means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information should be freely available and directly accessible to those who will be affected by such decisions and their enforcement.
- 4. Responsiveness:** Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe.
- 5. Consensus Oriented:** There are several actors and as many view points in a given society. Good governance requires mediation of the different interests in society to reach a broad consensus in society on what is in the best interest of the whole community and how this can be achieved. It also requires a broad and long term perspective on what is needed for sustainable human development and how to achieve the goals.
- 6. Equity and Inclusiveness:** A society's well being depends on ensuring that all the members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires all groups but particularly the most vulnerable have opportunities to improve as maintain their well being.
- 7. Effectiveness and Efficiency:** Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources at their disposal. The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.

8. Accountability: Accountability is a key requirement of good governance. Not only governmental institutions but also the private sector and civil society organizations must be accountable to the public and to their institutional stakeholders. In general an organization or an institution is accountable to those who will be affected by its decisions or actions. Accountability cannot be enforced without transparency and the rule of law.

In its work, on public governance, Organization for Economic Cooperation and Development (OECD) focuses in particular on the principle elements of good governance, namely, accountability, transparency, efficiency and effectiveness responsiveness, forward vision of government to anticipate failure problems and rules of law which transparent with regulations and codes.

5.7 Let us sum up

The concept of good governance has emerged as a model and it imply many different things in many different context depending upon the form of governance, aid organizations and authorities of developed and developing countries and economic and political agenda. But one thing is understood that nearly all major development institutions today promote good governance. Altogether some focus on economic issues like IMP and World Bank and others emphasize on political and issues of human rights. Altogether they tend to highlight seven key area that needs to be included in the concept of good governance is democracy and representation, human rights, the rule of law, efficient and effective public management, transparency and accountability, development objectives and a variety of particular economic and political institutions.

5.8 Key words

- Institutions – Formal and informal rules governing human interactions (North, 1990).
- Market Failure – Inefficiencies where markets do not allocate resources optimally.
- State Failure – When government interventions lead to worse outcomes than markets.

- Public Goods – Goods that are non-excludable and non-rivalrous (e.g., defense, roads).
- Good Governance – Ideal governance ensuring participation, rule of law, transparency, accountability, and inclusiveness.

5.9 References and additional readings

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5.10 Hints to Check your Progress (CYP)

CYP-I

Q1. Refer to Section 5.4.1

Q2 Refer to Section 5.4

CYP-II

Refer to Section 5.5.1

Refer to Section 5.5.2

5.11 Examination oriented questions

1. What is the role of institutions in economic development?
2. What are the different functions performed by Market and why do it fails.
3. Describe the role of government and also discuss its failure.

4. Describe the concept and issues of good governance.

**CLASSICAL THEORY OF CAPITALIST DEVELOPMENT:
GROWTH AND STAGNATION**

STRUCTURE

6.0 Objectives

6.1 Learning Outcomes

6.2 Introduction

6.3 Adam Smith's theory of growth

6.3.1 The production function

6.3.2 The growth of labour force

6.3.3 Capital accumulation

6.3.4 The growth process

6.4 David Ricardo's theory of growth

6.4.1 The production function

6.4.2 Land and human resources

6.4.3 Capital accumulation

6.4.4 The dynamic process of growth

6.5 Malthus's theory of growth

6.5.1 Human resources and capital accumulation

6.5.2 Growth-retarding factors

6.5.3 Sectoral interaction in underdeveloped areas

6.6 The Classical theory of growth

- 6.6.1 The production function
- 6.6.2 Technological progress and its constraints
- 6.6.3 Investment
- 6.6.4 Determinants of profit
- 6.6.5 Size of labour force
- 6.6.7 Wages
- 6.6.8 Closing the system
- 6.6.9 Merits
- 6.6.10 Limitations
- 6.7 Let's sum up
- 6.8 Key words
- 6.9 Further References
- 6.10 Hints for Check Your Progress
- 6.11 Self-assessment questions

6.0 Objectives

After going through this lesson the students will be able to:

- Understand the Adam Smith's theory of growth.
- Learn about the capital accumulation.
- To know about the David Ricardo's theory of growth.
- Understand the production function of David Ricardo theory of growth.
- Understand the merits of Adam Smith theory of growth.
- To know about the Classical theory of growth.

6.2 Learning Outcomes

After completing this chapter, students will be able to:

1. Explain the theories of economic growth by Adam Smith, David Ricardo, and Thomas Malthus.
2. Analyze the role of capital accumulation, labour force, and technological progress in classical growth models.
3. Understand the concept of the stationary state and the conditions that lead to economic stagnation.
4. Evaluate the strengths and limitations of classical growth theories in explaining development in underdeveloped economies.

6.3 Introduction

The generalized classical theory on growth and stagnation is a combination of the contributions of Adam Smith, David Ricardo and Robert Malthus. The theory was put together by combining the common stands of thought, within the individual growth theories, of these renowned classical economists. To understand the generalized classical theory of growth and stagnation, let us first look into the individual theories propagated by each of the three economists in detail.

6.3 ADAM SMITH'S THEORY OF GROWTH

Adam Smith (1723–1790) was a Scottish philosopher and economist who is renowned as the author of “The Wealth of Nations” (1776), one of the most influential books on market economics ever written. Adam Smith was born in 1723 on an unknown date. He studied moral philosophy at the University of Glasgow and Balliol College, but eventually left the latter and made a name for himself as a traveling lecturer. He later became a professor of logic, ethics, rhetoric, jurisprudence and political economy.

Adam Smith has not received as much recognition for his theory of growth as he has for his theory of value and rent, but the fact still remains that he does provide a consistent dynamic model.

Adam Smith identified three major sources of growth:

- (i) growth in the labour force and stock of capital
- (ii) improvement in the efficiency with which capital is used in labour through greater division of labour and technological progress
- (iii) promotion of foreign trade that widens the market and reinforces the other two sources of growth.

To understand the final growth process as stated by Adam Smith in this theory, we first need to look into the individual components, which have laid the foundation of the theory. These are Adam Smith's Production Function, his views on the process of growth of labour force and capital accumulation in the economy.

6.3.1 THE PRODUCTION FUNCTION

Adam Smith recognized only three factors of production: land, labour and capital. Considering these three factors, his production function may be expressed as

$$Y=f(K,L,N)$$

where,

K represents the capital

L denotes Labour

N stands for land

Adam Smith, in his theory, has not assumed his production function to have diminishing marginal productivity. However, his production function is subject to increasing returns to scale (which means that, output increases more than proportionally to an equal percentage increase in all inputs). In his view, with the passage of time, the size of the market will increase, which will lead to both internal and external economies of scale, which will eventually lower down the cost of production. This process would be initiated by improvement in the production techniques and a greater degree of division of labour.

Adam Smith asserted that, division of labour, did not merely depend on only technological improvement, but also, to a great extent, the size of market, which in turn depends on the availability of capital and the restrictions placed upon both domestic and international trade. Thus, he came to the conclusion that capital accumulation is a necessary precondition to the division of labour.

Adam Smith, recognized the importance of technological development for the improvement in productivity. However, he believed that productive forces would automatically be released into the economy, in the form of innovations and that they would get adjusted to the currently available supply of capital at that point of time. This basically means that, Adam Smith believed that the economy would never suffer from the want of technical know-how and that technical knowledge and that it would keep expanding as the capital stock of the country expanded.

6.3.2 THE GROWTH OF LABOUR FORCE

The growth of the labour force is largely dependent of the rate at which population grows in a country. According to Adam Smith, rate of population growth in the long run depends on the funds available for human sustenance. Assuming that this statement is true, it can be said that the wage rate prevailing in the market is an important determinant of the size of population. In Smith's opinion, "subsistence wages or Iron Law of Wages" i.e., the lowest wage upon which a worker and his family can survive is consistent with a constant population. If it so happens that the actual wages exceed the subsistence wage, population will show a tendency to increase and if the actual wages is less than the subsistence wage then population would decrease.

The supply of labour is normally expected to be in equilibrium with the demand for labour. If the demand of labour continuously rises, causing the wage rate to increase above subsistence level, this would induce the working population to multiply faster, as a result of which supply of labour would also increase, pushing the wages down. In case, the wage rate has fallen below the level of subsistence, in time the demand for labour would restore it to the subsistence level again. In each of the above cases, any disturbance of the wage rate from its subsistence level, due to the disturbance in the equilibrium between the supply and demand for labour, would automatically set into motion a cycle, the end result of which, would lead the wage rate to equal subsistence wages.

Smith explains the demand of labour in the framework of wage fund doctrine which seeks to show that wages, depend upon the relation which exists between the supply of population and the capital available to employ workers. He asserts the demand for those who live by wages (labourers), increases with the increase of revenue and stock of a country, as, an increase in revenue and stock is an increase in wealth, and the demand of labour, therefore, naturally increases with an increase in a nation's wealth.

Since the supply of labour has a tendency to respond to the demand for it, Smith's statement implies that in a growing economy, the population would be rising, in a declining economy, it would be decreasing and that in a stagnant economy, the population would be constant. Smith also throws light on the wage course of the economy. He says high wages are consistent with growing economies. By that logic, low wages would exist in declining economies and the subsistence wages would only be present in economies which are characterized by the stationary or steady state."

6.3.3 CAPITAL ACCUMULATION

Capital accumulation has been assigned a strategic and calculated role in the growth process in Adam Smith's theory. According to him, growth is functionally related to the rate of investment. This means that if a country is subject to a fixed capital stock, it is bound to suffer stagnation. Adam Smith states that, any increase in the capital stock in a country generally leads to more than a proportional increase in the output on account of constantly growing division of labour.

According to Adam Smith, the rate of investment which is an important determinant of Economic growth is determined by the rate of savings in an economy. He did not believe in the possibility of any sort of leakage occurring between savings and investment, even though the activities are performed by different sets of people. In Adam Smith's system, savings and investment have been identified with each other and both are determined by the consideration of private profit. However he also notes that, the ability to save is constricted by income.

1. Profit:

Smith's view on rate of profit is quite precise. He states that over time when a country develops and its capital stock expands, the profit rate shows a tendency to fall. This happens because of three reasons. Firstly, the competition that builds up among the competitors in the market. Secondly, the demand for labour increases (becomes greater than the current supply) and this pushes wage rates up. Higher wages lead to a smaller profit margin for the entrepreneurs. Thirdly, a larger capital requires abundant investment opportunities which may not always exist in an economy. For these reasons, when capital stock of an economy expands, entrepreneurs will only

be able to use it at a lower marginal profit ratio. In other words, using a more modern expression, one could say that Adam Smith postulated a downward sloping marginally efficiency of capital curve, which means that on every extra unit of capital employed, the return from that capital keeps on decreasing.

2. Rate of Interest:

In relation to falling rate of interest and capital accumulation Smith postulated a negatively sloped supply curve of capital implying that supply of capital increases in response to a decline of interest rate. Many have found this explanation rather unconvincing. His argument was that, rentiers, in order to maintain their standard of living, lend more when the interest rates fall. But when the interest rate falls by a substantial amount, they discover that they cannot live on property income and they then are forced to turn into entrepreneurs themselves. This social change allows the accumulation of capital, despite a fall in the interest rates.

According to Adam Smith, capital accumulation will only stop when the rate of interest falls to a rate of profit that is sufficient only to compensate of the risk premium. In other words, when no profit can be made from investment, entrepreneurs lose their interest in investment activity and the economy reaches the Stationary state.

6.3.4 THE GROWTH PROCESS

According to Smith, in a developing economy, both income level and capital stock rise. In addition to this, the rate of capital accumulation also shows a tendency to increase. This leads to increase in the capital stock in successive periods as investment keeps on increasing. Another important factor which contributes to the progress of an economy is the successive decline in

the incremental capital-output ratio due to the influence of capital on the productivity of labour. These factors reinforce each other and accelerate the pace of development of the economy. This development continues until a point where the economy's capital stock grows large enough to eliminate any chance of profits. At this stage the economy has reached its stationary state.

In Adam Smith's system, the stationary state is distinctly different from the state of underdevelopment. Having reached the stationary state, the common characteristics of the economy become unchanged population, constant income, subsistence wages, complete elimination of profits, and absence of net investment. According to Smith, an economy which reaches a stationary state in its growth process has reached the highest level of propensity consistent with its present natural resources.

Adam Smith has identified the rate of capital formation as the strategic factor in the economic growth process. He stressed on the point that the rate of economic progress would only rise if the rate of investment rose. However, the savings and investment rates were primarily dependent on the excess of the market rate of profit over the minimum compensation for bearing risk. Since these factors depended mainly on the socio-economic framework in the country, institutions were his solution to the problem of economic growth. Adam Smith was firmly in favour of the policy of free trade and did not approve of any sort of government intervention (*Laissez-faire*). He is undoubtedly opposed to any kind of planning for economic development.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1 (a) What are the main sources of economic growth according to Adam Smith?

(b) How does capital accumulation influence economic development in Smith's model?

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Q2(a) What is the “Iron Law of Wages” in Smith’s growth theory?

(b) Explain how the wage fund affects population growth.

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6.4 DAVID RICARDO’S THEORY OF GROWTH

David Ricardo (1772–1823) was one of the greatest theoretical economists of all time. Ricardo attended school in London and Amsterdam and at the age of fourteen entered his father’s business. Initially Ricardo following his dad’s business line, set up independently as a broker on the London Stock Exchange. But soon Ricardo became interested in economics in 1799 after reading the works of Adam Smith (the Wealth of Nations). He, after some initial struggle published his own book, The Principles of Political Economy and Taxation, in 1817. Two of Ricardo’s most important contributions were the theory of rent and the concept of comparative advantage.

Ricardo, like Adam Smith, was much less interested in economics growth, than he was in his theory of value and distribution. Yet we must consider his individual theory of growth in the formation of the models in the classical school. To understand the final growth process as stated by Ricardo in this theory, we first need to look into the individual concepts, which have laid the foundation of the theory. These are, the production function, his views on land and human resources, and the process of capital accumulation in the economy.

6.4.1 THE PRODUCTION FUNCTION

Ricardo’s production function, similar to that of Adam Smith, considers only three factors of production, namely Land, Labour and Capital. But distinguishing his production function from that of Smith’s, Ricardo’s production function is subject to the restriction of diminishing marginal

productivity, which means that the marginal increase in total output decreases eventually when additional units of variable input factor are used, given quantity of fixed factors.

Ricardo observed that marginal productivity of all the factors invariably declines unless it is monitored by technological progress. In Agriculture, introduction of new technology merely delays the decline in the marginal productivity of land, while, in industry, technology outweighs the tendency towards diminishing marginal, and as a result a tendency of increasing returns sets in. For the overall growth it is necessary to examine which of the two tendency prevails with respect to output of both the agriculture and industry both. Ricardo quoted “although then it is probable that, under the most favorable circumstances, the power of production is still greater than that of population, it will not long continue so; for the land being limited in quantity, and differing in quality, with every increased portion of capital employed on it there will be decreased rate of production, whilst the power of population continues always the same”. Thus the views of Ricardo, differ from those of Adam Smith with respect to pace of economic development. Smith’s system which develops at an accelerated rate, but Ricardo’s system grows at a continuously declining pace. From the facts stated above, we can write Ricardo’s production function as $Y = f(K, N, L, S)$ K, N and L signifies Capital, labour force, and land respectively (the same as Smith’s production function). The new variable S represents Technical know-how.

6.4.2 LAND AND HUMAN RESOURCES

Ricardo’s views on land were precise and well defined. In his opinion land included only the original and indestructible powers of the soil. Thus, in his opinion supply of land is fixed. His theory of population growth is very similar to that of Smith’s. He distinguished ‘natural wage’ from the ‘real wage’ which is exactly the same concept of subsistence wages. In Ricardo’s opinion, if the market wage rate is above the natural wage rate, it induces population growth and vice versa. Only in the situation that both the rates are the same, i.e., market wage rate equals real wage rate, the population will show no tendency to change.

Other than this similarity, Ricardo’s views differ greatly from those of Smith’s. Firstly, Ricardo does

not support the view of Adam Smith, that the growth of labour and population is proportional to the difference between the market wage rate and the subsistence (natural) wage rate. He believes that the growth force is functionally related to the difference between the rate, but he does not think that the relationship they share is equi-proportional. Secondly, Ricardo believes that there is always an upper limit to the rate of population growth.

As a rule, market wage rate generally conform to the natural wage rate, but there is still a chance that these two rates could be different from each other. Ricardo quotes that “Notwithstanding the tendency of wages to conform to their natural rate, their market rate may, in an improving society, for an indefinite period, be constantly above it; for no sooner may the impulse, which an increased capital gives to a new demand for labor, be obeyed, than another increase of capital may produce the same effect; and thus, if the increase of capital be gradual and constant, the demand for labor may give a continued stimulus to an increase of people”. This statement explains the process of how wages eventually conform at the natural wage level. If the demand for labour exceeds its current supply, the market wages show a tendency to rise, which provides a stimulus to population growth. This increase in the population eventually pushes downward to the subsistence level. Low market wages do not allow population growth and over time the population would decline. Eventually the demand for labour would again push the wages to their natural level. Ricardo asserts that in long run equilibrium, the expansion rate of labour supply remains in balance with the expansion rate of labour demand and that the labour force changes proportionately to the change in supply of capital. In the short run, the rate of population growth may be slower than that of capital growth, and that this would cause a raise in the market wage rate, which would provide impetus to population growth. This would again lead to equilibrium between the demand and supply of labour in the long run.

6.4.3 CAPITAL ACCUMULATION

In Ricardo's theory of growth, Capital Accumulation play a strategic role. in his system, capital includes both fixed capital and circulating capital (the portion of an organization's investment that is continually used and replenished in ongoing operations), which grows at a proportional rate to the fixed capital. It is an increase in this variety of capital which determines the increase in the demand for labour. similar to the view propagated by Adam Smith, Ricardo eliminates any possibility of leakages between the process of savings and investment, stating that "for no one accumulates, but with the view to make his accumulations profitable". The rate of capital Accumulation depends on the ability to save (which in turn depends on net income) and the will to save (which depends on the rate of profit). Net income, according to Ricardo, refers to the surplus over the total product required for maintaining labour's subsistence level. Disagreeing with Smith, Ricardo believes that the people's willingness to save and invest "will diminish with every diminution of profit, and will cease altogether when profits are so low as not to afford them an adequate compensation for their trouble, and the risk which they must necessarily encounter in employing their capital productively".

According to Ricardo, capital accumulation, an increasing function of excess profits (which means that as profits increase, capital accumulation would increase) will entirely be given up under two circumstances. One, if surplus above subsistence level falls to zero and two, if the rate of profit falls to such a low level that it is only sufficient to compensate the risk.

The dynamic process of capital accumulation, as envisioned by Ricardo, can be summarized below. For this purpose, we shall have to analyse the behavior of 'net income' and its rate of profit. According to Ricardo, profits are determined by the surplus amount left over after the subsistence level wages are paid to labour. Thus, the rate of profit would change with a change in the subsistence level of wages. Since the subsistence level of wages has a tendency to rise over time (due to diminishing returns, the natural tendency of the rate of profit is to fall. However, the introduction of innovations might keep in check the diminishing returns and thus the share of the subsistence wages in the profit might also fall. It is in these periods that profits would rise. But, Ricardo believed that these tendencies could not last for long as ultimately

diminishing returns would set in and the long run trend of profits will inevitably be downwards. In the earlier period the rate at which profits fall was quite low and their share in output tends to increase, also the rate at which capital accumulation takes place is quite high. But in the latter period, when the share of profits begins to fall, it reinforces downward pressure on the capital accumulation, and force it to slow down. Ultimately, the pressure of the growing population requires the cultivation of much inferior land where the margin for profit is almost zero. In an economy which has reached this stage, the capital accumulation stops completely and further increase in population also becomes impossible. In Ricardo's system, this is the stationary point in the growth process of an economy.

6.4.4 THE DYNAMIC PROCESS OF GROWTH

In Ricardian economy, the economy does not advance towards the stationary state in a sustained manner. The progress is often interrupted for short intervals when the economy enters into state of equilibria, during which the wages stabilize and population does not grow. During these periods, the 'net income' of the economy does not fall to zero, and the rate of return on the investment is more than what is necessary to compensate the risk. Because of these factors, investment is promoted, causing an increase in the demand for labour. Excess wages, above the subsistence level, promotes population growth. In this temporary phase, the rise in wages, decline the portion of profits in income, which leads to a slower rate of capital accumulation. Eventually, when the supply of labour catches up with the demand for it, the economy breaks into a new equilibrium position. The economies' previous equilibrium positions differ from this new position in at least two major aspects. One, the size of the population grows with every new equilibrium position the economy reaches, and two, the capital stock of the economy also grows larger and larger with every successive equilibrium position reached.

According to Ricardo, an economy which has reached the stationary state, is characterized by wages at the subsistence level, maximum possible population, profits which are merely enough to compensate the risk, constant capital stock and a fixed quantity product. Ricardo did not visualize

any economy reaching the stationary state any time in the near future. In Ricardo's time underdevelopment did exist. In his opinion, sparsely populated countries required a more rapid growth of capital stock. This same remedy could not be applied to countries with dense population, as rapid increase in capital stock would promote more population growth, and this would make matters worse for the country. Ricardo, thus suggested that the only remedy for these densely populated countries was a population control, by a change in the consciousness of the working class.

6.5 MALTHUS'S THEORY OF GROWTH

Robert Malthus (1766–1834) was an economist who was most famous for his doctrine which stated that “population increases in a geometric ratio, while the means of subsistence increases in an arithmetic ratio” which basically means that the population of mankind will eventually outstrip man's ability to supply himself with the necessities of life. Dubbed the “prophets of gloom and doom,” his theories became associated with turning economic thought into a dismal science. He became renowned for his pessimistic predictions regarding the future of humanity. His major contribution to economic thought came in the form of six editions to *An Essay on the Principle of Population*, published from 1798 to 1826.

Unlike both Adam Smith and Ricardo, Robert Malthus was more interested in the problems of growth of the economy and population. According to him, no enquiry could be more important than that which identifies the causes of differences between the potential and actual growth of a country. The concepts that would help understand Malthus' theory of growth are his views on human resources and capital accumulation, the identification of the growth-retarding factors and the interaction of different sectors in underdeveloped areas.

6.5.1 HUMAN RESOURCES AND CAPITAL ACCUMULATION

According to Malthus, population growth, to a great extent, depends on the strengths of psychological and physiological forces. He also admitted that population growth is limited by society's riches. He wrote “an increase in population cannot take place without a proportionate or

nearly proportionate increase of wealth”. Malthus argued that, lack of wealth is a constraint on population growth. Thus, it is clear that the natural tendency of population growth in Malthusian system does not ensure that population or income will actually grow in a country.

Effective demand which is the quantity of a good or service that consumers are actually buying at the current market price, is the main for propelling the growth process.

Malthus believes that an increase in the population does not provide a stimulus to economic growth as, it may not increase effective demand because workers often may be lacking in purchasing power due to the lack of demand of their labour. Supporting both Smith’s and Ricardo’s views, Malthus thought that demand for labour depends on capital accumulation.

Malthus differed from both Smith and Ricardo on the postulate that savings always equals investment and hence, any act of savings would lead to an increase in wealth of the economy. Rejecting Say’s Law of Market, which states that ‘supply creates its own demand, he says that savings brings about a reduction in effective demand by reducing the ability to consume of people, in turn bringing down a decline in profits and investments.

According to Malthus

$$Y = R + W, \dots\dots\dots (1)$$

where,

Y represents National income

R denotes profit

W states the wages

We may re-write this equation as

$$R = Y - W \dots\dots\dots (1a)$$

Thus, we can deduce from the above equation that profits are equal to total output (income) minus

the workers wages.

Workers getting subsistence wages are too poor to save any amount from their income. In other words, workers spend/consume the whole of their income, which we can denote as C_w . Capitalist' earnings are larger than that of what they need for their consumption. Hence, they save this excess amount of their income. According to Malthus, the total amount of the capitalist' savings are not invested, and since savings only produce income to the extent they are

invested, we can substitute this in equation (1a) as,

$$R = (I + C_c + C_w) - C_w = I + C_c, \dots\dots\dots (1b) \text{ where,}$$

C_c represents the capitalists consumption

I denotes investments

Identifying equation (1) as equation (1b) helps us in forming Malthus' argument. According to him, National Income (Y) is created by Investment (I) and Consumption (C), which is divided into Capitalist consumption (C_c) and worker consumption (C_w). As the wages of workers equals their consumption level, profits are equal to Investment plus the capitalist's consumption. Malthus argues that abstinence to consume on the part of the capitalist only contributes to growth if the savings are then invested. In case this does not happen, the capitalist's savings would only retard growth. Nonetheless, he also states that when the opportunities for profitable investment are exhausted, savings cannot be converted into investment. At this point abstinence on the part of the capitalist only reduces the amount of effective demand in the economy, thereby reducing the possibility of growth.

6.5.2 GROWTH-RETARDING FACTORS

Malthus also throws light on three main factors which he thought sometimes arrest economic growth. Firstly, he refers to a backward sloping curve of effort for both Workers and managers, meaning that the incentive to do hard work was missing on account of many factors such as market size, etc. He suggested that a remedy to the problem of small size of markets was in the promotion of international trade and by improving the transport and communication at a domestic level. Secondly, inability of an economy, to structurally transform itself into an industry based economy, may lead to economic retardation. Technological progress generates employment in the industrial sector by allowing providing jobs to people from the agricultural sector. Where technology fails, income tends to fall and there is a rise in unemployment. The introduction of land reform, so as to provide the ownership of the land to the actual land tillers so as to generate an incentive to raise output, was the solution provided by Malthus, but he himself stated that this was only temporary.

Thirdly, intersectoral analysis of Malthus suggested that technological progress in a country had to be rapid enough to permit large investment in the industrial sector, whereby the impact of diminishing returns to increased employment on the land can be neutralized. Often such progress could not be accomplished in industries while diminishing returns in agriculture put a break on its development. In fact, in Malthusian economy, it is the interaction of these two sectors which lead to the stationary state.

6.5.3 SECTORAL INTERACTION IN UNDERDEVELOPED AREAS

Malthus, in terms of sectoral Interaction, explained why some economies remain underdeveloped. He asserted that in a state of Autarky, which means the condition of self-sufficiency (absence of trade), the two sectors of an economy (agricultural and industrial) constitute markets for each other's products. therefore, due to the dependency among the two sectors, if any one sector fails to grow, it becomes exceedingly difficult for the other sector to expand. Malthus contended that the development of the industrial sector in a backward economy is limited by underdevelopment of the agricultural sector in the economy. The backwardness of the agriculture and the poverty of the peasantry do not result from the scarcity of land, but it is the limited demand for agricultural products due to inadequate development of the industrial sector which prevents the peasants and the landlords from taking up any programmes which help agricultural development. Faced with inadequate resources and limitations of the market, farmers have no incentive for more intensive cultivation. To sum up the general view of Malthus, the limited effective demand in less developed countries prevents development in both the agricultural and industrial sectors. If a small modern industrial sector does emerge in the economy, it leads to a phenomenon called dualism. because of the high level of techniques employed in the modern sector, the employment opportunities it generates are limited and therefore, the overall impact on the economy is hardly felt. Labour intensive techniques of production in the agricultural sector does permit the absorption of most of the country's labour force, but it does not generate high enough income/wages of the labourers, and therefore it does not lead to an increase in the effective demand of the economy, nor to an increase in the rate of economic growth.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1(a) According to Malthus, what is the role of effective demand in economic growth?

(b) Why does Malthus reject Say's Law?

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Q2 (a) Mention any two growth-retarding factors identified by Malthus.

(b) What is the role of sectoral interaction in explaining underdevelopment?

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6.6 THE CLASSICAL'S THEORY OF GROWTH

We have separately viewed each of the individual growth theories propagated by Adam Smith, David Ricardo and Thomas Malthus. In each case, we have seen how each of the theories the economists have visualized the economy entering a stationary state. It can be noted that there is little agreement between them, but we find that the basic approach and framework for the classical economists is the same.

The classical economists had explained growth process in terms of rates of technological progress and the population growth. In their opinion, technological progress (depending on capital accumulation) remains in lead for some time, but eventually falls when a fall in the profit rates prevent further accumulation of capital. It is at this stage that the economy falls into a state of

stagnation. The main components of the Classical Theory of growth and Stagnation are the production function, technological progress, investment, the determinants of profit, size of labour force and the wage system.

6.6.1 THE PRODUCTION FUNCTION

Smith, Ricardo and Malthus all postulated the identical production function, which can be written as $Y = f(K, L, N, S)$ (1) which means that output depends on the stock of capital, labour force, land and the level of technology. In the generalized classical growth model 'Land' is taken as "the supply of known and economically useful resources" and this seems like the right thing to do as it is not the amount of cultivable land and its fertility that determines the national output but the total supply of known and usable natural resources.

Most of the other classical economists, except for Adam Smith, seems to believe that the production function is linear and homogeneous, which implies that it has constant returns to scale meaning that on doubling the quantities of all the factors of production output would double. Adam Smith, on the other hand, believed in increasing returns to scale on account of improved division of labour.

In case the term land is restricted to cultivable land only, the supply of which is a fixed amount, then the askable question to be answered would be as to how the output would respond to an increased supply of labour with a fixed supply of land.

Most classical economists believed that output would not show a uniform response to the increase in the quantity of land. They referred to four different responses of output which depended on the phase of the production, that is to say, increasing marginal returns (where an increase in the variable input results in an increase in the marginal product of the variable input), Diminishing returns (when additional units of an input result in a smaller increase in output), diminishing average returns (where the average output increases by less from additional units of an input used) and diminishing total returns.

6.6.2 TECHNOLOGICAL PROGRESS AND ITS CONSTRAINTS

Most classical economists believe that the main constraint to technological progress is Capital Accumulation. According to them, technological progress could not be assumed to be completely independent factor. In their opinion, technological progress is a capital absorbing and therefore, capital accumulation is a pre-requisite for a steady advance of technology. For this Capital Accumulation they stressed on savings and Investment as a primary factor. Putting this in equation form,

$$S = S(I) \dots\dots\dots (2)$$

6.6.3 INVESTMENT

Investment, in the classical model, refers to Net investment, which is the net addition to the capital stock. For the classical economists profit was the sole motivator for all productive activity, and therefore, they believe that investment activity is dependent on the profit expectations of the entrepreneurs, which is largely influenced by the rate of profit. Stating the above in equation form, where R is profit and net investment, by definition, equals the increase in the capital stock, we get

$$I = dK = I(R) \dots\dots\dots (3)$$

6.6.4 DETERMINANTS OF PROFIT

By studying many theories of classical economists, it is possible to identify two main factors, which determine the level of profits in a system. They are, one, the supply of labour force (which is dependent on the population growth) and two, the technological progress.

The classical economists thought that population would grow over time leading to an increase in the labour force. Since supply of labour is fixed, the increase in population would lead to diminishing returns in agriculture which would increase labour costs and reduce profit margins. They did not believe that an improvement in Technology would lead to increasing returns from agriculture as they thought this to be the case specific to only industries. In their opinion, the tendency of increasing returns would offset that of diminishing returns in the case of industries. The trend of

profit rate depended on the relative strengths of these two tendencies. This said, however, the classicists were not optimistic of the future stating that ultimately profit rate would fall, slowing down investment activity. So we can write, $R = R(L, S)$ (4)

One can see that there is a Circularity in the Arguments of the classicists. For them, Technological progress depends on Investment. Investment, in turn, depends on profits, which depends among other things, on Technological Progress. “This circularity is no accident or oversight; it is precisely what the classicists- and most later economists- have wished to stress; in economic development nothing succeeds like success, and nothing fails like failure.”

6.6.5 SIZE OF LABOUR FORCE

Population Growth and the Labour supply have been explained in terms of the ‘Iron Law of Wages’. They believe that it is the size of the wage fund which decides the rate of population growth. When the wage fund grows, it leads to a temporary rise of wages levels above the subsistence level. This gives incentive to boost population growth which increases supply of labour, bringing the wage level to subsistence level again. Even now, this theory seems to provide a satisfactory description of peasant societies in Third world countries.

$$L = L(W) \quad (5)$$

6.6.6 WAGES

The wage fund, which is the amount of money available for paying wages to the labour, constitutes the working capital, and is created out of savings. Both Adam Smith and Ricardo believed that savings would automatically get converted into investment. Malthus however, was of a different opinion. He believed that in the absence of Effective demand, savings of the Capitalists do not find investment opportunities. Keeping this in mind, it can be said that the classical position is that the wage fund depends on the levels of investment and not savings in the economy. So we may write,

$$W = W(I) \quad (6)$$

6.6.7 CLOSING THE SYSTEM

Now, we have seven variables and only six equations. Hence, the system is indeterminate. It can be closed by introducing the following identity. $Y = R + W$ (7)

This identity states that, total real income is the sum of profits and wages. In this determinate system, we can now clearly see the circularity which has been previously mentioned.

We can examine this circularity by breaking it down to see how the system evolves. Since the classical economics believed in a capitalist economy in which the main motivator is profit, we will start examining it from the point of profit

$$dR \rightarrow dL \rightarrow dK \rightarrow dS, dW \rightarrow dL \rightarrow dR$$

The above flow chart indicates four things.

It implies that any increase in profits induces investment, which thereby brings an increase in the raising of the stock of capital

A growth in the capital stock allows a steady growth in the technological progress and the wage fund

A growth in the wage fund accelerates population growth and with an expansion in the labour force diminishing returns to labour sets in.

Thus, labour costs increase and the profit margins decline.

This, in the classical model, is the end result of development activity or in other words the Stationary state.

6.6.8 MERITS

Two relevant insights that became evident from the Classical theory of Growth and Stagnation are as follows:

- (a) The theory underlies that there is a strong relationship between the performance of the Agricultural sector and the industrial growth.
- (b) The model points to the key variables of economic growth and the analysis of their interdependence.

6.6.9 LIMITATIONS

The two main limitations in the classical theory of growth and stagnation have been stated below:

- (a) The classical economists knew the role of entrepreneurs in the process of production, yet they never assigned any important position to them in their system.
- (b) Contrary to what the classical economists have envisioned, Capital had become an important factor in agriculture and is now increasingly substituting land. This has prevented a fall in the rate of profits. Even in the industrial sector, growth caused by increasing returns has prevented profit rates from falling. Hence, investment activity has not slowed down. The classical economists were right to observe that technical progress was greatly dependent on savings and investment, but the relationship they share is not as rigid as the one they have assumed in their model.

6.7 Let's Sum-up

In view of the above, we may easily conclude that the theory underlies a strong relationship between the performance of the agriculture sector and the industrial growth. The theory points to the key variables of economic growth and the analysis of their interdependence.

6.8 Glossary

- Capital Accumulation: The process of increasing capital stock (like machinery,

infrastructure, etc.) through investment, which is essential for economic growth.

- **Stationary State:** A stage in classical growth theory where the economy stops growing—characterized by constant income, population, zero profit, and no net investment.
- **Iron Law of Wages:** The theory that wages naturally tend to settle at a subsistence level due to population adjustments over time.
- **Effective Demand:** The actual purchasing power in the economy that influences production and investment decisions.
- **Say's Law:** A classical economic principle stating that supply creates its own demand; challenged by Malthus who argued that savings might not always translate into investment.
- **Dualism:** A condition in underdeveloped economies where a modern industrial sector exists alongside a stagnant traditional agricultural sector with little interaction between them.
- **Diminishing Returns:** The concept that increasing one input (e.g., labour or land) while keeping others constant eventually leads to smaller increases in output.
- **Wage Fund Doctrine:** The idea that total wages in an economy are determined by the amount of capital allocated to pay workers.
- **Subsistence Wage:** The minimum level of income necessary for a worker and their family to survive, often associated with stable population levels.
- **Technological Progress:** Advancements in methods of production that increase efficiency, viewed by classical economists as dependent on capital accumulation.

6.9 FURTHER READINGS

Agarwal R.C : Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L : The Economics of Development and Planning

Jhingan M.L : Advanced Economic Theory

6.10 Hints to Check your Progress (CYP)

CYP-I

Q1. Refer to Sections 6.3.1

Q2. Refer to Sections 6.3.4

CYP-II

Q1. Refer to Sections 6.5.1

Q2. Refer to Sections 6.5.3

6.11 SELF ASSESSMENT QUESTIONS

Q1. Critically examine the Adam Smith's theory of growth.

Q2. Discuss the Malthus's theory of growth

Q3. Write notes on:

(i) Capital Accumulation (ii) The production function (iii) The growth of labour force (iv)

Human resources and capital accumulation

Q4. Discuss critically of David Ricardo's theory of growth of economic development.

Q5 What do you mean by Classical theory of growth.

MARXIAN MODEL OF GROWTH AND COLLAPSE

STRUCTURE

7.0 Objectives

7.1 Learning Outcomes

7.2 Introduction

7.3 The Marxian Theory

7.3.1 Materialistic Interpretation of History

7.3.2 Surplus Value

7.3.3 Capital Accumulation

7.3.4 Capital Crisis

7.3.5 A Critical Appraisal

7.4 The Marxian Theory and Underdeveloped Countries

7.5 Lets Sum-up

7.6 Glossary

7.7 Further Readings

7.8 Hints to Check your Progress (CYP)

7.9 Self-Assessment Exercise

7.0 OBJECTIVES

After going through this lesson the students will able to:

- Understand the Materialistic Interpretation of History
- Learn about the Surplus value Unrealistic
- To know about the Cyclical Theory Wrong
- Understand the Marxian Theory and Underdeveloped Countries
- Understand the main features of Schumpeter's theory
- Learn about the role of entrepreneur as an innovator
- To know about the end of capitalism
- Understand the Schumpeter's Theory and Underdeveloped Countries

7.1 Learning Outcomes

After studying this chapter, students will be able to:

1. Explain the key components of the Marxian theory of economic development, including surplus value, capital accumulation, and crisis.
2. Understand Schumpeter's theory of economic development, focusing on innovation, entrepreneurship, and the cyclical nature of growth.
3. Compare the predictions of Marx and Schumpeter regarding the collapse of capitalism.
4. Evaluate the applicability of both theories to underdeveloped and modern mixed economies.

7.2 INTRODUCTION

Karl Marx, the celebrated author of 'Das Kapital', is one of the few celebrities in history who cast a

spell on hundreds of millions of people by the doctrines. He has been epitomized as 'Marx the Prophet' and is ranked with Christ and Mohammad if we are to judge him by the number of his followers. As Schumpeter wrote, "Marxism is a religion. To the orthodox Marxist, as any believer in a Faith, the opponent is not merely in error but in sin". Marx predicted the inevitable doom of capitalism and it was on this prediction that communism had built its edifice. The Marxian analysis is the gravest and the most penetrating examination of the process of capitalist development. It had the greatest influence in shaping policies in the Soviet Union, China, and other communist countries. Our purpose here is to examine the Marxian process of economic development and not the Marxist system as whole.

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

7.3 THE MARXIAN THEORY

Marx contributed to the theory of economic development in three respects, namely, in broad respect of providing an economic interpretation of history, in the narrower respect of specifying the motivating forces of capitalist development, and in the final respect of suggesting an alternative path of planned economic development."

7.3.1 MATERIALISTIC INTERPRETATION OF HISTORY

The materialistic interpretation of history attempts to show that all historical events are the result of a continuous economic struggle between different classes and groups in society. The main cause of this struggle is the conflict between 'the mode of production' and 'the relations of production.' The mode of production, refers to a particular arrangement of production in a society that

determines the entire social, political and religious way of Living. The relations of production relate to the class structure of a society “uniquely characterized” by the following components:

1. The organization of labour in a scheme of division and co-operation, the skills of labour, and the status of labour in the context with respect to degrees of freedom or servitude.
2. The geographical environment and the knowledge of the use of resources and materials.
3. Technical means and processes and state of science generally.

According to Marx every society's class structure consists of the propertyed and the non classes. Since the mode of production is subject to change, a stage comes in the evolution of a society when the forces of production come into clash with the society's class structure. The existing property relations “turn into fetters” on the forces of production. Then comes the period of social revolution. This leads to the class struggle—the struggle between the haves and the have-nots—which ultimately overthrows the whole social system.

7.3.2 SURPLUS VALUE

Marx uses his theory of surplus value as the economic basis of the class struggle under capitalism and it is on the basis of his theory of surplus value that he builds the superstructure of his analysis of economic development. Class struggle is simply the outcome of accumulation of surplus value in the hands of a few capitalists; Capitalism, according to Marx, is divided into two great protagonists: the workers who sell their labour-power and the capitalists who own ‘the means of production’. Labour power is like any other commodity. The labourer sells his labour for what it is worth in the labour market, viz., for its value. And its value, like the value of any other commodity, is the amount of labour that it takes to produce labour-power. In other words, the value of labour-power is the value of the means of subsistence necessary for the maintenance of the labourer, which is determined by the number of hours necessary for its production. According to Marx, the value of the commodities necessary for the subsistence of the labour is never equal to the value of the produce of that labour. If a labourer works for a ten-hour day, but

it takes him six hours' labour to produce goods to cover his subsistence, he will be paid wages equal to six hours' labour. The difference worth 4 hours' labour goes into the capitalist's pocket in the form of net profits, rent and interest. Marx calls this unpaid work "surplus value." The extra labour that a labourer puts in and for which he receives nothing, Marx calls "surplus labour."

7.3.3 CAPITAL ACCUMULATION

According to Marx, it is surplus that leads to capital accumulation. This supererogatory labour simply augments the capitalist's profits. The capitalist's main motive is to the surplus value which goes to swell his profits. He tries to maximize his profits in three ways: (1) by prolonging the working day in order to increase the working hours of surplus labour. If the working hours are extended from ten to twelve, the surplus will automatically increase from four to six; (2) by diminishing the number of hours required to produce the labourers sustenance. If they were reduced from six to four, the surplus would again rise from four to six. It also tantamounts to a reduction in the subsistence wage; (3) by the speeding up of labour i.e increasing the productivity of labour. This requires a technological change that he in raising the total output and lowering the cost of production.

Of the three methods, according to Marx, increase in the productivity of labour is the likely choice of the capitalists, since the other two methods, of extending the working hours and reduction of wages, have limitations of their own. So in order to make improvements in the productivity of labour, the capitalists save the surplus value, reinvest it in acquiring a large stock of capital and thus accumulate capital "Accumulate, accumulate! That is Moses and the Prophets," and 'Save, save. i.e., reconvert the greatest possible portion of surplus value or surplus product into capital." These are the capitalists methods.

Profits are determined by the amount of capital. As Marx says, "Capital is dead labour that vampire like only lives by sucking living labour and lives the more, the more labour it sucks." To explain the origin of profit and to analyse the relation between wages and profits, Marx separates capital into constant capital and variable capital. Capital invested in stocks or raw materials or

equipment which directly assists the productivity of labour, Marx calls constant capital (c). Capital devoted to the purchase of labour power in the form of wages or direct subsistence, he terms variable capital (v). The surplus value is denoted by s. So the total value of product (w) = constant capital (c) + variable capital (v) + surplus value (s) or (c + v) + s. It is on the basis of this division of the total output that Marx introduces his Departmental Schema of Simple and Expanded Reproduction.

Marx divides the total output of the economy (w) into Department 1 and Department 2. The former is related to the production of capital goods and the latter to the consumer goods. The total output of each Department is shown as

$$\begin{array}{l} \underline{w_1 = c_1 + v_1 + s_1} \\ + w_2 = c_2 + v_2 + s_2 \\ \hline W = C + V + S \end{array}$$

The Simple Reproduction Scheme indicates a situation of stationary state in which all that is produced is consumed. Thus net investment is zero and there is no accumulation or surplus. Therefore, equality prevails in both the Departments. Hence the value of total constant capital in both the Departments ($c_1 + c_2$) must equal the output of Department 1 ($c_1 + v_1 + s_1$) that is

$$\begin{array}{l} c_1 + c_2 = c_1 + v_1 + s_1 \\ c_2 = v_1 + s_1 \end{array}$$

By eliminating the common factor c_1 . Similarly, the total consumption in both the Departments ($v_1 + s_1 + v_2 + s_2$) must equal the total output of Department 2 ($c_2 + v_2 + s_2$) that is

$$c_2 + v_2 + s_2 = v_1 + s_1 + v_2 + s_2$$

or
$$c_2 = v_1 + s_1$$

(By eliminating the common factor $v_2 + s_2$). This shows that the value of constant capital in Department 2 must equal the value of consumed by workers (v_1) and capitalists (s_1) in department 1.

Marx's Expanded Reproduction Scheme that accumulation takes place because the production of Department 1 (capitalist sector) is greater than the demand for constant capital in both the

Departments, that is

$$c_1 + v_1 + s_1 > c_2 + v_2 + s_2$$

or

$$v_1 + s_1 > c_2$$

This shows that accumulation is taking place which is being invested in employing more labour (v_1) and the means of production (c_1) in Department 1 than in Department 2. These, in turn, increase the surplus value (S_1).

In order to analyse the nature of capitalist accumulation, Marx establishes certain relationships between c , v , and s . The ratio of constant to variable capital (c/v), at is termed as the organic composition of capital. The rate of surplus value is defined as s/v , the ratio of surplus value to variable capital or of profits to wages. This is known as the degree or rate of exploitation. This leads Marx to point out that the rate of profit is not dependent solely on the rate of surplus value. The rate of profit (r) can change even though the rate of surplus value (s/v) remains constant, if a change occurs in the organic composition of capital (c/v). The influence of technical progress is to alter the organic composition of capital, generally in the direction of raising the ratio of constant to variable capital. Hence the tendency of industrial progress is to lower the rate of profit r —even though there is no decrease in the rate of surplus value.

One of the consequences of capital accumulation is the concentration of capital in gigantic enterprises. Competition among capitalists forces them to cheapen their products. This can be done by introducing labour-saving machines which increase labour productivity.

Those capitalists who are unable to replace labour by machines ‘squeezed out’ and their enterprises are taken over by big capitalists.

Capital accumulation and concentration involve increase in constant capital and decline in variable capital. The rapid growth of constant capital as compared with variable capital leads to a relative decrease in the demand for labour. This process of supplanting labour by machines creates an industrial reserve army which increases as capitalism develops. The larger the industrial reserve army, the worse are the conditions of the employed workers, since the capitalist can dismiss dissatisfied and

troublesome workers, being able to replace them from the ranks of the reserve army. Capitalists are also able to cut down wages to a semi-starvation level and appropriate more and more surplus value. This is the law of the increasing misery of the masses under capitalism. This is shown in Fig. 7.1 where the labour force is taken on the horizontal axis and the wage rate on the vertical axis. D is the demand curve for labour and S is the supply curve of labour. At the wage rate W, there is an increase in the industrial reserve army equal to RA(=LL₁). As the industrial reserve army expands capitalists start adopting labour-saving machines and reduce the wage rate to minimum subsistence level OM in order to have more surplus value.



LABOUR

FIG. 7.1

But when the capitalist is replacing the workers by machines, he is killing the goose that laid the eggs. There is a continual reduction of the surplus value. Marx believes that technological progress tends to increase the organic composition of capital (c/v). Since the rate of profit is inversely related to the organic composition of capital, the former tends to decline with accumulation. Marx explained this tendency of falling rate of profit in terms of the following equation:

$$r = \frac{s}{c+v} = \frac{s/v}{c/v+1}$$

The rate of profit (r) varies inversely with the organic composition of capital (c/r) and directly with the rate of surplus values (rate of exploitation). Therefore, the rate of profit 'r' rises with the rate of

surplus value s/v . Therefore, the rate profit r rises with the rate of surplus value s/v and falls with the organic composition of capital c/v .

7.3.4 CAPITAL CRISIS

In order to counteract this tendency of declining rate of profit, the capitalists increase the degree of exploitation by reducing wages lengthening the working day, and by “speed ups,” etc. But since every capitalist is engaged in introducing new labour-saving and cost reducing devices, the ratio of labour (and hence surplus value) to total output falls still further. The rate of profit declines all the more. Production is no longer profitable. Consumption dwindles as machines displace men and the industrial reserve army expands. Bankruptcies ensue. Every capitalist tries to dump goods in the market and in the process small firms disappear. A capitalist crisis has begun. The ultimate cause of all economic crises, Marx points out, is the poverty and limited purchasing power of the masses. Economic crisis appears in the form of an over-production of commodities, acute difficulties in finding markets, a fall in prices and a sharp curtailment of production. During the crisis, unemployment increases sharply, the wages of workers are further cut, credit facilities break down and small employers are ruined.

This does not continue for ever. Revival soon starts. The low level of prices and wages, elimination of speculative ventures and destruction of capital tend to raise the profit rate which eventually leads to new investments. As Marx wrote, “A crisis always forms the starting point of large new investments. Therefore, from the point of view of society as a whole, a crisis is, more or less, a new material basis for the next turnover cycle.”

In each period of crisis stronger capitalists expropriate the weaker capitalist and along with it grows the indignation of the working class, “a class at increasing in numbers, and disciplined, united, organized by the very mechanism of the process of capitalist production itself. The monopoly of capital becomes a fetter upon the mode of production centralization of the means of production and socialization of labour at last reach a point where they become incompatible with their Capitalists integument. This integument is burst as under. The knell of capitalist’s private property sounds. The expropriators are expropriated. This is the historical tendency of capitalist accumulation. In elaborating the general law of capitalist accumulation. Marx provides the economic explanation of the necessity and inevitability of the revolutionary transformation from capital to socialist society. Capitalism leads to the proletarian revolution whereby the ‘dictatorship of the proletariat’ is established. Poverty will disappear. The state will ‘wither away’ and each individual will contribute to national income according to his abilities and receive according to his needs. Socialism replaces capitalism.

7.3.5 A CRITICAL APPRAISAL

Marx’s theory of capitalist development has been accepted by his followers as a gospel truth while it has been severely criticized by his opponents for the following reason”.

- **SURPLUS VALUE UNREALISTIC**

The whole Marxian analysis is built on the theory of surplus value. However, in the real world, we are concerned not with values but with real tangible prices. Thus Marx has created an abstract and unreal value world which has made it difficult and cumbersome to understand the working of capitalism.

- **MARX—A FALSE PROPHET**

Marx has proved to be a false prophet. No doubt Socialist societies have come into existence but their evolution has not been on the lines laid down by Marx. The countries which have toed the Marxian line of thinking have been curious those in which capitalist development lagged behind. All the communist states had been poor and are even now so as compared to the capitalist countries. There is no increasing misery of labour in advanced capital societies as asserted by Marx. On the contrary, real wages of workers have continued to rise. The workers have tended to become more prosperous with capitalist development.

- **TECHNOLOGICAL PROGRESS HELPFUL IN INCREASING EMPLOYMENT**

Marx pointed out that with increasing technological progress, the industrial reserve army expands. But this is an exaggerated view for the long run effect of technological progress is to create more employment opportunities by raising aggregate demand and income.

- **FALLING TENDENCY OF PROFIT INCREASING NOT CORRECT**

According to Joan Robinson, Marx's explanation of the falling tendency of profits explains nothing at all," Marx contends that as development proceeds there is an organic composition of capital which brings about a decline in the profit rate. But Marx failed to visualize that technological innovations can be capital-saving too, and that with a fall in capital-output ratios and increases in productivity and total output, profits can rise along with wages.

- **MARX COULD, NOT UNDERSTAND FLEXIBILITY IN CAPITALISM**

Marx also could not foresee the emergence of political democracy as the protector and the preserver of capitalism. Democracy as a political system has proved its resilience and adaptability to the changing times. The introduction of social security measures, anti-trust laws and the mixed economies have given a lie to the Marxian prediction that capitalism contains within itself the seeds of its own destruction.

- **CYCLICAL THEORY WRONG**

Marx emphasized that capital accumulation led to a reduction in the demand for consumption

goods and fall in profits. But he failed to realise that with economic development the share of wages in aggregate income need not fall, nor the demand for consumer goods.

- **STATIC ANALYSIS**

Marx's theory, though it sought to explain a dynamic process was, in the words of Schumpeter, 'unsuited for it, its two main props being (a) labour theory of value, and (b) a modified version of subsistence theory of wages. Marx was analyzing the problem of growth with the help of tools which were essentially suited to static economic analysis.'

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1 (a) What is surplus value according to Marx?

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.....
.....

(b) How does surplus value contribute to capital accumulation?

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.....
.....

Q2 (a) Explain the concept of the "industrial reserve army."

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.....

(b) How does technological progress affect wages and employment in Marx's theory?

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.....
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.....

7.4 THE MARXIAN THEORY AND UNDERDEVELOPED COUNTRIES

The Marxian theory is not applicable directly to underdeveloped countries. Man did not think of the problems of such countries. "Apart from a few illusions remarkable for their determinant note with regard to obtaining prospects for economic development in regions like Western Asia or India no special attention is given to the problem of change in underdeveloped countries. Marx was mainly concerned with problems connected with the development of capitalism in the Western World. Colonies were regarded as one of the 'highest stages' in capitalist development. Foreign domination was regarded as the principal cause of economic backwardness of the colonies.

Marx's failure to recognize the existence of population pressures makes his theory inapplicable to overpopulated underdeveloped countries. But some of the variables of his analysis do exist in such economies. In underdeveloped countries till recently under the colonial rule labour was being exploited for the benefit of the home country. There was the concentration of capital in the hands of a few capitalists: Even now in almost all the underdeveloped countries that are also politically free, wages are near subsistence levels; the 'increasing misery' of the masses is visible a 'reserve army' of the chronic and disguised unemployed exists; the problem of under-consumption is universal and the society is sharply divided between the 'two classes,' the middle class being virtually non-existent. The existence of such conditions can lead to 'class struggle and the establishment of the 'dictatorship of the proletariat.' The recent political turmoil's in some of the Latin American, African, the Middle and the Far Eastern countries have shown that the existence of Marxian 'conditions' in backward countries act like nurseries where the communist seed grows soon. "Ironically, however, it is Marx's perception of planned development expressed in his minor writings which presumably has had a greater impact on the actual economic development of countries such as Soviet Russia and mainland China. Marx's notion of planned development also seems to appeal to those backward countries which are in a great hurry to industrialize at the risk of excessive national 'belt-tightening.'"

As a matter of fact, it is Marx's Departmental Schema that is applicable to underdeveloped countries. Such a country is primarily a dualistic economy consisting of a capitalist sector and a subsistence agriculture and small-scale sector which may be said to represent Marx's two Departments. It is the capitalist sector which yields large economic surplus, while the subsistence sector yields a small surplus. Rapid economic development¹⁵⁶ is possible by reorganizing and expanding the capitalist sector (Department 1) and transforming the subsistence sector (Department 2) into the former so as to increase the economic surplus. This necessitates planning for industrialization and increase in the supply of agricultural commodities to meet the expanding demand of the capitalist sector. As pointed out by Oscar Lange, it is the commodity character of agricultural production which

determines the course and rate of industrialization, along with the increased production of capital goods.

A number of underdeveloped countries like India, the Egypt, Burma and Ghana have followed the Marxian Departmental Schema in their development plans. These plans have emphasized the growth of Department 1 in relation to Department 2. The basic strategy has been to increase investments in capital goods industries and services, and to increase the supply of consumer goods by increasing investment and production in agriculture and small-scale sector. The primary aim has been to create larger employment opportunities, to increase purchasing power and fresh demand, to build a strong capital base and increase productive and technical capacities within the economy.

7.5 Lets Sum-up

Despite these weaknesses some of the Marxian tools pertaining to his theory of economic development have ever since become part and parcel of the theory of economic growth. Technological progress and innovations are the main stay of any theory of economic development. Similarly, capital accumulation is the fundamental idea behind economic growth. Profits are still regarded as both the hallmark of capitalist development and its Achilles' heel. Marx showed that economic development does not follow a smooth course but comes about in "fits and starts." Business cycles are inevitable. He pointed out that a state of under was the main cause of depression and that for stable growth a proper balance between investment and consumption was essential. He also indicated that too low or too high wages in relation to total output can adversely affect investment and thus stifle economic growth. Industrial unemployment is also one of the major variables in his system. Thus, Marx was in a way Keynes precursor.

So far as Schumpeter theory is concerned it makes an important contribution to the theory of economic development. It is useful in explaining the past economic development of the European countries under capitalism. In the words of Meir and Baldwin, Schumpeter's broad socioeconomic analysis of capitalist process is generally admired, yet few seem prepared to accent its conclusions. His arguments are stimulating but not completely convincing. Although Schumpeter analysis is provocative, it seems one-sided and overemphasized.

7.6 Glossary

- Surplus Value: The unpaid portion of labour that is appropriated by capitalists as profit (Marx).

- Organic Composition of Capital: The ratio of constant capital (machines, raw materials) to variable capital (wages).
- Industrial Reserve Army: A pool of unemployed workers created due to labour-saving technologies (Marx).
- Circular Flow: A repetitive economic state where production and demand are in equilibrium, with no innovation or profit (Schumpeter).
- Entrepreneur (Schumpeter): A risk-taker and innovator who disrupts equilibrium to initiate development.
- Innovation: Introduction of new products, methods, markets, or resources—central to Schumpeter's development theory.
- Creative Destruction: The process by which old economic systems are destroyed and replaced by newer, more productive ones.
- Capitalist Crisis: A situation of overproduction, falling profits, and collapse in demand—considered inevitable by Marx.
- Boom and Depression: Phases of the business cycle driven by innovation and investment surges followed by collapses (Schumpeter).
- Departmental Schema: Marx's model dividing the economy into sectors producing capital goods and consumer goods.

7.7 FURTHER READINGS

Agarwal R.C : Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L : The Economics of Development and Planning

Jhingan M.L : Advanced Economic Theory

7.8 Hints to Check your Progress (CYP)

CYP-I

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Q1 Refer to Section 7.3.2

Q2 Refer to Section 7.3.3

7.9 SELF ASSESSMENT EXERCISE

Q1. Critically examine the Marxian theory of economic development?

Q2. “Socialism replaces capitalism.” Comment?

Q3. State and explain the main components of Marxian theory of development and discuss how they related to economic development?

Q4. Discuss the Marxian model of growth?

Q5. Write notes on:

(i) Capital Accumulation

(ii) Capital crisis

(iii) Materialistic (economic) interpretation of History?

STRUCTURE

8.0 Objectives

8.1 Learning Outcomes

8.2 Introduction

8.3 Key Concepts in Schumpeter's Theory

8.3.1 Innovation

8.3.2 Entrepreneurship

8.4 The Role of Innovation in Economic Growth

8.4.1 Types of Innovations

8.4.2 The Innovation Process

8.4.3 Link to Economic Growth

8.5 Schumpeter's Theory of the Business Cycle

8.5.1 Phases of the Business Cycle

8.5.2 Role of Entrepreneurs in the Business Cycle

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8.5.3 Impact of Innovation on the Business Cycle

8.6 Creative Destruction and its Impacts

8.6.1 Concept of Creative Destruction

8.6.2 Implications for Employment and Industry

8.7 Policy Implications and Criticisms of Schumpeter's Theory

8.7.1 Policy Implications of Schumpeter's Theory

8.7.2 Criticisms of Schumpeter's Theory

8.8 Glossary

8.9 Let's Sum Up

8.10 Suggested Readings

8.11 Hints to Check Your Progress

8.12 Examination-Oriented Questions

8.1 Objectives

By the end of this lesson, you should be able to:

- Understand Schumpeter's Theory of Economic Development.
- Analyze the Role of Entrepreneurs in Economic Change.
- Explain the Concept of Creative Destruction.
- Evaluate the Business Cycle in Schumpeter's Framework.
- Apply Schumpeter's Theory to Modern Economic Contexts.

8.1 Learning Outcomes

After going through this lesson, you will be able to:

1. Grasp the fundamental concepts of Schumpeter's theory, including innovation, entrepreneurship, and creative destruction.
2. Identify the key factors driving economic development according to Schumpeter's model.
3. Understand how entrepreneurs introduce new combinations that lead to technological advancements and economic transformation.
4. Explain how Schumpeter's model views economic growth as a dynamic, cyclical process driven by innovation.
5. Analyze the phases of the business cycle (expansion, recession, recovery) and their connection to innovation in Schumpeter's framework.
6. Discuss the implications of creative destruction on industries and employment in an economy.
7. Assess the long-term benefits and short-term disruptions caused by innovation and creative destruction.
8. Apply Schumpeter's economic theory to evaluate current economic phenomena, such as technological disruptions and market shifts.

8.2 Introduction

Joseph Schumpeter's Theory of Economic Development offers a revolutionary perspective on how economies evolve and grow. Rather than focusing on static factors like labor, capital, and land, Schumpeter's theory emphasizes the dynamic role of innovation and entrepreneurship in economic progress. At the heart of his theory lies the belief that it is not just the accumulation of resources that drives growth, but rather the transformative power of new ideas and innovations that create opportunities for change and development. Schumpeter introduced the idea that economic development is driven by a process of continual change, disruption, and renewal, much of which happens through the entrepreneurial spirit.

Schumpeter's most influential concept is that of creative destruction. In traditional economic models, industries and firms are assumed to exist in a stable equilibrium. However, Schumpeter argued that economic systems are not static but rather constantly evolving due to innovation. Creative destruction refers to the process by which new innovations replace old technologies, industries, and business practices. This destruction is not necessarily negative; it is an essential mechanism for economic development. As old industries and technologies are phased out, new industries are born, contributing to greater efficiency, productivity, and the creation of new wealth. This dynamic process is fundamental to Schumpeter's view of capitalism: growth comes from disruption, and the economy is in a constant state of flux, never in a permanent equilibrium.

Schumpeter placed a central focus on the entrepreneur as the key agent of economic change. For Schumpeter, entrepreneurs are not merely risk-takers or business owners; they are innovators who challenge the existing economic order. These entrepreneurs introduce new combinations of resources, such as new products, services, or processes, that disrupt the status quo. They take existing resources and apply them in novel ways, leading to the creation of entirely new industries and markets. This emphasis on the entrepreneur as the primary driver of change distinguishes Schumpeter's theory from more traditional economic models, which focus on the roles of labor, capital, and resources in the production process.

Moreover, Schumpeter's model of the business cycle is intricately tied to his ideas of innovation and entrepreneurship. Schumpeter believed that economic growth occurs in waves, where periods of innovation and entrepreneurial activity drive periods of economic expansion. However, once the potential for new innovations in a particular field is exhausted, the economy enters a phase of stagnation or recession. This cyclical process of expansion, crisis, and recovery is what Schumpeter described as the "business cycle," which is fueled by the ongoing

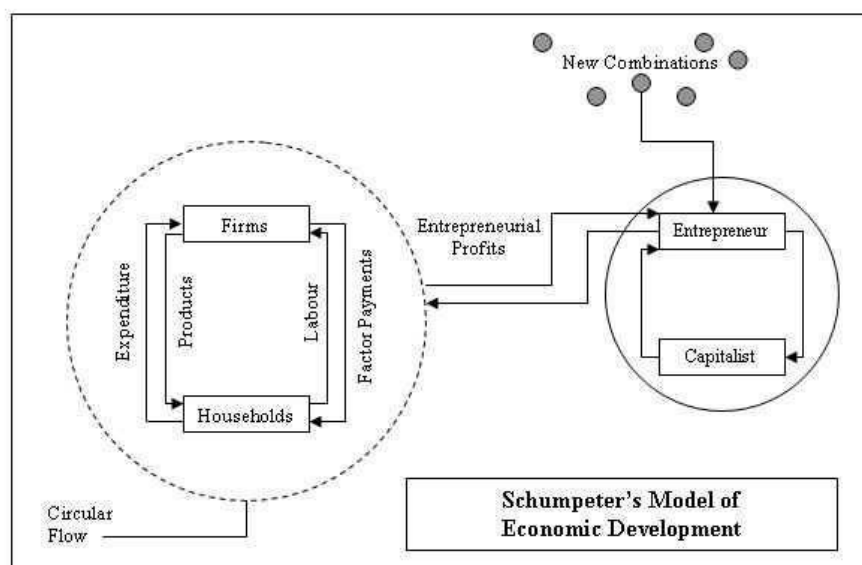
introduction of new combinations of resources. During each cycle, entrepreneurs introduce radical innovations that disrupt established industries, leading to growth and economic renewal. Once these innovations reach their peak, a downturn occurs, followed by the next wave of entrepreneurial activity.

The concept of creative destruction also highlights the social and economic impacts of innovation. While innovation can lead to increased efficiency and the creation of wealth, it also has the potential to displace workers, bankrupt firms, and create social disruptions. Despite this, Schumpeter argued that the long-term benefits far outweigh these temporary costs, as new industries and technologies pave the way for greater prosperity and economic transformation.

Schumpeter's theory has had a lasting impact on the study of economic development and entrepreneurship. His focus on innovation as the primary engine of economic growth is still relevant today in an era of rapid technological advancements and global competition. By viewing the economy as a constantly evolving system driven by the innovative efforts of entrepreneurs, Schumpeter's theory provides insights into the mechanisms that shape modern economies. As we explore his ideas in greater detail, we will see how Schumpeter's model remains crucial in understanding the challenges and opportunities that economies face in an ever-changing world.

Diagrammatic representation Schumpeterian economic development

The diagram provided is titled "Schumpeter's Model of Economic Development." It illustrates



the flow of economic activity and the role of key agents in the economy according to Schumpeter's theory.

In the diagram, we see two interconnected parts. On the left side, the traditional circular flow model is depicted, where households

provide labor to firms in exchange for factor payments (wages), while firms produce and sell

products to households in return for expenditures. This represents the basic exchange of goods and services in an economy.

On the right side, we see the role of the entrepreneur. The entrepreneur introduces new combinations—innovative ideas that disrupt the existing economic structures, such as new products, processes, or organizational changes. These innovations lead to entrepreneurial profits. The capitalist provides the necessary capital to fund these entrepreneurial ventures, allowing new ideas to come to life and contribute to economic development.

The key to Schumpeter's model is the emphasis on the creation of new combinations of resources, which represents innovation. Through this dynamic interaction between entrepreneurs, capitalists, and firms, Schumpeter's model illustrates how innovation drives economic growth and transformation, continuously reshaping industries and markets in the process of creative destruction.

This flow of economic activities and innovation is essential to understanding how economic development occurs under Schumpeter's framework.

Production Function in Schumpeter theory (Economic Output)

The total output Y in Schumpeter's model is influenced by innovation N , the stock of capital K , and labor L . Since innovation directly impacts productivity, we can represent it as:

$$Y = A \cdot F(L, K, N)$$

Where:

- Y is the total output of the economy,
- A represents total factor productivity (TFP), which increases due to innovation,
- $F(L, K, N)$ is the production function with labor L , capital K , and new combinations (innovation) N .

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Here, A grows over time because of innovation N . So, Schumpeter emphasizes that as innovation occurs, productivity and output increase.

Innovation and Entrepreneurship

Schumpeter's model suggests that the level of innovation NNN is driven by **entrepreneurship** EEE. Entrepreneurs bring about new combinations of resources that lead to innovation. This relationship can be represented as:

$$N = \phi(E)$$

Where:

- N is the number of new combinations (innovations),
- E represents entrepreneurial activity or the number of entrepreneurs driving innovation,
- $\phi(E)$ is a function that reflects the relationship between the number of entrepreneurs and the number of innovations generated.

This equation shows that as entrepreneurial activity E increases, the number of innovations N increases.

Entrepreneurial Profits

Entrepreneurs earn profits (Π) by introducing innovations that lead to higher productivity and monopolistic profits in the short run. The profit equation could be written as:

$$\Pi = \rho \cdot \left(\frac{Y}{L} \right) \cdot N$$

Where:

- Π is the entrepreneurial profit,
- ρ is a constant representing the marginal returns to innovation,
- $\frac{Y}{L}$ is output per worker (productivity),
- N is the number of innovations introduced by entrepreneurs.

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The equation suggests that entrepreneurial profits increase as innovation N increases, which is tied to the higher productivity $\frac{Y}{L}$ generated by innovation.

Capital Accumulation

Entrepreneurs use their profits to reinvest in the economy, leading to capital accumulation. The process of capital accumulation can be represented as:

$$K_t = K_{t-1} + \delta K_{t-1} + \Pi$$

Where:

- K_t is the total capital at time t ,
- K_{t-1} is the capital in the previous period,
- δ is the depreciation rate of capital,
- Π is the entrepreneurial profits, which are reinvested into the economy.

Capital accumulates over time through profits, while depreciation reduces the capital stock. Reinvesting profits from successful innovations further increases the capital available for future innovations.

Creative Destruction

The concept of creative destruction is central to Schumpeter's theory. The creative destruction process occurs when new innovations (or new combinations) replace older industries or technologies. The equation for creative destruction can be represented as:

$$\Delta I = \Delta I_{new} - \Delta I_{old}$$

Where:

- ΔI_{old} represents the decline in output or income from outdated industries,
- ΔI_{new} represents the increase in income or output from new industries created by innovation.

This equation reflects the ongoing replacement of older industries by new ones, driven by the innovation process. The difference between the growth of new industries and the decline of old ones is creative destruction, a crucial aspect of Schumpeter's theory.

8.3 Key Concepts in Schumpeter's Theory

Schumpeter's theory of economic development presents a dynamic and transformative view of capitalism. At the core of this theory are innovation, entrepreneurship, and creative destruction, which Schumpeter contends drive economic progress and shape the cyclical nature of capitalist economies. These key concepts are fundamental to understanding how Schumpeter envisioned the development of economies as a continual process of change and renewal. Below, we will explore each concept in detail, providing a deeper understanding of how these forces interact to facilitate economic growth.

8.3.1 Innovation

Schumpeter viewed innovation as the primary engine of economic growth and development (Schumpeter, 1934). In his view, innovation is the act of introducing new combinations of resources, which include new products, production processes, organizational methods, or market structures. This constant reconfiguration of the economic system disrupts old industries and practices, ultimately leading to creative destruction—a process that Schumpeter argued is central to economic development.

Schumpeter (1934) differentiated between innovation and mere invention. While invention is the creation of something new, innovation, according to Schumpeter, involves bringing these inventions into the market and transforming the economic landscape. Innovation is not merely confined to the development of new products or technologies but also encompasses the reorganization of existing processes and markets. This broader definition underscores Schumpeter's belief that true economic development comes from creative combinations of existing resources.

As innovations lead to the creation of new markets or the restructuring of existing ones, Schumpeter's theory emphasizes their role in driving economic dynamism. This dynamism, however, is not without its disruptions. Schumpeter (1942) argued that innovation leads to economic growth, but it simultaneously causes disruptions, replacing outdated technologies and industries. This destruction is not negative but is part of the natural cycle that pushes the economy forward, ensuring constant evolution and progress.

8.3.2 Entrepreneurship

Schumpeter's concept of entrepreneurship is central to his theory of economic development. For Schumpeter, the entrepreneur is more than just a business owner or a risk-taker; the entrepreneur is the innovator who introduces new combinations of resources, driving the economy's transformation (Schumpeter, 1934). Schumpeter's view of the entrepreneur contrasts sharply with classical economics, which sees entrepreneurs mainly as efficient managers of resources.

Schumpeter (1934) described the entrepreneur as a visionary who creates new opportunities by introducing innovations into the market. These entrepreneurs engage in the act of disrupting the equilibrium of existing economic systems. As a result, they generate economic change by transforming industries, creating new products, and organizing production in innovative ways. Schumpeter emphasized that these entrepreneurs do not just adapt to market conditions but actively reshape the market through their innovative actions. In this regard, entrepreneurs serve as agents of change.

A key distinction in Schumpeter's theory is that entrepreneurs create monopolies through the introduction of successful innovations, but these monopolies are temporary. Once competitors replicate the innovation, the monopoly disappears, and competition returns, but the innovation has already altered the industry. This constant cycle of innovation and competition is what fuels economic growth, according to Schumpeter's theory.

In his view, entrepreneurship is the primary force behind creative destruction—the process by which new technologies or business models disrupt and replace existing ones. Entrepreneurs are the agents of creative destruction, and their innovations lead to the destruction of old industries, making way for the rise of new sectors and markets.

Schumpeter's model places the entrepreneur at the heart of the economic system, as the individual responsible for driving economic change and transformation. The entrepreneur is both a disruptor and a creator, challenging the existing order and paving the way for future growth. According to Schumpeter, the entrepreneur's role in economic development is vital, as these individuals push the economy beyond its current state by introducing new combinations and business practices that lead to economic revitalization.

Both innovation and entrepreneurship are fundamental to Schumpeter's model of economic development. Innovation drives the process of change, while entrepreneurs are the catalysts who bring innovations to life and introduce them into the market. Schumpeter's theory highlights that the economy is not a static system but is continuously evolving through the

interaction between innovation and entrepreneurial activity. Entrepreneurs, through their innovative actions, lead the economy through cycles of creative destruction, driving economic growth, disrupting established industries, and generating new opportunities for development. This dynamic process is essential to understanding Schumpeter's view of capitalism as a system of continuous transformation.

By focusing on innovation and entrepreneurship, Schumpeter provides a framework for understanding the cyclical nature of economic development and the disruptive but ultimately productive role of innovation in fostering long-term growth. As the world continues to experience rapid technological advancements and shifts in global markets, Schumpeter's theory remains highly relevant in explaining how modern economies evolve.

8.4 The Role of Innovation in Economic Growth

Schumpeter viewed innovation as the principal driver of economic growth. He believed that innovation plays a pivotal role in the transformation of economies by not only introducing new technologies and products but also by altering the structure of industries, creating new markets, and enhancing the efficiency of production processes. In Schumpeter's framework, innovation is the primary force that pushes the economy forward, initiating cycles of expansion and creative destruction. This section explores the key aspects of innovation in Schumpeter's model and examines how it contributes to economic growth.

8.4.1 Types of Innovations

Schumpeter identified several types of innovations that contribute to economic growth, which he categorized based on their form and impact. These innovations serve as the foundation for the dynamic economic changes that Schumpeter believed were essential to capitalism's progress. The types of innovations include product innovation, process innovation, market innovation, and organizational innovation. 170

1. **Product Innovation:** Product innovation refers to the introduction of new products or the significant improvement of existing ones. New products often meet previously unmet needs or create entirely new markets. For example, the invention of the smartphone revolutionized communication, entertainment, and personal organization,

leading to a dramatic shift in multiple industries, including telecommunications, software development, and retail. Product innovation drives growth by creating new consumer demand and fostering competition in existing markets. As new products enter the market, firms that fail to innovate become obsolete, thus creating an environment of creative destruction.

2. **Process Innovation:** Process innovation involves the development of new or improved methods of production or service delivery. Schumpeter considered process innovation particularly important for enhancing efficiency and reducing costs. For example, the assembly line, introduced by Henry Ford in the early 20th century, revolutionized the automobile industry by drastically reducing production costs and increasing output. This made cars affordable for a much larger segment of the population, expanding the market for automobiles and supporting the growth of related industries. Process innovations often lead to increases in productivity, which contribute to economic growth by enabling firms to produce more goods at lower costs, thus improving overall efficiency in the economy.
3. **Market Innovation:** Market innovation refers to the creation of new markets or the expansion of existing ones through innovative products, services, or business models. For example, the rise of e-commerce platforms, such as Amazon and Alibaba, has created new opportunities for businesses to reach global customers, fundamentally transforming the retail industry. This type of innovation enables companies to tap into previously untapped consumer bases, leading to market expansion and increased economic activity. Market innovation is important because it opens up opportunities for growth in new geographical regions or demographic segments. It drives the creation of new consumer demand, stimulating economic expansion.
4. **Organizational Innovation:** Organizational innovation involves the introduction of new organizational structures, business practices, or management methods that increase efficiency and productivity. Schumpeter saw organizational innovations as crucial for firms to stay competitive and thrive in dynamic environments. For instance, the widespread adoption of lean manufacturing practices, particularly in industries like automotive manufacturing, has improved efficiency and reduced waste, contributing to increased profitability and long-term sustainability. Organizational innovations can

help firms adapt to changes in the market and improve their overall competitiveness, which in turn drives economic growth by improving business performance.

These four types of innovation—product, process, market, and organizational—are interrelated and often work together to drive economic growth. Schumpeter believed that continuous innovation in these areas leads to cycles of boom and bust in the economy. As innovations are introduced, they spur economic expansion. However, once the market absorbs these innovations, the economy slows down, and new innovations are required to restart the growth cycle.

8.4.2 The Innovation Process

Schumpeter's innovation process is not a linear or smooth one; instead, it is a dynamic and disruptive process that can lead to both opportunities and risks for firms and economies. The process of innovation involves several key stages, including idea generation, development, implementation, and market acceptance.

1. **Idea Generation:** The first stage in the innovation process is the generation of new ideas, which can come from various sources such as technological breakthroughs, shifts in consumer preferences, or the discovery of new resources. Entrepreneurs play a crucial role in identifying these opportunities and transforming them into viable products or services. These ideas may stem from research and development (R&D), changes in the external environment, or creative thinking within firms.
2. **Development:** Once an idea is generated, the next step is its development. This involves transforming the idea into a tangible product or service through design, prototyping, and testing. Development may require substantial investment in R&D, capital, and labor. During this stage, firms face uncertainty and risk, as they must decide whether to continue investing in the development process or abandon the project if it does not show promise.
3. **Implementation:** After development, the innovation is introduced to the market. This stage often involves marketing, sales, and distribution efforts to create awareness and attract consumers. Entrepreneurs and firms must strategically position the innovation in the marketplace to maximize its potential success. Implementation may also include organizational changes to accommodate the new product or process, including adjustments in production methods, supply chains, or management practices.

4. **Market Acceptance:** The final stage is market acceptance, where consumers and businesses adopt the innovation. Successful innovations lead to increased sales, market share, and profitability, while unsuccessful innovations may fade away. In Schumpeter's view, innovations that achieve widespread market acceptance eventually create temporary monopolies, allowing firms to earn profits from their pioneering work. However, these monopolies are short-lived, as competitors eventually imitate or develop new innovations that disrupt the original product or process.

Schumpeter's model of innovation emphasizes that the entrepreneurial process is not straightforward. It involves navigating uncertainty, overcoming resistance to change, and continuously adapting to new market dynamics. The innovation process often leads to economic upturns and downturns as firms innovate and markets evolve. In Schumpeter's view, the economy does not grow smoothly but experiences periodic disruptions as innovation cycles progress.

8.4.3 Link to Economic Growth

Innovation is closely tied to economic growth in Schumpeter's model. As firms introduce new products, processes, and organizational structures, they contribute to increased productivity, higher output, and greater efficiency within the economy. The introduction of innovation can lead to:

- **Higher Productivity:** Innovations in production processes or product design often lead to more efficient use of resources, reducing costs and increasing the amount of output produced per unit of labor or capital. This productivity boost is a key driver of economic growth.
- **New Markets and Industries:** Innovation creates entirely new markets, which can result in the establishment of new industries and business opportunities. For example, the advent of the **internet** gave rise to the **digital economy**, opening up new sectors such as e-commerce, digital marketing, and online services.
- **Job Creation:** As new industries emerge and existing ones expand due to innovation, new jobs are created, contributing to economic growth. The expansion of high-tech sectors, for example, has led to the creation of jobs in software development, engineering, and IT services.

- **Capital Investment:** Innovation encourages capital investment, both from entrepreneurs and investors. Firms that introduce successful innovations often attract significant investment to expand their operations, thereby driving economic growth.

Through these mechanisms, innovation helps to accelerate economic development and ensure the continued progress of economies. Schumpeter's model suggests that economic growth is not a steady process but one driven by the introduction of innovations that continuously transform markets and industries, leading to growth and development.

In conclusion, innovation is the primary engine of economic growth in Schumpeter's theory. It drives productivity, opens new markets, and creates new industries, thus transforming the economy. By introducing new combinations of resources and continually reshaping economic structures, innovation facilitates the ongoing process of creative destruction, leading to cycles of expansion and contraction that characterize capitalist economies. The entrepreneur is at the heart of this process, turning innovative ideas into market realities and leading the economy through periods of growth and renewal.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the difference between invention and innovation according to Schumpeter?
2. Explain how entrepreneurship contributes to economic development in Schumpeter's model.
3. What role does creative destruction play in Schumpeter's economic theory?
4. How does Schumpeter's view of entrepreneurs differ from traditional economic theories of entrepreneurship?
5. How do product innovations drive economic growth according to Schumpeter?
6. Explain the process of innovation in Schumpeter's framework, from idea generation to market acceptance.
7. What impact does process innovation have on productivity and economic development?
8. How does market innovation lead to the creation of new opportunities for economic expansion?

8.5 Schumpeter's Theory of the Business Cycle

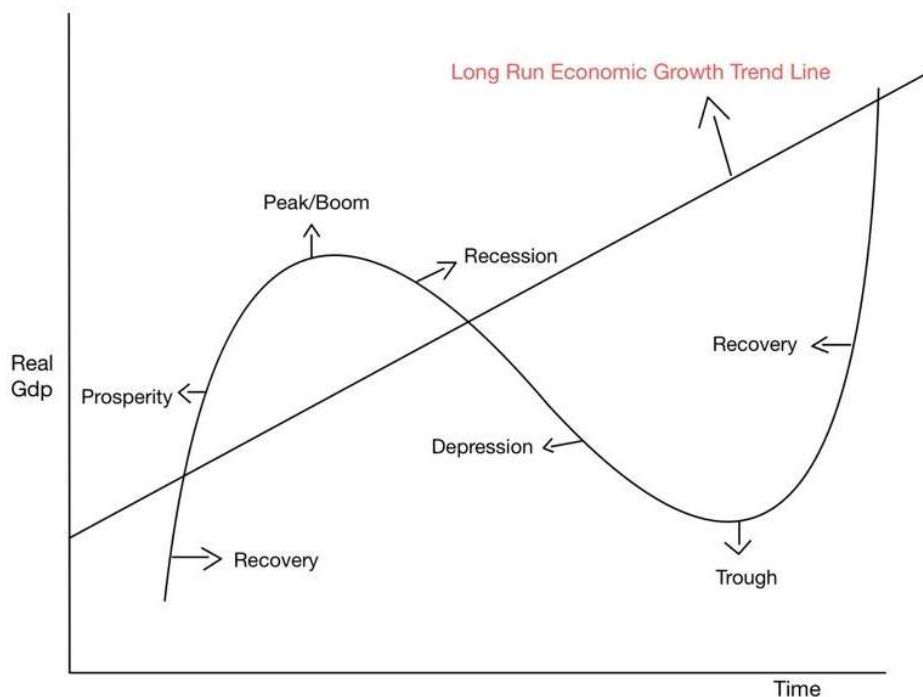


Fig. Schumpeter's Business Cycles

Schumpeter's business cycle theory views the economy as constantly in motion, driven by waves of innovation that bring about periods of growth and contraction. Schumpeter emphasized that entrepreneurial innovations are the core drivers of the business cycle. These innovations lead to both periods of expansion and contraction, each followed by a correction and recovery phase. The cycle of boom and bust is natural in Schumpeter's model and is linked to the process of creative destruction.

Schumpeter argued that the business cycle consists of several distinct phases, which correspond to the way the economy adapts to innovations and their eventual saturation. The phases of the business cycle in Schumpeter's framework are as follows: Recovery, Prosperity, Peak/Boom, Recession, Depression, and Trough.

8.5.1 Phases of the Business Cycle

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1. **Recovery:** The economy stabilizes post-recession, driven by entrepreneurial innovations, increasing investment, and growing consumer confidence.
2. **Prosperity:** Economic growth strengthens with rising productivity, low unemployment, increased investment, and continued innovation across industries.

3. **Peak/Boom:** The economy reaches its maximum output, marked by high growth, confidence, and overinvestment, leading to potential market overheating.
4. **Recession:** Economic decline follows the boom, with reduced demand, layoffs, and necessary market correction through creative destruction.
5. **Depression:** A prolonged downturn with high unemployment and low consumer confidence, leading to the destruction of outdated industries and the preparation for recovery.
6. **Trough:** The lowest point in the cycle, signaling the start of economic stabilization and the introduction of new innovations for recovery and growth.

8.5.2 Role of Entrepreneurs in the Business Cycle

In Schumpeter's framework, entrepreneurs play a crucial role in each phase of the business cycle. Entrepreneurs are the primary agents of change in the economy, driving innovation that fuels economic expansion and pushes the economy into periods of growth. During the recovery and prosperity phases, entrepreneurs introduce new innovations that create jobs, increase productivity, and expand markets. However, as the economy enters the boom phase, entrepreneurs also help in the creative destruction process by replacing older technologies and industries with new, more efficient ones.

As Schumpeter argued, entrepreneurs are responsible for initiating the business cycle by introducing innovations that spark expansion. However, they also contribute to the cycle's contraction by creating disruptions that lead to recession and depression when markets overextend or saturate.

8.5.3 Impact of Innovation on the Business Cycle

In Schumpeter's theory, innovation drives the economic cycle. As entrepreneurs introduce new technologies and ideas, economic expansion occurs. Innovations lead to an increase in productivity and create new industries, providing fresh opportunities for economic growth. However, as innovations mature and markets become saturated, the economy experiences a recession or depression as firms that fail to adapt to the new innovations are left behind.

Technological waves or Kondratieff waves represent long-term cycles of technological innovation that drive business cycles. Each innovation wave is followed by a period of boom,

recession, and recovery, as the economy absorbs the new technologies. This cyclical process of growth, correction, and renewal is at the heart of Schumpeter's business cycle theory.

Schumpeter's theory of the business cycle offers a dynamic and insightful view of how economies evolve through phases of recovery, prosperity, peak/boom, recession, depression, and trough. The cycles are driven by entrepreneurial innovation, which leads to growth, disruption, and eventual recovery. Schumpeter's emphasis on creative destruction highlights the essential role that innovation plays in economic development, constantly reshaping industries and creating new opportunities for progress. Through these cycles, Schumpeter provides a comprehensive understanding of how capitalism continuously transforms itself in the face of new ideas, technologies, and market conditions.

8.6 Creative Destruction and Its Impacts

One of the most revolutionary aspects of Schumpeter's economic theory is the concept of creative destruction. This concept, first introduced by Schumpeter in his seminal works, describes the process through which new innovations continually replace outdated industries, products, and technologies. While Schumpeter acknowledged that this process could lead to short-term disruptions, he argued that creative destruction is ultimately essential for long-term economic progress and the evolution of capitalist economies.

In this section, we will explore the definition and implications of creative destruction, its impact on industries and employment, and provide real-world examples of how it functions within modern economies. Schumpeter's belief that disruption is not only inevitable but necessary to the health and progress of capitalism is central to understanding his theory of economic development.

8.6.1 Concept of Creative Destruction

Creative destruction refers to the perpetual¹⁷⁷ cycle through which innovation leads to the displacement of old industries, technologies, and business models by new ones. Schumpeter (1942) argued that innovation does not merely create new industries or products but destroys existing ones. This destruction is not negative; rather, it is an essential part of the evolution of

the economy. Through creative destruction, economies are able to renew themselves, as new products, processes, and technologies improve upon and eventually replace outdated methods.

For example, the rise of digital photography led to the decline of the traditional film-based photography industry. Companies like Kodak, which once dominated the film photography market, faced significant decline and eventual bankruptcy due to their failure to adapt to the digital revolution. This is a classic case of creative destruction, where new technological advancements rendered older technologies obsolete.

Schumpeter saw creative destruction as the dynamic force that drives the economy forward. In his view, the disruption caused by innovation is not to be feared but embraced as the necessary process for economic renewal. While some businesses and industries inevitably fail as a result, new opportunities emerge for other businesses and entrepreneurs to take advantage of the new innovations.

8.6.2 Implications for Employment and Industry

The concept of creative destruction carries significant implications for both employment and industry. Schumpeter acknowledged that innovation and the displacement of old industries could lead to job losses and short-term economic pain, as workers in outdated sectors may find themselves without employment. However, Schumpeter argued that this disruption is necessary for the creation of new industries, and long-term benefits outweigh the temporary costs.

1. **Job Displacement:** New technologies and innovations often lead to the decline or elimination of entire industries. For example, the rise of automation in manufacturing and the use of robotics have led to the reduction of human labor in certain industries, displacing workers in factories and assembly lines. Similarly, digital platforms like Uber and Airbnb have disrupted traditional taxi and hotel industries, leading to job displacement in those sectors. Despite these disruptions, Schumpeter argued that creative destruction is a necessary process, as new industries and job opportunities are created to replace the old ones. For instance, the rise of information technology and software development created millions of new jobs, offsetting losses in other areas.
2. **Industry Transformation:** Creative destruction forces industries to adapt and innovate. It encourages firms to improve their processes, adopt new technologies, and create better products. Industries that are unwilling or unable to innovate eventually face decline, while those that embrace change are more likely to thrive. For example,

the automobile industry has seen continuous disruption due to innovations such as electric vehicles (EVs), autonomous driving technology, and ride-sharing platforms. Traditional automobile manufacturers are now racing to develop electric vehicles and autonomous driving technologies, while new startups are emerging to challenge established firms.

3. **Market Competition:** The process of creative destruction ensures that markets remain competitive. As old industries are replaced by new ones, firms that once had a monopoly on certain products or services must adapt to competition from new market entrants. This leads to increased competition, which, in turn, benefits consumers by lowering prices, improving product quality, and offering more choices.

Schumpeter's theory, therefore, suggests that creative destruction is a key component of a healthy, competitive economy. While the process may cause temporary disruption, it ultimately enhances efficiency, productivity, and innovation across sectors.

8.6.3 Real-World Examples of Creative Destruction

Schumpeter's theory of creative destruction can be observed in many real-world industries that have been transformed by technological innovations. Here are some notable examples:

1. **The Rise of the Internet and Digital Media:** The rise of the internet and digital technologies has led to the decline of traditional print media. Newspapers and magazines have seen dramatic declines in circulation as readers have increasingly shifted to online news platforms and social media for information. This has led to the closure of many longstanding media outlets, such as Borders Books and Blockbuster. However, the digital media revolution has created new opportunities in digital marketing, content creation, and online journalism, thereby fostering new industries and forms of employment.
2. **The Disruption of the Music Industry**⁷⁹ The music industry has been disrupted by the advent of streaming services like Spotify and Apple Music. The rise of digital music distribution led to the decline of physical media, such as CDs and vinyl records, and disrupted traditional distribution channels, such as music stores. However, the streaming model has created new revenue streams for artists and record labels and

provided consumers with unlimited access to a vast library of music at relatively low cost, transforming the way people consume music.

3. **The Shift to Renewable Energy:** The global transition from fossil fuels to renewable energy sources (such as wind, solar, and hydropower) is an example of creative destruction in the energy sector. Traditional coal and oil industries are being gradually replaced by more sustainable energy sources, as innovations in solar panels, wind turbines, and battery storage technologies become more affordable and efficient. Although this shift may lead to job losses in traditional fossil fuel industries, the rise of renewable energy has also created new industries and jobs in clean energy production, maintenance, and innovation, thus driving both economic transformation and environmental progress.

While Schumpeter's theory of creative destruction does not have a specific set of formal equations like other economic models (e.g., supply-demand models or production functions), it can be represented in a conceptual mathematical framework to understand its dynamics. The process of creative destruction can be modeled by looking at the displacement of old industries by new innovations and the resulting effects on economic growth, profits, and market structures.

Displacement of Old Industries

Creative destruction involves the displacement of older industries by new technologies or business models. One way to model this is by comparing the output of old industries I_{old} and new industries I_{new} , and how their contributions to the total output Y change over time:

$$Y(t) = I_{new}(t) - I_{old}(t)$$

Where:

- $Y(t)$ is the total output of the economy at time t ,
- $I_{new}(t)$ is the contribution to output from new industries at time t ,
- $I_{old}(t)$ is the contribution to output from old industries at time t .

In Schumpeter's view, as new industries take hold (through innovation), their contribution to output increases, while the contribution from outdated industries declines, often leading to their eventual displacement or obsolescence.

Net Impact of Creative Destruction on the Economy

A model that represents the overall impact of creative destruction on the economy's growth rate can be written as:

$$g(t) = \frac{dY(t)}{dt} = \alpha \cdot \left(\frac{I_{new}(t)}{L} \right) - \beta \cdot \left(\frac{I_{old}(t)}{L} \right)$$

Where:

- $g(t)$ is the growth rate of the economy at time t ,
- α and β are constants reflecting the respective effects of innovation and the decline of old industries on growth,
- $\frac{I_{new}(t)}{L}$ and $\frac{I_{old}(t)}{L}$ are output per labor unit in the new and old industries, respectively.

In this equation, positive growth arises from the increase in output from new innovations (driven by entrepreneurs), while negative growth comes from the decline of outdated industries. The net impact, therefore, depends on the balance between innovation and the obsolescence of older industries.

Creative Destruction in Market Share

Schumpeter's view of creative destruction also affects the market share of firms. The market share M of a firm (or industry) can be modeled as:

$$M_{new} = \frac{I_{new}}{I_{old} + I_{new}} \quad 181$$

Where:

- M_{new} is the market share of the new industry,
- I_{new} is the output of the new industry,
- I_{old} is the output of the old industry.

As new innovations gain market share, they displace older firms. Over time, the market share of the new industry increases, while that of the old industry diminishes, reflecting the process of creative destruction.

Rate of Obsolescence of Old Industries

The rate at which old industries become obsolete due to new innovations can be represented as:

$$\frac{dI_{old}}{dt} = -\gamma \cdot I_{old}(t)$$

Where:

- γ is the rate of obsolescence,
- $I_{old}(t)$ is the output of the old industry at time t .

This equation shows that as new innovations replace outdated products or services, the output of the old industries declines over time at a rate determined by the obsolescence factor γ .

Creative destruction is a central concept in Schumpeter's economic theory, describing the inevitable and necessary process of replacing outdated industries and technologies with new innovations. While this process can lead to job losses and economic disruptions in the short term, Schumpeter argued that it is essential for long-term growth, efficiency, and progress. The industries that survive and thrive are those that embrace innovation and continually adapt to new market conditions, ensuring that the economy remains competitive and dynamic. Creative destruction is a catalyst for economic renewal, encouraging innovation, driving growth, and allowing economies to evolve and develop in response to changing technologies and consumer needs.

Check your Progress - II

Based on your understanding of the previous section, answer these questions in your own words:

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1. What are the key phases of the business cycle in Schumpeter's model, and how do they relate to innovation?
2. How do entrepreneurs influence the business cycle through the introduction of new technologies?

3. Explain the role of the recession phase in Schumpeter's business cycle theory.
4. What is the impact of innovations on the expansion phase of the business cycle?
5. Define creative destruction and explain how it contributes to long-term economic growth.
6. How does creative destruction impact employment and industry during periods of economic transition?
7. What are the positive and negative effects of creative destruction on established industries?
8. Provide an example of creative destruction in modern technology and its impact on traditional industries.

8.7 Policy Implications and Criticisms of Schumpeter's Theory

Schumpeter's theory of economic development, with its focus on innovation, entrepreneurship, and creative destruction, offers significant insights into the functioning of capitalist economies. However, it also raises important questions about the role of government policy and its potential impact on innovation and entrepreneurship. This section will explore the policy implications of Schumpeter's theory, particularly in terms of how governments might encourage or hinder innovation. It will also address the criticisms that Schumpeter's theory has faced, particularly in terms of its emphasis on creative destruction and its view of capitalism.

8.7.1 Policy Implications of Schumpeter's Theory

Schumpeter's ideas suggest a wide range of policy implications for governments aiming to foster economic growth through innovation. While Schumpeter did not provide specific policy prescriptions, the following general policy directions can be inferred from his work:

1. **Support for Entrepreneurial Activity:** Schumpeter's model places the entrepreneur at the heart of economic development. Consequently, one of the key policy implications is the need to support entrepreneurship. This can be achieved through policies that encourage risk-taking, such as tax incentives for R&D, reducing bureaucratic barriers, and creating an environment where startups can flourish. Governments can foster entrepreneurship by facilitating access to venture capital and providing education and training programs to help develop entrepreneurial skills.

2. **Encouragement of Innovation:** Schumpeter's theory emphasizes that innovation drives economic growth. Thus, policy measures aimed at encouraging innovation are crucial. This can involve subsidies or tax breaks for companies that invest in research and development (R&D). Governments can also fund public research initiatives and encourage collaboration between academia and industry to promote technological breakthroughs. Intellectual property (IP) rights are also an important policy tool. By ensuring that entrepreneurs and innovators can protect their inventions, governments create incentives for further innovation.
3. **Facilitating Creative Destruction:** Schumpeter's idea of creative destruction—the process by which old industries are displaced by new innovations—implies that governments must accept periods of economic disruption. Rather than stifling creative destruction, policy should focus on managing its social consequences. This could include social safety nets such as unemployment insurance, retraining programs, and welfare systems to help workers displaced by innovation transition to new roles in emerging industries.
4. **Regulating Monopolies and Encouraging Competition:** Schumpeter argued that entrepreneurs often create temporary monopolies through innovation. However, as new competitors enter the market, these monopolies dissipate, and market competition is restored. Governments can ensure that such monopolies do not harm consumers by enforcing antitrust laws and ensuring fair competition. Encouraging competition ensures that the entrepreneurial spirit thrives, while also preventing the abuse of monopoly power. Schumpeter's theory suggests that a balance must be struck between protecting intellectual property and ensuring that monopolies do not stifle further innovation.
5. **Long-Term Investment in Infrastructure:** Governments can promote economic growth by investing in infrastructure, such as education, transportation networks, and digital infrastructure. Infrastructure investments reduce the cost of innovation by facilitating the movement of people, ideas, and capital, which in turn stimulates entrepreneurial activity and innovation.

8.7.2 Criticisms of Schumpeter's Theory

While Schumpeter's theory of economic development has had a profound influence on economics, it has also faced several criticisms. Some critics argue that Schumpeter overemphasizes the positive effects of innovation and creative destruction, while others point out that his view of capitalism may not adequately account for certain social and economic factors.

1. **Overemphasis on Entrepreneurship and Innovation:** One of the key criticisms of Schumpeter's theory is that it places too much emphasis on the role of entrepreneurs and innovation in driving economic growth, while underestimating the importance of other factors such as capital accumulation, labor markets, and institutions. Some argue that innovation is not the only source of economic growth and that Schumpeter's model neglects the importance of stable institutions and a well-functioning labor force in promoting sustained economic development. Critics such as William Baumol (2002) have pointed out that entrepreneurs are not always driven by the desire to innovate but may instead be motivated by other factors, such as profit maximization, which could lead to rent-seeking behavior rather than true innovation.
2. **Excessive Optimism about Creative Destruction:** Schumpeter viewed creative destruction as an inherently positive process that drives economic progress. However, critics argue that creative destruction can have negative social consequences. For example, the displacement of workers and the collapse of industries can result in widespread unemployment and social dislocation, especially if workers are unable to find new employment in emerging industries. While Schumpeter acknowledged these social costs, critics argue that his theory downplays the human toll of creative destruction. The rapid pace of technological change in modern economies may lead to social inequalities and regional disparities, with certain groups bearing the brunt of economic transformation.
3. **Over-Optimism about the Self-Regulating Nature of Capitalism:** Schumpeter's theory assumes that capitalism is a self-correcting system that will naturally evolve through the processes of innovation and creative destruction. Critics argue that this view is overly optimistic, as it overlooks the failure of markets and systemic risks inherent in capitalism. The 2008 financial crisis, for example, exposed the vulnerabilities of the capitalist system and its inability to regulate itself effectively. Some economists, such as Keynes and Minsky, have criticized Schumpeter's model for underestimating the

role of financial instability and the need for government intervention to maintain economic stability.

4. **Neglect of the Role of Globalization:** Schumpeter's theory, while prescient in many ways, largely focuses on national economies and the role of entrepreneurs within them. However, in today's increasingly globalized world, innovations are often driven by global collaboration and international competition. Critics argue that Schumpeter's model does not sufficiently account for the role of global supply chains, foreign direct investment, and international trade in shaping the pace of innovation and economic development.

Schumpeter's theory of economic development has had a lasting impact on how we understand innovation, entrepreneurship, and creative destruction. His emphasis on the role of entrepreneurs in driving economic growth and the cyclical nature of capitalism provides valuable insights into the processes that shape economies. However, Schumpeter's model has been critiqued for overemphasizing innovation, neglecting the social costs of creative destruction, and assuming that capitalism is a self-regulating system. Despite these criticisms, Schumpeter's theory remains relevant in today's rapidly changing economic landscape, especially in the context of technological advancements, globalization, and entrepreneurship.

8.8 Glossary

1. **Innovation:** The process of introducing new products, services, or methods that significantly improve existing markets, industries, or technologies. It drives economic growth and transformation in Schumpeter's model.
2. **Entrepreneurship:** The act of introducing new combinations of resources to create innovative products or business models. Entrepreneurs are the agents of change who drive economic progress through innovation.
3. **Creative Destruction:** The process by which new innovations replace outdated technologies and industries, leading to economic disruption but ultimately fostering long-term growth and development.
4. **Business Cycle:** The cyclical process of economic expansion and contraction driven by innovation and entrepreneurship. Schumpeter's model includes phases such as recovery, prosperity, peak/boom, recession, depression, and trough.

8.9 Let's Sum Up

In this lesson, we explored Schumpeter's theory of economic development, focusing on key concepts such as innovation, entrepreneurship, and creative destruction. The following points summarize the core ideas of the chapter:

1. Schumpeter's Theory emphasizes that innovation and entrepreneurship are key drivers of economic growth and development.
2. Creative destruction replaces old technologies and industries with new, more efficient ones, promoting long-term economic progress.
3. Entrepreneurs play a central role in introducing innovations, disrupting existing markets, and initiating economic cycles.
4. The business cycle in Schumpeter's model is marked by phases of expansion, recession, and recovery driven by waves of innovation.
5. Despite its transformative effects, creative destruction can lead to short-term disruptions in employment and industries, but it is essential for long-term growth.

8.10 Suggested Readings

- The Theory of Economic Development by Joseph A. Schumpeter
- Capitalism, Socialism, and Democracy by Joseph A. Schumpeter
- Schumpeter: A Biography by Richard Swedberg
- The Entrepreneur and Economic Development by F. C. Schiller
- Innovation and Entrepreneurship: Practice and Principles by Peter F. Drucker
- Innovation and Entrepreneurship: A Global Perspective by A. D. Chandler

8.11 Hints to Check Your Progress (CYP) ¹⁸⁷

CYP-I

Q1. Refer to Section 8.3.1 and review the difference between invention and innovation in Schumpeter's theory.

Q2. Review Section 8.3.2 to understand the role of entrepreneurs in driving economic change.

Q3. For a deeper understanding, revisit Section 8.4.1 and explore how product innovations contribute to economic growth.

Q4. Go over Section 8.4.2 to understand the process of innovation, from idea generation to market acceptance.

Q5. Refer to Section 8.4.3 to connect the role of innovation to long-term economic growth in Schumpeter's framework.

CYP-II

Q1. To distinguish between Schumpeter's business cycle phases, refer to Section 8.5 and understand how they are influenced by entrepreneurial innovations.

Q2. Review Section 8.5.2 to analyze the role of entrepreneurs in business cycles and how they drive innovation and market adaptation.

Q3. Revisit Section 8.5.3 to evaluate the impact of innovation on the expansion phase of the business cycle.

Q4. For a better grasp on creative destruction, revisit Section 8.6.1 and reflect on how it drives long-term economic progress.

Q5. Refer to Section 8.6.2 to understand the implications of creative destruction on employment and industry during economic transitions.

8.12 Examination-Oriented Questions

1. What is Schumpeter's Theory of Economic Development?

- Schumpeter's theory centers around entrepreneurship and innovation as key drivers of economic growth.
- He emphasized that entrepreneurs introduce new combinations of resources, leading to economic transformation and creative destruction.
- Innovation, according to Schumpeter, causes periodic booms and busts in the economy, leading to cycles of expansion, recession, and recovery.

2. Explain the concept of creative destruction in Schumpeter's theory.

- Creative destruction refers to the process by which innovations replace outdated technologies, industries, and business models.
- This process, though disruptive, is essential for long-term economic growth by fostering new industries and technological advancements.
- While disruptions lead to job losses and firm closures in the short term, they ultimately lead to more efficient and innovative industries.

3. What role do entrepreneurs play in Schumpeter's model of economic development?

- Entrepreneurs are seen as the agents of change who drive innovation and create new combinations of resources that transform markets.
- They introduce novel products, production processes, and organizational changes that lead to market disruption and the replacement of old industries.
- Entrepreneurs also initiate the cycles of the business cycle, driving expansion during the introduction of innovations and recession once the market is saturated.

4. Describe the phases of the business cycle in Schumpeter's theory.

- The business cycle in Schumpeter's theory includes recovery, prosperity, peak/boom, recession, depression, and trough.
- Recovery occurs after a downturn when innovation starts to take hold, leading to economic stabilization.
- During the prosperity phase, the economy grows rapidly, driven by the widespread adoption of innovations, but this is followed by a recession and depression as market saturation occurs, before a new cycle begins at the trough.

5. How does innovation contribute to economic growth according to Schumpeter?

- Innovation leads to increased productivity and the creation of new markets, stimulating economic expansion.
- New innovations replace outdated technologies and industries, increasing efficiency and driving the evolution of economies.
- As innovation continues, it opens up new business opportunities, creates jobs, and ultimately leads to long-term economic growth by improving overall market structures.

STRUCTURE

9.0 Objectives

9.1 Learning Outcomes

9.2 Introduction

9.3 Introduction to Partial theories of Growth and Development

9.4 Concepts of Vicious Circle of Poverty and Circular Causation

- 9.4.1 Vicious Circle of Poverty
- 9.4.2 Circular Causation

9.5 Breaking the Cycle: Policies and Approaches

- 9.5.1 External Support and Foreign Aid
- 9.5.2 Domestic Strategies
- 9.5.3 Role of Microfinance

9.6 Criticisms of the Vicious Circle and Circular Causation

- 9.6.1 Limitations of the Theories
- 9.6.2 Alternative Approaches

9.7 Glossary

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9.8 Let's Sum Up

9.9 Suggested Readings

9.10 Hints to Check Your Progress

9.11 Examination-Oriented Questions

9.0 Objectives

By the end of this lesson, you should be able to:

- Understand the concepts of the Vicious Circle of Poverty and Circular Causation in economic development.
- Analyze how low income, low savings, and low investment contribute to the persistence of poverty.
- Evaluate the feedback loops between factors like health, education, and income in underdeveloped economies.
- Identify the key components that make up the Vicious Circle of Poverty and Circular Causation.
- Assess the challenges faced by developing countries in breaking the cycle of poverty.
- Examine the role of government policies and external interventions in disrupting these cycles.
- Apply the concepts of Circular Causation to real-world examples of developing nations.

9.1 Learning Outcomes

After completing this lesson, you will be able to:

- Define and explain the Vicious Circle of Poverty and Circular Causation and their significance in development economics.
- Identify the key factors that create and perpetuate cycles of poverty in underdeveloped nations.
- Analyze the interconnections between income, education, health, and infrastructure in perpetuating poverty.
- Discuss the impact of low savings and investments on long-term economic growth in developing countries.
- Evaluate policy approaches that aim to break the Vicious Circle of Poverty and promote economic development.
- Understand the role of external support, including foreign aid and international organizations, in addressing these development challenges.
- Examine real-world case studies where these cycles are evident and assess the effectiveness of interventions aimed at overcoming them.

9.2 Introduction

Theories of economic development are essential in understanding why some countries experience rapid growth and prosperity while others remain mired in poverty. In this lesson, we explore two crucial concepts that explain the persistent nature of poverty in developing economies: the Vicious Circle of Poverty and Circular Causation. Both concepts shed light on how underdevelopment tends to perpetuate itself, creating a self-reinforcing cycle that is difficult to break without targeted interventions. These theories have been central to the study of development economics, as they provide a framework for understanding the complex interplay of factors that inhibit growth in poorer nations.

The Vicious Circle of Poverty suggests that poverty itself is both a cause and an effect of underdevelopment. It emphasizes that low income leads to low savings, which in turn results in low levels of investment, limiting the growth potential of an economy. Without sufficient investment, economic productivity cannot rise, and wages remain low. As a result, the population cannot escape the economic traps set by these interconnected factors. This cycle continues unless external forces, such as government policies or foreign aid, intervene to break the chain. The term "vicious" captures the destructive nature of this cycle, where each stage reinforces the others in a perpetual loop.

The concept of Circular Causation expands on this idea by illustrating how poverty, inequality, and underdevelopment feed into one another in a complex web of interactions. In a circular causation model, the persistence of poverty is not merely the result of a few key factors like low income or lack of education. Rather, it is the result of multiple reinforcing factors, where each one has a direct influence on others. For example, low income leads to poor health, which in turn reduces productivity, leading to further impoverishment. Similarly, lack of education limits opportunities for better-paying jobs, while poor infrastructure prevents access to markets and essential services. This circularity means that the barriers to development are deeply entrenched and require multifaceted solutions to overcome.

These theories highlight the difficulties that developing countries face in achieving sustainable economic development. While external factors like trade imbalances, geopolitical tensions, and technological limitations certainly play a role in perpetuating poverty, the internal dynamics of underdevelopment, such as poor health systems¹⁹², limited educational opportunities, and inadequate infrastructure, can lock countries in cycles of stagnation. Understanding the Vicious Circle of Poverty and Circular Causation is thus vital for policymakers, economists, and development professionals who are tasked with finding solutions to these persistent problems. In this lesson, we will delve deeper into both of these concepts, examining their theoretical underpinnings, real-world applications, and the various policy approaches designed to break

these cycles. By the end of this section, students will have a clearer understanding of why poverty persists in some parts of the world, despite the efforts of governments and international organizations to promote development.

9.3 Introduction to Partial Theories of Growth and Development

In the study of economic development, several theories have been proposed to explain why certain economies remain stagnant while others experience growth. These theories often focus on specific factors or mechanisms that contribute to development. Among these, theories like the Vicious Cycle of Poverty and Circular Causation offer valuable insights into the persistent nature of poverty in developing economies. While other theories focus on aspects such as investment, capital accumulation, and trade, this lesson will primarily focus on the Vicious Cycle of Poverty and Circular Causation.

1. The Vicious Cycle of Poverty

The Vicious Cycle of Poverty is one of the key concepts in understanding how underdeveloped economies become trapped in a state of poverty. According to this theory, poverty perpetuates itself through a series of interrelated factors, where low income leads to low savings, low investment, and low productivity. As these factors reinforce each other, the economy remains stuck in a cycle of stagnation. The theory highlights the difficulty of escaping poverty without substantial external intervention or structural changes that can break the cycle.

Key Elements of the Vicious Cycle:

- Low Income leads to Low Savings: People and businesses in poor economies do not have the means to save, making it difficult to invest.
- Low Savings results in Low Investment: Without savings, there is no capital available for investment in infrastructure, education, or technology.
- Low Investment leads to Low Productivity: The lack of capital prevents economies from becoming more productive, stifling growth and innovation.
- Low Productivity leads to Low Income: ¹⁹³ Without productivity improvements, wages remain stagnant, perpetuating poverty.

2. Circular Causation

The theory of Circular Causation takes a broader approach, illustrating how different factors are interconnected and reinforce each other to sustain poverty. Unlike the Vicious Cycle, which focuses on the economic aspect, Circular Causation incorporates social, political, and economic factors, showing that poverty is a complex issue influenced by multiple interacting elements. Myrdal's work on circular causation emphasizes the role of education, healthcare, inequality, and institutional factors in the cycle of poverty.

Key Features of Circular Causation:

- Low Income leads to Limited Access to Education: Without sufficient income, individuals cannot afford quality education, reducing human capital.
- Limited Education leads to Poor Health: Lack of education prevents people from making informed decisions regarding health and wellness, leading to poor health outcomes.
- Poor Health leads to Limited Employment Opportunities: Ill health reduces productivity and employment prospects, further exacerbating poverty.
- Limited Employment Opportunities leads to Low Income: With fewer jobs available, income remains low, continuing the cycle of poverty.

3. Other Partial Theories of Growth and Development

While this lesson focuses on the Vicious Cycle of Poverty and Circular Causation, it is important to recognize that there are several other partial theories of growth and development. These theories examine different facets of economic progress and provide essential insights into how countries can overcome barriers to development. Some of these theories include:

a) Theories of Capital Accumulation

Capital accumulation theories emphasize the importance of investment in physical capital, such as machinery, infrastructure, and buildings, necessary for growth. These theories, such as the Solow-Swan model, argue that increased capital stock leads to higher productivity and, ultimately, economic growth.

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b) Human Capital Theory

Human capital theory highlights the role of education, training, and health in driving development. By investing in human capital, economies can improve productivity and enhance

their growth prospects. The theory argues that the education and health of a nation's population are key to improving labor force productivity and economic performance.

c) Theories of International Trade

These theories, such as the Ricardian model of comparative advantage, emphasize the role of international trade in fostering development. According to these theories, countries can benefit from specializing in the production of goods where they have a comparative advantage and trading with other nations to enhance their overall welfare.

In this lesson, we will specifically focus on the **Vicious Cycle of Poverty** and **Circular Causation** as two critical theories that explain how poverty persists and becomes self-reinforcing. These theories provide a framework for understanding the barriers that underdeveloped economies face in achieving sustainable growth and development. While other partial theories, such as those on capital accumulation, human capital, and trade, offer valuable insights into the development process, the primary emphasis here will be on the interconnectedness of economic, social, and political factors in perpetuating poverty.

9.4 Concepts of Vicious Circle of Poverty and Circular Causation

Understanding the key concepts of the Vicious Circle of Poverty and Circular Causation is fundamental to analyzing the challenges faced by developing economies. These concepts not only explain the persistent nature of poverty but also offer insights into why many nations struggle to break free from underdevelopment despite the implementation of various reforms. Both the Vicious Circle of Poverty and Circular Causation provide frameworks for understanding the interplay of various factors that maintain the low-income equilibrium in poorer countries, making it difficult for these nations to climb the development ladder.

The Vicious Circle of Poverty, first introduced by economists like Ragnar Nurkse in the mid-20th century, explains how poverty itself creates conditions that prevent individuals, communities, and nations from breaking free from poverty. It proposes that poverty results in low savings, which leads to low investment¹⁹⁵, reducing economic growth and perpetuating poverty. This cycle becomes self-reinforcing, as the inability to save and invest keeps the economy in a state of stagnation, ensuring that the poverty trap is very difficult to escape. Similarly, Circular Causation, a concept rooted in the work of scholars like Joan Robinson and Paul Rosenstein-Rodan, takes a more interconnected approach. It posits that various factors

such as low income, lack of education, poor health, and underdeveloped infrastructure feed into each other, creating a feedback loop that reinforces underdevelopment.

Both concepts reflect a fundamental challenge of economic development in underdeveloped countries: the complex, intertwined causes of poverty that create long-term barriers to progress. To truly break the cycle of poverty, interventions must be multifaceted, addressing not only one isolated aspect of underdevelopment but the interconnections between various factors. Understanding these theories allows for the development of targeted policies that can disrupt these negative feedback loops and enable economies to begin growing sustainably.

9.4.1 Vicious Circle of Poverty

The Vicious Circle of Poverty is a concept that illustrates the self-reinforcing nature of poverty. It suggests that low income leads to low savings, which in turn results in low investment. This, in turn, limits the development of infrastructure, technological innovation, and human capital, which further restricts income growth. The cycle is perpetuated as these limitations reduce the ability to break free from poverty, making economic development a daunting and continuous challenge.

Origins of the Theory

The term Vicious Circle of Poverty was popularized by Ragnar Nurkse, a prominent economist from the early 20th century. His seminal work, *Problems of Capital Formation in Underdeveloped Countries* (1953), laid the foundation for understanding the dynamics of underdevelopment, particularly in terms of capital accumulation and economic growth. Nurkse emphasized that the key to development lies in breaking the vicious circle, arguing that a country stuck in this cycle of poverty cannot accumulate enough capital to stimulate growth. He explained that low income limits the capacity of individuals and governments to invest in economic activities. This lack of investment, in turn, reduces the country's productive capacity, keeping the income levels low and trapping the economy in a state of stagnation.

According to Nurkse, the vicious circle is formed by the following interrelated causes of poverty:

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- **Low income:** The immediate consequence of poverty is low income, which makes it difficult for individuals or nations to generate enough wealth to invest in productive activities.

- **Low savings:** With low income, individuals have little to no savings. In poor countries, the limited ability to save prevents any substantial investment in infrastructure, education, or technology.
- **Low investment:** The lack of savings and capital results in low levels of investment. Without investment, economic activity remains sluggish, reducing opportunities for wealth creation.
- **Low productivity:** Low investment in infrastructure, human capital, and technology means that productivity remains low, further limiting economic growth.
- **Poverty perpetuates itself:** The combination of low income, low savings, low investment, and low productivity keeps the economy trapped in a perpetual state of poverty.

Nurkse's theory underscores the critical importance of external assistance, particularly from international organizations, to provide the necessary capital to break this cycle. External aid, whether in the form of grants, loans, or investments, can help to jump-start the economy, providing the necessary infrastructure and financial resources to initiate the process of growth.

The Key Elements of the Vicious Circle

Nurkse's idea of the Vicious Circle of Poverty emphasizes that there are multiple interconnected factors that reinforce the cycle of poverty. The main elements of the cycle are as follows:

1. **Low Income:** A country with a low level of income cannot afford to save or invest. The income generated is barely enough to meet the basic needs of individuals and communities, such as food, housing, and healthcare. Without income growth, there is little scope for economic expansion.
2. **Low Savings:** Savings are essential for investment, which is required to build infrastructure and create capital. In poor countries, the income is often consumed to meet basic needs, leaving little for savings. Additionally, the lack of institutional structures like banks or financial markets further hinders the ability to save or invest effectively.
3. **Low Investment:** The lack of savings leads to a lack of investment in critical areas, such as education, healthcare, and infrastructure. Without investment in these areas, it is difficult to improve the overall productive capacity of the economy. For example,

without proper roads or transportation systems, the economy cannot efficiently distribute goods and services, and without education, the workforce remains unskilled.

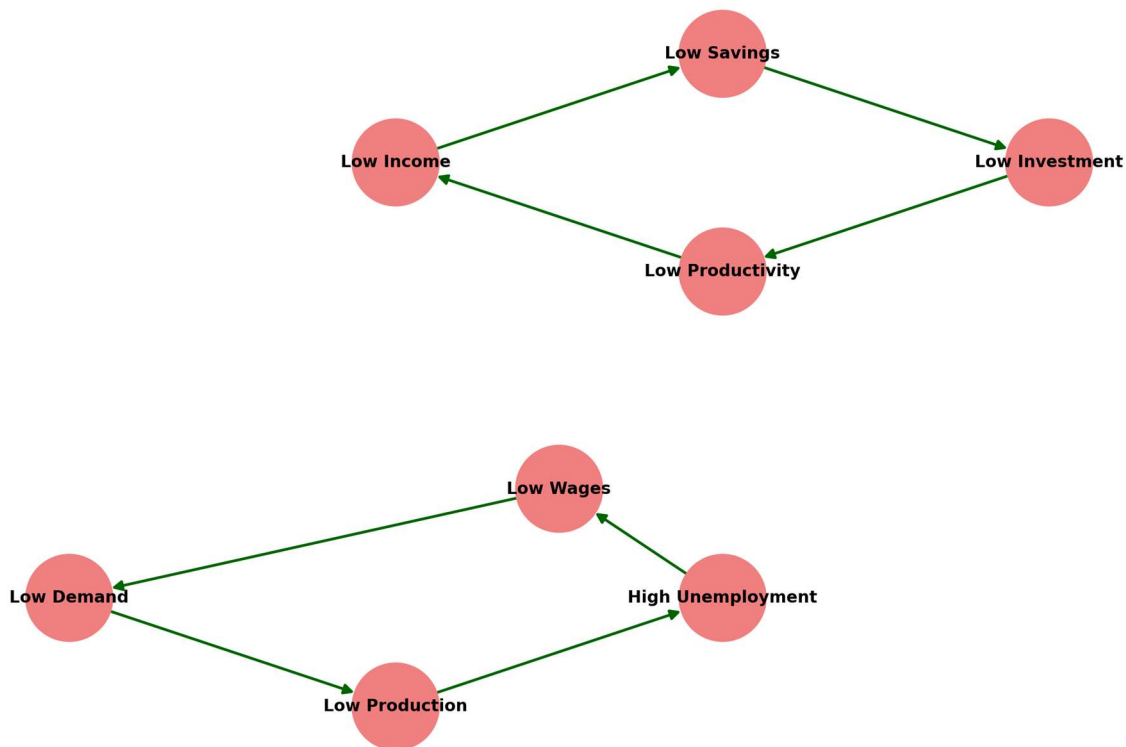
4. **Low Productivity:** Low levels of investment prevent the economy from becoming more efficient or productive. Workers in underdeveloped economies may lack the necessary skills or tools to increase productivity, which further limits income levels.
5. **Lack of Economic Development:** Without breaking the cycle, the country remains in a stagnant state with limited development. This lack of progress further contributes to the poverty trap, ensuring that it continues from generation to generation.

Key Concepts in the Vicious Circle of Poverty

The Vicious Circle of Poverty is a critical concept in understanding how poverty is perpetuated in underdeveloped economies. The term refers to a self-reinforcing cycle where the causes of poverty lead to conditions that worsen poverty, making it difficult for economies to break free from stagnation. This cycle can affect various sectors of an economy and is often compounded by various systemic factors such as low income, low savings, low investment, and low productivity, all of which contribute to economic underdevelopment.

The Vicious Circle of Poverty is not just a theory but a real phenomenon observed in many underdeveloped nations. It explains why certain economies remain stuck in poverty despite efforts to encourage growth. The cycle is driven by economic factors that reinforce each other in a closed loop, preventing any upward movement and making it challenging for individuals, businesses, and entire nations to escape poverty without external intervention or structural changes. In this section, we will focus on two major aspects of the Vicious Circle of Poverty: the Supply-Side Vicious Cycle and the Demand-Side Vicious Cycle. Each cycle illustrates a different pathway through which poverty is perpetuated, with one focusing on the production side (supply side) and the other on the consumption side (demand side). Both cycles are interconnected and contribute to the broader phenomenon of economic stagnation in developing nations.

Supply-Side and Demand-Side Vicious Cycle Diagram



Supply-Side Vicious Cycle

The **Supply-Side Vicious Cycle** describes how poverty perpetuates itself on the production side of the economy. This cycle revolves around the relationship between income, savings, investment, and productivity. Here's how each factor feeds into the next, creating a closed loop of underdevelopment:

1. **Low Income:** The cycle begins with **Low Income**, which is often the case in underdeveloped economies. Low income means that individuals and businesses do not have enough financial resources to either save or invest.
2. **Low Savings:** Because income is low, individuals and firms cannot accumulate enough savings. Savings are a critical component of investment; without savings, there is no capital to fund the development of infrastructure, technology, or education.
3. **Low Investment:** Without savings, there is Low Investment. Investment is essential for increasing the productive capacity of an economy. In the absence of investment in physical capital (such as factories, machinery, roads) and human capital (such as education and skills development), there is little opportunity for growth.
4. **Low Productivity:** Low Investment results in Low Productivity. When there is insufficient investment in capital, workers remain inefficient, technologies become outdated, and the overall output of goods and services is low. This limits the economy's potential to produce and grow.

5. **Return to Low Income:** The combination of low income, low savings, low investment, and low productivity leads back to Low Income. The cycle thus perpetuates itself, keeping the economy trapped in a state of underdevelopment. Without addressing these interconnected issues, economies remain stuck in poverty.

The key takeaway from the Supply-Side Vicious Cycle is that poverty is not merely the result of insufficient income but is deeply linked to a lack of investment, which stems from the inability to save. This lack of investment stifles productivity and economic growth, making it harder for the economy to improve over time.

Demand-Side Vicious Cycle

The **Demand-Side Vicious Cycle** focuses on the relationship between consumer demand, production, employment, and wages. This cycle illustrates how a lack of demand for goods and services can lead to a contraction in the economy, perpetuating the cycle of poverty. Here's how this cycle works:

1. **Low Demand:** The cycle begins with Low Demand for goods and services. In economies where people have low income levels, their ability to spend on goods and services is limited. This low demand creates a drag on the economy, as businesses struggle to sell their products.
2. **Low Production:** Low Demand leads to Low Production. When businesses face weak demand, they cut back on production to avoid producing more than they can sell. This results in a reduction of economic output, limiting the overall capacity of the economy to grow.
3. **High Unemployment:** With Low Production, businesses need fewer workers, which leads to High Unemployment. As unemployment rises, fewer people have income to spend, further exacerbating the lack of demand for goods and services.
4. **Low Wages:** High Unemployment puts downward pressure on wages, as there are more workers competing for fewer jobs. This results in Low Wages, further reducing the purchasing power of the population.
5. **Return to Low Demand:** Low Wages²⁰⁰ result in Low Demand, as people cannot afford to buy goods and services. This brings the cycle back to the beginning, where reduced demand continues to drag the economy down.

The Demand-Side Vicious Cycle highlights the importance of demand in sustaining economic growth. When demand for goods and services is low, production shrinks, leading to higher

unemployment and lower wages. As wages decrease, demand falls even further, leading to a self-reinforcing loop of economic contraction.

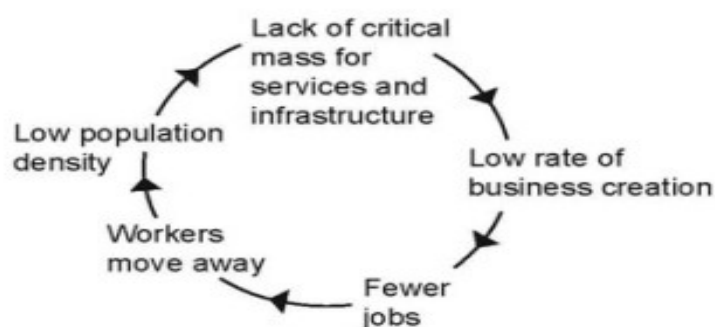
Interconnectedness of the Cycles

While the Supply-Side Vicious Cycle and the Demand-Side Vicious Cycle operate through different economic channels, they are interconnected and mutually reinforcing. For example, Low Income (a key factor in the supply-side cycle) leads to Low Demand (in the demand-side cycle), which further reduces income and production. Similarly, Low Investment in the supply-side cycle results in Low Productivity, which limits the capacity to produce goods and services, reducing overall demand for labor and lowering wages, further perpetuating the demand-side cycle.

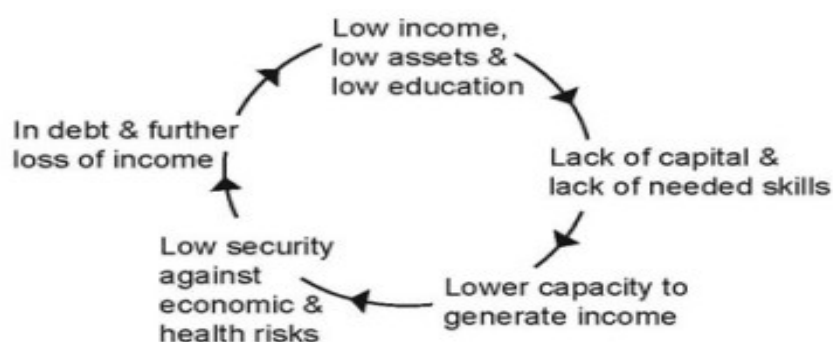
The interplay between these cycles illustrates that poverty is not caused by a single factor but by a complex set of interrelated issues that require comprehensive solutions. To break these vicious cycles, economies need to address both the supply-side barriers (like investment and productivity) and demand-side challenges (like income distribution and consumer spending).

The diagram below presents two distinct perspectives on this vicious cycle: one at the institutional level and the other at the individual level. Both cycles demonstrate how factors

The Vicious Circle of Poverty - at the institutional level



The Vicious Circle of Poverty - at the individual level



like income, education, and infrastructure are interconnected, contributing to the persistence of poverty.

The Vicious Circle of Poverty at the Institutional Level

At the institutional level, the vicious circle is driven by structural factors that prevent regions or countries from developing economically. This cycle begins with Low Population Density, which results in a Lack of Critical Mass for Services and Infrastructure. In areas where population density is low, it becomes challenging to justify the investment in essential services like schools, healthcare, or public transportation. These services are crucial for economic development, but without a significant number of people, there is insufficient demand for them, which discourages investment in these areas.

- Lack of Critical Mass for Services and Infrastructure leads to a Low Rate of Business Creation. With inadequate services and infrastructure, businesses find it difficult to operate effectively, and entrepreneurs are less likely to start new businesses, further stalling economic growth.
- Low Rate of Business Creation results in Fewer Jobs. Without businesses, job opportunities become scarce, leading to higher unemployment rates and lower incomes for the population.
- Fewer Jobs drive Workers to Move Away. In search of better opportunities, workers migrate to urban areas or other regions with more economic prospects, which results in a further reduction in the labor force of the area.
- Workers Moving Away perpetuates the cycle, as it further decreases the population density and the availability of workers, making it even more challenging to create a critical mass for services and infrastructure, and the cycle begins anew.

This institutional vicious cycle highlights the structural limitations that underdeveloped regions face. The lack of infrastructure, low population density, and fewer business opportunities create a situation where poverty continues to persist, as each stage feeds into the next.

The Vicious Circle of Poverty at the Individual Level

At the individual level, the vicious circle of poverty reflects how personal circumstances, such as income, education, and health, contribute to the cycle of poverty. It begins with Low Income, which is the starting point for many people trapped in poverty. Low income limits an individual's ability to save, invest in education, or improve living standards.

- Low Income leads to Low Assets and Low Education. Without enough income, individuals cannot accumulate assets like property or savings. Furthermore, they may not be able to afford education or training that could help them improve their skills and increase their earning potential.
- Low Assets and Low Education result in a Lack of Capital and Lack of Needed Skills. The inability to accumulate assets limits opportunities for investment, while lack of education and skills means fewer job opportunities and lower wages.
- Lack of Capital and Needed Skills leads to Lower Capacity to Generate Income. Without capital to invest in business or professional growth, and without the skills required to secure better-paying jobs, individuals are stuck in low-income jobs or unemployment, perpetuating their poverty.
- Lower Capacity to Generate Income brings them back to Low Income, which restarts the cycle of poverty. This cyclical nature creates a situation where individuals find it increasingly difficult to improve their economic conditions, as every step feeds back into the initial problem of low income.

This individual vicious cycle illustrates how personal circumstances, such as inadequate income and lack of education, trap people in poverty. The cycle shows that poverty is not just an external factor; it is deeply embedded in an individual's inability to escape their economic constraints due to insufficient resources and opportunities.

9.4.2 Circular Causation Theory by Gunnar Myrdal

The Circular Causation Theory, introduced by Gunnar Myrdal, is a fundamental concept in development economics that explains how poverty and underdevelopment are sustained and perpetuated by a series of interdependent, reinforcing factors. Myrdal's theory emphasizes that underdeveloped regions experience a complex web of social, economic, and political challenges, all of which interact in a circular pattern, preventing progress. This self-reinforcing loop of poverty can make it incredibly difficult for nations to escape their underdeveloped status without comprehensive, structural interventions.

Myrdal's theory offers a framework for understanding how various factors, such as low income, limited education, poor health, economic inequality, and lack of infrastructure, work together to create a persistent state of underdevelopment. According to this theory, these factors do not operate independently but instead reinforce each other, trapping individuals and societies in cycles of deprivation and stagnation. The key insight of the Circular Causation

theory is that poverty is not merely the result of low income; it is a broader, systemic issue created by multiple interconnected causes.

Background of the Theory

Gunnar Myrdal, a Swedish economist and sociologist, developed the Circular Causation Theory primarily through his landmark work, *Asian Drama: An Inquiry into the Poverty of Nations* (1968), where he explored the causes of poverty in South Asia and other underdeveloped regions. Myrdal argued that poverty is not simply the result of a lack of resources, but rather the outcome of a series of feedback loops in which one factor leads to another, continuously reinforcing the cycle of underdevelopment.

Myrdal's approach was a departure from earlier economic theories that considered poverty in isolation. Instead, he focused on the interconnectedness of economic, social, and political factors that perpetuate poverty and prevent sustainable development. He viewed underdevelopment as a complex phenomenon that required multi-dimensional solutions, targeting the root causes of inequality, infrastructure deficits, and low productivity.

Myrdal's circular causation is also a sociological theory, as it incorporates social structures and institutions, like the education system, healthcare, and political systems, into the analysis of economic development. His theory highlights the interdependence between economic and social variables, meaning that even improvements in one area may not lead to sustainable development without addressing other equally important factors.

Assumptions of Myrdal's Circular Causation Theory

Gunnar Myrdal's Circular Causation Theory is built on several assumptions that explain the perpetuation of poverty and underdevelopment in a cyclical manner. These assumptions help to understand why poverty becomes entrenched and self-reinforcing in underdeveloped regions, as well as why development is such a difficult process in these economies. Below are the key assumptions:

1. **Interdependence of Economic and Social Factors:** Myrdal assumes that economic and social factors (such as income,²⁰⁴ education, health, and infrastructure) are interconnected and that changes in one area will impact others. For instance, low income leads to low investment, which affects education, which then impacts health, and so on. This assumption stresses that development is a complex, multi-dimensional process where all factors need to be addressed together to achieve meaningful change.

2. **Self-Reinforcing Poverty:** A key assumption of Myrdal's theory is that poverty is self-reinforcing. This means that poverty is not simply the result of low income but is driven by a vicious cycle in which various factors continuously reinforce each other. For example, low income leads to low savings, which leads to low investment and low productivity, further limiting income and reinforcing poverty.
3. **Low Capital Accumulation in Underdeveloped Regions:** Myrdal assumes that underdeveloped regions have low rates of capital accumulation. Without sufficient investment in infrastructure, education, and technology, these regions are unable to escape the poverty trap. Capital accumulation, therefore, is an essential ingredient for overcoming poverty, but without it, regions remain stuck in low growth and low-income cycles.
4. **Institutional and Structural Factors Matter:** According to Myrdal, development cannot occur without addressing institutional and structural factors. He believes that underdevelopment is not just a result of insufficient financial resources but is deeply rooted in institutional weaknesses, such as poor governance, inefficient legal systems, and lack of institutions that support education, healthcare, and infrastructure.
5. **Inequality of Opportunities:** Myrdal assumes that inequality in the distribution of resources and opportunities (such as education, healthcare, and employment) is a key barrier to economic development. Economic inequality worsens the effects of poverty because it prevents a large portion of the population from accessing the resources they need to improve their lives. This inequality further traps the poor in the cycle of poverty, making it harder for individuals to escape their socio-economic conditions.
6. **Economic Development Requires Comprehensive Solutions:** Myrdal's theory assumes that overcoming poverty requires a comprehensive approach that addresses multiple factors simultaneously. This is in contrast to earlier development theories that may focus on a single variable (e.g., capital investment or technological innovation) in isolation. Myrdal argues that poverty is sustained by interconnected barriers, and, therefore, development must address these barriers holistically, integrating policy interventions in areas like education,²⁰⁵ health, infrastructure, and employment opportunities.

Key Elements of Circular Causation

The theory of circular causation operates on the premise that poverty is self-reinforcing, meaning that factors like low income, high unemployment, and poor infrastructure do not

merely exist in isolation but interact to sustain the cycle of poverty. The interdependence of these factors creates a vicious cycle where poverty is perpetuated over time. Below is a breakdown of key components involved in this theory:

1. **Low Income:** The starting point of the vicious cycle. Low income leads to low savings and consumption, which reduces demand for goods and services, ultimately hindering economic growth.
2. **Low Savings:** Low income reduces the ability to save. Without savings, individuals, families, and nations cannot invest in education, infrastructure, or other forms of human capital development, which are crucial for economic growth.
3. **Low Investment:** Insufficient savings lead to low investment in key areas such as infrastructure (roads, energy, communications) and human capital (education and healthcare), which are necessary for lifting an economy out of poverty.
4. **Low Productivity:** A lack of investment results in low productivity in both agriculture and industry. Without technological advancements or increased efficiency, productivity remains stagnant, limiting the economy's output and growth potential.
5. **Limited Education:** Without the necessary infrastructure and investments in education, the workforce remains unskilled, which restricts productivity and innovation. A lack of education further limits opportunities for individuals to escape poverty.
6. **Poor Health:** Low income, inadequate healthcare, and poor living conditions contribute to poor health, which further reduces productivity and the ability to work effectively. Poor health also drains public resources, preventing investment in long-term development goals.
7. **Limited Employment Opportunities:** High unemployment, often caused by a lack of business opportunities or underdeveloped industries, further exacerbates poverty. Unemployment also leads to social instability, which makes it even harder to create sustainable development strategies.
8. **Lack of Infrastructure:** Poor infrastructure, such as roads, electricity, water, and communication systems, hinders economic activities, making it difficult for businesses to operate efficiently or for workers to access job opportunities. Lack of infrastructure limits the productivity of both agricultural and industrial sectors.
9. **Social Inequality:** Income inequality and unequal access to education, healthcare, and economic opportunities further reinforce the cycle. Societies with high levels of

inequality experience slower economic growth because large portions of the population are excluded from contributing to economic development.

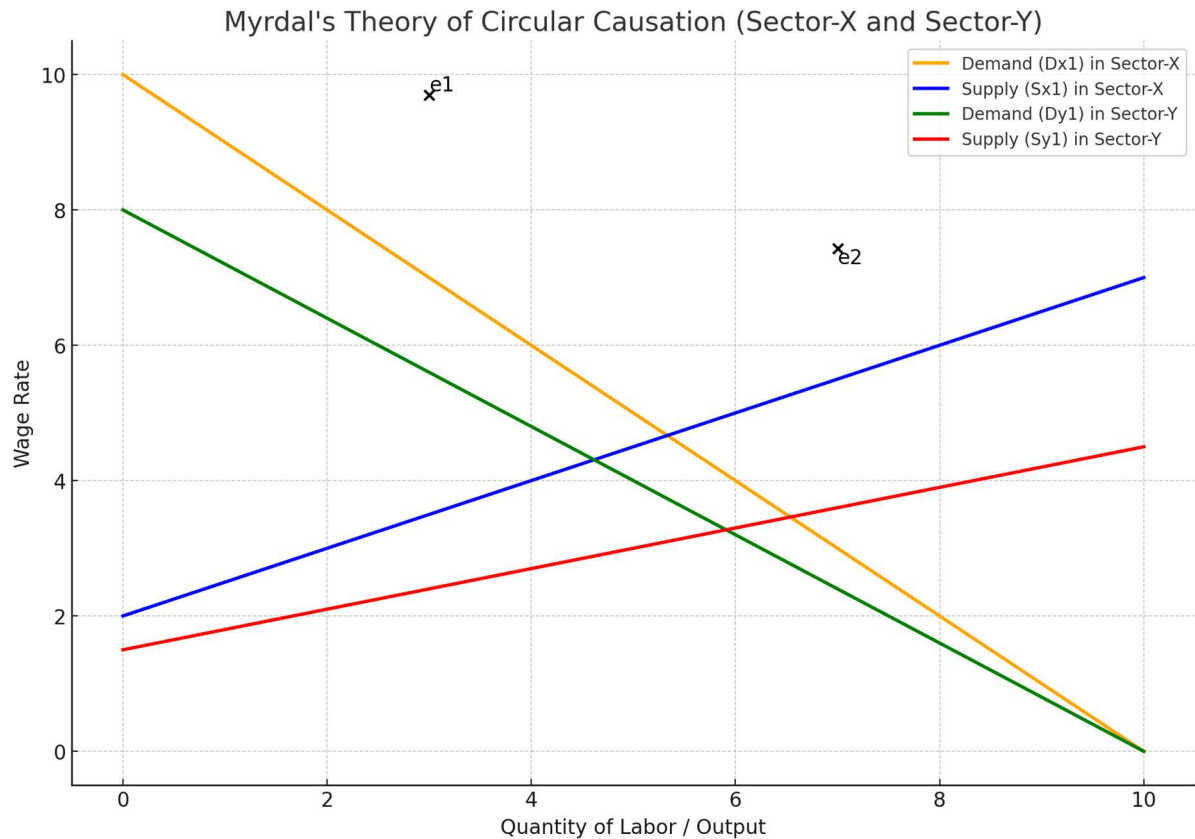


Diagram: Myrdal's Theory of Circular Causation

The diagram provided illustrates Myrdal's Theory of Circular Causation by presenting two sectors, Sector-X and Sector-Y, each with its own demand and supply curves. These curves represent the relationship between the wage rate (on the vertical axis) and the quantity of labor/output (on the horizontal axis). The intersections of the demand and supply curves in both sectors, labeled e1 and e2, represent the equilibrium points where the demand for labor matches the supply in each sector.

Sector-X: The Labor Market Dynamics

In Sector-X, the demand curve is represented by $Dx1$, which slopes downwards from left to right. This downward slope indicates that as the wage rate decreases, the demand for labor increases, as employers can afford to hire more workers at lower wages. Conversely, $Sx1$, the supply curve for Sector-X, slopes upwards, indicating that as the wage rate increases, more individuals are willing to offer their labor to the market.

The intersection of the D_{x1} (Demand) curve and the S_{x1} (Supply) curve at point $e1$ represents the equilibrium point in Sector-X. At this point, the quantity of labor supplied by individuals matches the quantity of labor demanded by employers, and the wage rate is stable. Any shift in either the demand or supply curve would lead to a new equilibrium, which would affect the wage rate and the quantity of labor.

In the context of Myrdal's Circular Causation Theory, this equilibrium point is crucial because it helps define the economic conditions of underdevelopment. In many underdeveloped regions, the equilibrium might be reached at a low wage rate due to low demand for labor (from businesses that are unable to invest or expand) and high supply of labor (from an overabundance of unskilled workers). The low wage rate further perpetuates low savings, low investment, and low productivity, which contributes to the cycle of poverty.

Sector-Y: The Interactions of Supply and Demand

In Sector-Y, the D_{y1} curve represents the demand for labor, and the S_{y1} curve represents the supply. Like Sector-X, the demand curve D_{y1} slopes downwards, indicating that businesses in Sector-Y will demand more labor as wages decrease. On the other hand, S_{y1} , the supply curve, slopes upwards, showing that higher wages will attract more individuals to seek employment in this sector.

The intersection of D_{y1} and S_{y1} at point $e2$ represents the equilibrium in Sector-Y, where the wage rate for labor is stable, and the quantity of labor demanded matches the quantity of labor supplied. However, in many developing economies, both sectors might experience low wages, leading to a scenario where workers are unable to generate sufficient income, which further perpetuates low consumption, low savings, and low investment.

Key Insights from the Diagram:

1. **Economic Interdependence Between Sectors:** The diagram illustrates how Sector-X and Sector-Y are interconnected in the labor market. When demand for labor is low in one sector (due to low investment or lack of business creation), it can spill over into the other sector, affecting wage rates and employment opportunities across both sectors. This interaction between sectors reinforces Myrdal's Circular Causation theory, as changes in one area of the economy lead to cascading effects throughout the system, perpetuating the cycle of poverty.
2. **The Role of Low Wages in Perpetuating Poverty:** The equilibrium points, $e1$ and $e2$, in both sectors often reflect low wages in underdeveloped economies. These low wages

discourage workers from saving or investing, limiting economic growth. In Myrdal's view, such low wages in one sector can spill over into the other sector, creating a vicious cycle of economic stagnation. The low wages lead to limited purchasing power, low demand for goods and services, and ultimately, a reduction in overall economic activity.

3. **The Self-Reinforcing Nature of Underdevelopment:** One of the most critical aspects of this diagram is the self-reinforcing nature of the cycle. As demand for labor is low and supply is high, wages remain low, which reduces purchasing power and limits demand. This reduces the incentives for businesses to invest in increasing productivity, leading to a lack of infrastructure and technological progress. The low wages and lack of employment opportunities further perpetuate the cycle, creating a feedback loop where low wages lead to low demand, which leads to low investment, and so on.
4. **Policy Implications:** The diagram underscores the importance of addressing the underlying structural issues in the economy. For example, improving the demand for labor in both sectors, through investments in infrastructure, technology, and education, could increase wages and shift the equilibrium to higher wage rates. By boosting investment in both human capital (education, skills) and physical capital (infrastructure, technology), economies could break the cycle and shift from a state of underdevelopment to sustained growth.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the Vicious Circle of Poverty?
2. Who popularized the concept of the Vicious Circle of Poverty?
3. Explain the main feedback loops involved in Circular Causation.
4. How does low income contribute to the persistence of poverty in developing countries?
5. What are the key differences between the Supply-Side and Demand-Side Vicious Cycles?
6. What role do low savings play in perpetuating the Vicious Circle of Poverty?
7. How can external support, like foreign aid, help break the Vicious Circle of Poverty?
8. Why is the concept of Circular Causation important for understanding underdevelopment in poor nations?

9.5 Breaking the Cycle: Policies and Approaches

Poverty is a complex, multifaceted issue that requires a comprehensive approach to break the cycle and promote sustainable economic development. The Vicious Cycle of Poverty and Circular Causation theories suggest that poverty is not just the result of a single factor, but rather the outcome of a combination of factors that reinforce each other. As these cycles trap countries in a state of underdevelopment, it becomes critical to address the root causes of poverty using a variety of strategies. Theories alone are not enough to break the cycle; practical, effective policies must be implemented to create an environment conducive to growth and development.

This section explores several approaches and policies that have been used to break the cycle of poverty, including external support, foreign aid, domestic strategies, and the growing importance of microfinance. These approaches provide the foundation for building sustainable economies by addressing both the immediate needs of impoverished populations and the long-term factors that contribute to economic stagnation.

9.5.1 External Support and Foreign Aid

External support and foreign aid play an essential role in breaking the cycle of poverty, particularly in developing countries where resources for investment and development are scarce. Foreign aid includes financial assistance, technical expertise, and other forms of support provided by wealthier countries or international organizations to help developing countries accelerate their growth and reduce poverty. However, the effectiveness of foreign aid in achieving long-term development has been a topic of debate among scholars and policymakers.

The Role of Foreign Aid in Development

Foreign aid is often used to address immediate challenges faced by developing countries, such as food insecurity, inadequate healthcare, or lack of infrastructure. The primary goal of foreign aid is to boost economic growth, improve living standards, and help reduce poverty. There are several types of foreign aid, each designed to address different aspects of development:

1. **Bilateral Aid:** This is aid given directly from one country to another. Bilateral aid is often provided by wealthier countries to developing countries and can be used for a wide range of purposes, including funding infrastructure projects, improving education and healthcare, and promoting economic reforms.
2. **Multilateral Aid:** Multilateral aid is channeled through international organizations, such as the United Nations (UN), the World Bank, and the International Monetary Fund

(IMF). These organizations pool resources from multiple donor countries to fund projects aimed at alleviating poverty and promoting sustainable development.

3. **Humanitarian Aid:** This form of aid is typically provided in response to emergencies or crises, such as natural disasters or conflict. Humanitarian aid includes food, medical supplies, and other essential goods, but it is often short-term and focuses on meeting immediate needs rather than addressing long-term development goals.

Challenges and Criticism of Foreign Aid

While foreign aid has played a role in supporting economic growth and poverty reduction in many countries, it is not without challenges. The effectiveness of foreign aid has been criticized for several reasons:

1. **Dependency:** One major concern is that foreign aid can create dependency. When countries rely too heavily on aid for their economic survival, they may fail to develop their own capacity to generate sustainable economic growth. This dependency can stifle entrepreneurship, innovation, and local investment, which are crucial for long-term development.
2. **Mismanagement and Corruption:** In some cases, foreign aid has been misused or mismanaged, particularly when there is a lack of transparency or accountability in the recipient country's government. Corruption can divert aid away from its intended purpose, preventing it from reaching those who need it most.
3. **Aid Effectiveness:** There is debate about whether foreign aid truly fosters long-term economic growth. Some studies suggest that foreign aid can lead to short-term improvements, but may not lead to sustained development if structural issues like governance, inequality, and corruption are not addressed. In some cases, aid has been criticized for being too focused on immediate relief rather than long-term capacity building.
4. **Conditionality:** Many donor agencies, particularly the IMF and the World Bank, attach conditions to their aid. These conditions may include economic reforms, structural adjustments, or changes in policies. While these reforms may help improve economic performance, they can also lead to social and political unrest if they are not aligned with the needs and priorities of the local population.

Despite these challenges, foreign aid continues to be an important tool for addressing global poverty. However, to break the cycle of poverty, it is essential that foreign aid is carefully

targeted, well-managed, and aligned with the broader goals of sustainable development, including strengthening local economies and institutions.

9.5.2 Domestic Strategies

While external support plays an important role, domestic strategies are critical for long-term development. Domestic strategies focus on improving the internal capacity of a country to generate wealth, invest in its people, and create an environment that fosters growth. These strategies are crucial for breaking the cycle of poverty because they focus on addressing the root causes of underdevelopment and poverty within the country.

Key Domestic Strategies for Breaking the Cycle of Poverty

1. **Investing in Education and Skills Development:** Education is one of the most powerful tools for breaking the cycle of poverty. By providing access to quality education and skills training, countries can improve the human capital of their workforce, enabling individuals to access better jobs, increase productivity, and contribute to economic growth. Education also helps reduce inequality, empowering people to break free from the constraints of poverty. Policies focused on expanding access to education, improving quality, and reducing barriers (such as cost and gender inequality) are key to breaking the cycle.
2. **Improving Healthcare and Social Services:** Health is a key determinant of economic productivity. In many developing countries, poor health, malnutrition, and disease are major barriers to development. Investment in healthcare systems, vaccination programs, and public health campaigns can improve life expectancy, reduce disease burden, and increase the productivity of the workforce. Policies that focus on providing universal healthcare, improving sanitation, and addressing nutritional deficiencies can significantly reduce the economic impact of poor health.
3. **Infrastructure Development:** A strong infrastructure base is critical for economic development. Infrastructure includes²¹² roads, electricity, water supply, and telecommunications, key elements that enable businesses to operate efficiently and connect markets. For instance, access to reliable roads and transportation networks can reduce transportation costs, making it easier for businesses to access raw materials and markets. Infrastructure also supports the delivery of healthcare, education, and other

essential services. Governments must prioritize investment in infrastructure to break the cycle of poverty and promote long-term economic growth.

4. **Promoting Small and Medium Enterprises (SMEs):** SMEs play a vital role in job creation and economic diversification. By fostering a conducive environment for entrepreneurship, governments can support the growth of SMEs, which are often more nimble and adaptable than large corporations. This can be achieved through policies that provide access to credit, reduce bureaucratic barriers, and encourage innovation. SMEs are often the backbone of developing economies and can create sustainable employment opportunities for large segments of the population.
5. **Addressing Inequality:** Inequality in income, wealth, and access to services is a key driver of poverty. Domestic strategies should focus on reducing inequality through progressive taxation, social safety nets, and policies that ensure equitable access to education, healthcare, and employment opportunities. By tackling inequality, countries can ensure that the benefits of growth are more widely shared and that the most disadvantaged populations are able to break the cycle of poverty.

9.5.3 Role of Microfinance

One of the most innovative and promising tools for breaking the cycle of poverty is microfinance. Microfinance refers to the provision of small loans and financial services to individuals in low-income communities who do not have access to traditional banking services. Microfinance institutions (MFIs) offer loans, savings accounts, and insurance to people who are typically excluded from the formal financial system. By providing access to financial resources, microfinance enables individuals to start or expand small businesses, improve their living standards, and ultimately lift themselves out of poverty.

The Impact of Microfinance on Poverty Reduction

1. **Access to Capital for Entrepreneurship:** One of the primary goals of microfinance is to provide access to capital for individuals who are unable to obtain traditional loans due to lack of collateral, credit history²¹³, or financial security. By offering small loans, MFIs enable people to start or expand their own businesses, creating income and employment opportunities. This fosters entrepreneurship and helps stimulate local economies.
2. **Women's Empowerment:** Microfinance has been particularly successful in empowering women. In many developing countries, women face significant barriers to

accessing financial services. Microfinance institutions often target women, providing them with opportunities to manage their own businesses and financial resources. Empowering women through microfinance has a multiplier effect on families and communities, as women tend to reinvest their earnings into their children's education and healthcare, thereby improving overall family well-being.

3. **Social and Economic Impact:** Microfinance not only helps individuals generate income but also has broader social and economic benefits. It improves the ability of families to access healthcare, education, and housing. In many cases, microfinance has enabled communities to access services that would otherwise be out of reach due to their low income levels. This leads to improvements in living standards and contributes to breaking the cycle of poverty.
4. **Challenges of Microfinance:** While microfinance has proven to be a powerful tool for poverty alleviation, it is not without challenges. One of the main concerns is the high-interest rates charged by some MFIs, which can make it difficult for borrowers to repay their loans. Additionally, while microfinance has helped many individuals, it has not been a panacea for all the issues of poverty. Some critics argue that microfinance alone cannot drive long-term development without complementary policies, such as investment in education, infrastructure, and healthcare.
5. **Future of Microfinance:** The future of microfinance looks promising, especially as new technologies, such as mobile banking and digital financial services, make it easier for people to access financial resources. Innovations in microfinance, combined with stronger regulatory frameworks and a focus on social impact, could lead to more sustainable and inclusive development in low-income countries.

Breaking the cycle of poverty requires a combination of external support, domestic strategies, and innovative solutions. Foreign aid and external support play a critical role in providing the initial resources for poverty alleviation, while domestic strategies focus on building the internal capacity of nations to generate growth. Among the most promising approaches is microfinance, which empowers individuals, particularly women, by providing access to capital, fostering entrepreneurship, and improving access to basic services. By combining these strategies, developing countries can build the foundations for sustainable economic growth and long-term poverty reduction.

One of the most notable success stories of microfinance is the work of the Grameen Bank in Bangladesh. Founded by Dr. Muhammad Yunus in 1983, the bank was established to provide small loans to the rural poor, particularly women, who were excluded from traditional banking services due to their lack of collateral and credit history. The Grameen Bank's model is based on the principle that the poor are reliable borrowers when they are given a chance. As Dr. Yunus states, "We have demonstrated that credit is a human right, and the poor can achieve remarkable things with just a little assistance" (Yunus, 2007). By focusing on community-based lending, the bank has helped lift millions out of poverty, enabling them to invest in small businesses and improve their lives. Over the years, the Grameen Bank's success has been recognized globally, earning Dr. Yunus the Nobel Peace Prize in 2006. Today, the bank has expanded its services to over 9 million borrowers, offering access to credit, savings, and insurance to the underserved population of Bangladesh.

Case Study: Microfinance in Bangladesh - The Grameen Bank

9.6 Criticisms of the Vicious Circle and Circular Causation

The theories of the Vicious Circle of Poverty and Circular Causation have been immensely influential in shaping our understanding of poverty, underdevelopment, and the obstacles that many nations face in breaking free from the cycle of poverty. While these theories highlight the interconnected and reinforcing nature of the factors that contribute to economic stagnation, they have also faced criticism over the years. Critics argue that these theories oversimplify the complex realities of poverty and development, and they fail to account for various structural, historical, and global influences that impact economic progress.

In this section, we will explore the limitations of the Vicious Circle of Poverty and Circular Causation theories and examine alternative approaches that offer more comprehensive explanations of poverty and underdevelopment.²¹⁵

9.6.1 Limitations of the Theories

Despite the importance of the Vicious Circle of Poverty and Circular Causation in development economics, several criticisms have emerged regarding their applicability and comprehensiveness. These theories focus heavily on the internal dynamics of underdeveloped

economies, and although they are useful for understanding certain aspects of poverty, they fail to provide a holistic or fully accurate depiction of the development process.

1. Overemphasis on Internal Factors

One of the primary criticisms of both the Vicious Circle of Poverty and Circular Causation is their heavy focus on internal factors such as low income, low savings, and low investment. While these factors certainly contribute to economic stagnation, critics argue that these theories fail to fully account for the external factors that can affect poverty and development, such as global economic structures, historical colonial legacies, and international trade imbalances.

For example, Dependency Theory, a competing development theory, highlights how developing countries are often trapped in a state of dependence on wealthier nations. It argues that underdeveloped countries face external barriers to development, such as unfavorable terms of trade, exploitation of resources by foreign powers, and the outflow of capital to richer countries. By focusing solely on internal factors, the Vicious Circle of Poverty and Circular Causation theories overlook the role that global economic systems play in perpetuating underdevelopment.

Furthermore, both theories tend to oversimplify the causes of poverty by assuming that low income automatically leads to low savings, low investment, and low productivity. While these connections may be true in some contexts, they do not apply universally. Some countries with low income levels, for instance, may still experience high levels of foreign direct investment or technological innovation, suggesting that other factors, such as governance or institutional quality, also play a significant role in development.

2. Lack of Focus on Institutional Factors

Another limitation of these theories is their lack of emphasis on the role of institutions in shaping economic outcomes. Institutions, such as legal systems, property rights, political stability, and quality of governance, are critical to economic development. Strong institutions promote economic growth by ensuring that resources are allocated efficiently, property is protected, and market transactions are transparent and fair.²¹⁶

The Vicious Circle of Poverty and Circular Causation theories, however, often fail to consider the importance of institutions in breaking the cycle of poverty. For instance, poor governance or corruption can undermine the effectiveness of foreign aid or domestic investments, while weak legal frameworks can prevent entrepreneurs from starting businesses or accessing credit.

These institutional barriers may be the root cause of poverty, rather than the economic factors highlighted in the Vicious Circle and Circular Causation theories.

3. Overemphasis on the Cycle as a Self-Perpetuating Process

The Vicious Circle of Poverty and Circular Causation theories present poverty as a self-reinforcing loop that is difficult to escape. While this view accurately captures the experience of many underdeveloped nations, critics argue that it paints an overly deterministic picture of poverty. The idea that poverty perpetuates itself indefinitely may overlook the potential for change within developing economies.

In reality, there are numerous examples of countries that have broken the cycle of poverty through a combination of factors, such as political reforms, international aid, technological advancements, and entrepreneurial innovation. For instance, countries like South Korea and Singapore experienced rapid economic growth and poverty reduction despite initially facing challenges similar to those described in the Vicious Circle. These cases demonstrate that economic development is not necessarily a linear process and that external factors, such as policy changes, foreign investment, and international cooperation, can play a significant role in breaking the cycle.

4. Insufficient Attention to Human Agency

The Vicious Circle of Poverty and Circular Causation theories focus largely on economic and structural factors, leaving little room for human agency and the role of individuals and communities in driving change. While these theories emphasize the ways in which poverty is reinforced by economic factors, they fail to acknowledge the capacity of people to challenge and overcome poverty through entrepreneurship, education, and social movements.

Development is not just about overcoming structural barriers, but also about creating opportunities for individuals and communities to take ownership of their economic futures. Theories that focus solely on economic determinism, like the Vicious Circle and Circular Causation, may underestimate the potential of local solutions and bottom-up development strategies to break the cycle of poverty.

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9.6.2 Alternative Approaches

While the Vicious Circle of Poverty and Circular Causation provide useful frameworks for understanding poverty, several alternative approaches offer a more comprehensive and

nuanced understanding of economic development. These approaches emphasize the importance of external factors, institutions, and human agency in breaking the cycle of poverty.

1. Dependency Theory

Dependency Theory, developed by economists such as Raúl Prebisch and Andre Gunder Frank, offers a critique of the Vicious Circle of Poverty and Circular Causation theories by emphasizing the role of external forces in perpetuating underdevelopment. According to Dependency Theory, developing countries are often trapped in a state of dependence on wealthier countries, which exploit their resources and maintain unequal economic relationships.

Dependency theorists argue that the global economic system is structured in such a way that wealthy countries continue to benefit at the expense of developing nations. Developing countries export raw materials and agricultural products to richer nations, while importing finished goods at higher prices. This unequal exchange keeps developing countries in a state of poverty, as they are unable to industrialize or diversify their economies. The Vicious Circle and Circular Causation theories, by focusing solely on internal factors, fail to account for this structural imbalance.

2. Institutional Economics

Another alternative approach to understanding poverty is Institutional Economics, which emphasizes the role of institutions in shaping economic outcomes. This theory focuses on the importance of well-functioning institutions, such as property rights, financial markets, rule of law, and government policies, in promoting development. According to institutional economists, poverty is often caused by weak or inefficient institutions that prevent resources from being allocated efficiently and limit opportunities for entrepreneurship and investment.

For example, countries with strong legal systems, transparent governance, and well-developed financial markets tend to have higher levels of economic growth and poverty reduction. On the other hand, countries with weak institutions often experience stagnation and inequality. By focusing on the role of institutions, Institutional Economics offers a more dynamic and optimistic view of development, suggesting that countries can overcome poverty by improving their institutional frameworks.

3. Human Capital Theory

Human Capital Theory focuses on the role of education, skills development, and health in driving economic growth and development. According to this theory, investing in human capital, the knowledge, skills, and abilities of individuals, can significantly improve labor productivity and lead to higher levels of economic output. Unlike the Vicious Circle and Circular Causation theories, which focus on economic factors, Human Capital Theory emphasizes the importance of investing in people as the key to breaking the cycle of poverty. Investing in education, healthcare, and skills development enables individuals to improve their earning potential and contributes to the overall development of the economy. Countries that prioritize human capital tend to experience higher levels of innovation, entrepreneurship, and productivity, which can drive long-term economic growth.

4. Sustainable Development and the Role of the Environment

An alternative approach to traditional development theories is the concept of Sustainable Development, which emphasizes the importance of balancing economic growth with environmental sustainability. Sustainable development focuses on the need to preserve natural resources and protect the environment while fostering economic growth and improving living standards.

This approach recognizes that poverty is not just an economic issue but also an environmental one. In many developing countries, environmental degradation, such as deforestation, soil erosion, and water pollution, can exacerbate poverty by reducing agricultural productivity and limiting access to natural resources. Sustainable development strategies prioritize green technologies, renewable energy, and conservation to break the cycle of poverty and create long-term prosperity.

While the Vicious Circle of Poverty and Circular Causation theories provide valuable insights into the persistence of poverty, they have several limitations. These theories focus heavily on internal economic factors and structural barriers, often overlooking the role of external forces, institutions, and human agency in shaping development outcomes. Alternative approaches, such as Dependency Theory, Institutional Economics, Human Capital Theory, and Sustainable Development, offer more comprehensive frameworks for understanding poverty and development.

By acknowledging the complexities of economic growth and development, these alternative approaches provide a more nuanced view of poverty and offer practical solutions for breaking

the cycle of poverty. While the Vicious Circle and Circular Causation theories remain important for understanding the dynamics of underdevelopment, it is essential to consider other factors, such as global trade relations, institutional quality, and human capital, to effectively address poverty and promote sustainable development.

Check your Progress - II

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the role of foreign aid in breaking the cycle of poverty, and what are some of the challenges associated with it?
2. Explain the concept of the Vicious Circle of Poverty and how low income, savings, and investment contribute to its persistence.
3. How can domestic strategies like investment in education and healthcare help in breaking the cycle of poverty in developing nations?
4. What are the key differences between the Supply-Side Vicious Cycle and the Demand-Side Vicious Cycle, and how do they reinforce poverty?
5. How does microfinance work in empowering individuals and reducing poverty, particularly in the context of women's empowerment?
6. Discuss the criticisms of the Vicious Circle and Circular Causation theories regarding their focus on internal economic factors.
7. What are the limitations of the Circular Causation Theory in addressing poverty, and how does it fail to consider external factors?
8. How can sustainable development strategies contribute to breaking the cycle of poverty in underdeveloped nations?
9. Explain the concept of 'human capital' and why investing in human capital is considered critical to breaking the cycle of poverty.
10. What is Dependency Theory, and how does it offer an alternative perspective to the Vicious Circle and Circular Causation theories in understanding poverty and underdevelopment?

Difference table between the Vicious Circle of Poverty and the Circular Causation Theory

Aspect	Vicious Circle of Poverty	Circular Causation Theory
Definition	The Vicious Circle of Poverty refers to a self-reinforcing cycle where poverty leads to low income, low savings, low investment, and low productivity, all of which perpetuate the state of poverty.	Circular Causation Theory emphasizes that poverty is the result of multiple, interconnected economic, social, and political factors that feed into and reinforce each other.
Focus	Primarily focuses on economic factors such as income, savings, investment, and productivity.	Focuses on a broader range of interconnected factors, including economic, social, and political elements such as education, health, and institutions.
Key Mechanism	Economic factors reinforce each other: low income leads to low savings, which leads to low investment and low productivity, thus maintaining the cycle of poverty.	The theory shows how various social, economic, and political factors interact in a feedback loop, such as low income affecting education, health, and employment opportunities.
Role of Income	Low income is the key starting point. It leads to low savings and investment, preventing economic growth.	Low income is one of the factors, but the theory also involves education, health, and social structures that interact with income to perpetuate poverty.
Economic vs. Social Focus	Primarily economic in nature, focusing on capital accumulation and productivity.	A more holistic view, addressing the economic, social, and institutional barriers to development.
External Factors	Largely ignores external factors, focusing on the internal dynamics of the economy. 221	Recognizes external factors such as international trade, geopolitics, and global economic systems, affecting the development of nations.
Cyclical Nature	Presents poverty as a self-reinforcing cycle that is difficult to break without significant intervention.	Depicts a circular feedback system where poverty is perpetuated by multiple reinforcing factors, but it also allows for the possibility of change.

Aspect	Vicious Circle of Poverty	Circular Causation Theory
Solutions/Interventions	Focuses on increased investment, savings, and policy interventions aimed at breaking the economic cycle (e.g., capital injections, infrastructure development).	Emphasizes the need for multifaceted interventions targeting social, political, and economic factors simultaneously (e.g., education reform, health improvements, institutional strengthening).
Institutional Factors	Lacks emphasis on institutional factors like governance, legal systems, and social structures, focusing mostly on economic variables.	Institutions (e.g., legal systems, governance, and policies) are considered critical in either reinforcing or breaking the cycle of poverty.
Development Pathways	Suggests that breaking the cycle requires external capital investment or external aid to boost income, savings, and investment.	Advocates for comprehensive development strategies that include institutional reforms, social policies, and empowerment of individuals, suggesting a more nuanced approach to development.

Both the Vicious Circle of Poverty and Circular Causation provide valuable frameworks for understanding the complexities of poverty and underdevelopment. While the Vicious Circle highlights the economic self-reinforcing mechanisms that perpetuate poverty, Circular Causation offers a broader view, including social and institutional factors as crucial elements in the poverty cycle.

The key differences lie in their scope and approach to development. The Vicious Circle theory focuses primarily on the economic factors, offering a more narrow view of the poverty problem. In contrast, Circular Causation is more comprehensive, acknowledging the interaction between economic, social, and institutional factors in perpetuating poverty.

Both theories contribute significantly to the development discourse, yet they each have their limitations. For example, while the Vicious Circle emphasizes the need for economic interventions, Circular Causation advocates for a holistic, multi-pronged approach to development. To achieve lasting poverty reduction, both economic and institutional reforms are necessary, making it important to blend these theories with other approaches that take into account the broader complexities of global poverty and development.

9.7 Glossary

- **Vicious Circle of Poverty:** A self-reinforcing cycle where poverty leads to low income, low savings, low investment, and low productivity, keeping the economy stuck in underdevelopment.
- **Circular Causation:** A theory that poverty is caused by multiple interrelated factors, economic, social, and political, that feed into each other and create a continuous cycle of poverty.
- **Capital Accumulation:** The process of acquiring and increasing the capital stock (machinery, buildings, technology) which drives economic growth by enhancing productivity.
- **Human Capital:** The knowledge, skills, and abilities of individuals that contribute to their productivity and economic output; investment in human capital is crucial for development.
- **Foreign Aid:** Assistance given by richer countries or international organizations to developing countries in the form of financial support, goods, or technical expertise to promote economic growth.
- **Microfinance:** Financial services such as small loans and savings accounts offered to individuals, particularly in impoverished areas, to help them start small businesses and improve their livelihoods.
- **Dependency Theory:** A theory that explains underdevelopment as the result of economic and political exploitation by wealthy nations, keeping poorer countries in a state of dependence.
- **Sustainable Development:** Economic development that meets present needs without compromising the ability of future generations to meet their own needs, balancing economic, environmental, and social factors.

9.8 Let's Sum Up

- **Poverty as a Cycle:** Both the Vicious Circle of Poverty and Circular Causation demonstrate how poverty is perpetuated through economic and social factors that reinforce each other.
- **Interconnected Factors:** Circular Causation emphasizes that poverty is not just economic but also involves social, political, and institutional factors.

- **Role of External Support:** Foreign aid and external support are critical to breaking the poverty cycle, but they must be carefully managed to avoid dependency.
- **Domestic Strategies Matter:** Countries must also implement domestic strategies like improving education, healthcare, and infrastructure to promote sustainable growth.
- **Microfinance as a Tool:** Microfinance has proven effective in empowering the poor, particularly women, by providing access to financial resources for entrepreneurship.
- **Limitations of the Theories:** Both Vicious Circle and Circular Causation theories have limitations in addressing external and institutional factors, which are also crucial for development.
- **Alternative Theories:** Dependency Theory and Human Capital Theory offer different perspectives, highlighting the need for institutional reform and investment in people.
- **Holistic Development:** To break the cycle of poverty, a holistic approach is necessary, focusing on economic, social, and institutional reforms to create sustainable development.

9.9 Suggested Readings

- "Development as Freedom" by Amartya Sen (1999)
- "The End of Poverty: Economic Possibilities for Our Time" by Jeffrey Sachs (2005)
- "Theories of Economic Development" by Thomas W. Schultz (1961)
- "Globalization and Its Discontents" by Joseph E. Stiglitz (2002)
- "The Wealth and Poverty of Nations" by David S. Landes (1998)
- "Economic Development" by Michael P. Todaro and Stephen C. Smith (2011)
- "Development Economics" by Debraj Ray (1998)

9.10 Hints to Check Your Progress

CYP I

To ensure you have understood the core concepts covered in Section 9.4 (Vicious Circle of Poverty and Circular Causation), review the following questions and check your answers against the key points discussed in this section:

1. **What is the Vicious Circle of Poverty?**
 - Think about how low income leads to low savings, low investment, and low productivity, which keep the economy stuck in poverty.

2. **How do low income, low savings, low investment, and low productivity reinforce each other in the Vicious Circle of Poverty?**
 - Review the feedback loop of the Vicious Circle and understand how each factor feeds into and strengthens the next.
3. **What is Circular Causation, and how does it differ from the Vicious Circle of Poverty?**
 - Reflect on how Circular Causation emphasizes not just economic but also social and institutional factors, showing that poverty results from multiple interrelated causes.
4. **How do social factors such as education and health contribute to the Circular Causation of Poverty?**
 - Think about how low income restricts access to education and healthcare, leading to long-term poverty outcomes.
5. **In what ways can poverty in one sector affect other sectors, according to Circular Causation?**
 - Understand how economic, social, and political factors are interconnected and contribute to the persistence of poverty.

CYP II

To check your progress on the content of Section 9.5 (Breaking the Cycle: Policies and Approaches) and Section 9.6 (Criticisms of the Vicious Circle and Circular Causation), reflect on the following questions:

1. **How does foreign aid help in breaking the cycle of poverty? What are the challenges associated with foreign aid?**
 - Focus on the role of financial assistance and technical expertise in development, and consider the limitations such as dependency and mismanagement.
2. **What are the main domestic strategies to break the cycle of poverty?**
 - Consider how education, healthcare, and infrastructure investments can reduce poverty and promote economic growth in the long run.
3. **What role does microfinance play in poverty reduction, particularly for women?**

- Review how microfinance provides small loans to the poor, enabling entrepreneurship and improving access to financial services, especially for women.
- 4. **What are the limitations of the Vicious Circle of Poverty and Circular Causation theories in addressing poverty?**
 - Think about how these theories focus too much on internal factors and ignore external influences such as global trade and historical impacts.
- 5. **What are the alternative theories to Vicious Circle and Circular Causation, and how do they contribute to understanding poverty?**
 - Reflect on Dependency Theory, Institutional Economics, and Human Capital Theory, and how they broaden the perspective on poverty by addressing institutional and structural factors.

9.11 Examination-Oriented Questions

1. Explain the Vicious Circle of Poverty. How does it reinforce poverty?
 - **Definition:** Start by explaining the Vicious Circle of Poverty—how low income leads to low savings, low investment, and low productivity.
 - **Sequence of Events:** Discuss how each factor in the cycle reinforces the next, creating a self-sustaining loop that traps economies in poverty.
 - **Example:** Provide examples of countries or regions where this cycle has been observed, and how it affects development.
 - **Breaking the Cycle:** Conclude by mentioning potential interventions that could break the cycle, such as foreign aid, capital investment, or education reforms.
2. Discuss the concept of Circular Causation and how it differs from the Vicious Circle of Poverty.
 - **Definition:** Clearly define Circular Causation as a theory that includes economic, social, and political factors in perpetuating poverty.
 - **Differences from Vicious Circle:** Highlight how Circular Causation is broader, considering social structures like education, health, and inequality, while the Vicious Circle focuses more on economic feedback loops.
 - **Interconnections:** Explain how these factors are interlinked and influence each other (e.g., low income leads to poor education and health, which worsens poverty).

- Impact on Policy: Mention how understanding Circular Causation helps to design multi-faceted solutions targeting these interconnections.

3. How does foreign aid contribute to breaking the cycle of poverty? What are its limitations?

- Role of Foreign Aid: Discuss how financial assistance helps in addressing immediate needs (e.g., healthcare, education, infrastructure) and promotes economic growth.
- Limitations: Examine criticisms such as the potential dependency created by aid, mismanagement, and corruption in recipient countries.
- Short-term vs. Long-term Impact: Discuss whether foreign aid addresses immediate relief or long-term development goals and its effectiveness in both.
- Suggestions: Propose recommendations for improving aid effectiveness, such as focusing on capacity building and self-sustainability.

4. What are the key domestic strategies to break the cycle of poverty?

1. Education: Discuss how investing in education leads to an improved workforce, better productivity, and a higher standard of living.
2. Healthcare: Explain the link between healthcare and productivity—how improving public health systems can break the poverty cycle.
3. Infrastructure: Highlight the importance of investing in infrastructure (e.g., roads, electricity, and communication) to boost economic activity and growth.
4. Policy Implementation: Discuss how effective governance and policies that target inequality can help break the cycle by ensuring equitable growth and access to opportunities.

5. What role does microfinance play in poverty alleviation, especially for women?

- Definition of Microfinance: Define microfinance and its role in providing small loans to individuals, especially in impoverished communities.
- Women's Empowerment: Explain how microfinance specifically empowers women by giving them financial independence and control over their economic futures.
- Economic Impact: Discuss how microfinance supports entrepreneurship, job creation, and economic self-sufficiency in impoverished areas.
- Challenges: Acknowledge the high-interest rates and potential sustainability issues that may undermine microfinance's effectiveness in the long run.

6. Analyze the limitations of the Vicious Circle and Circular Causation theories in addressing poverty.

- **Overemphasis on Internal Factors:** Discuss how both theories focus too heavily on internal economic factors, ignoring the influence of external factors like global trade and historical legacies.
- **Simplification of Poverty:** Explain how these theories may oversimplify the causes of poverty and fail to recognize complex socio-political dynamics that affect development.
- **Lack of Institutional Focus:** Critique the theories for not adequately addressing the role of strong institutions in fostering development and reducing poverty.
- **Real-World Examples:** Use examples of countries that have broken the poverty cycle despite facing challenges similar to those described in these theories, showing the potential for change.

7. How do alternative theories like Dependency Theory and Human Capital Theory differ from the Vicious Circle and Circular Causation?

- **Dependency Theory:** Explain how Dependency Theory emphasizes external factors such as colonial history and global economic inequalities that perpetuate poverty.
- **Human Capital Theory:** Discuss how Human Capital Theory focuses on the role of education, skills development, and healthcare in empowering individuals and fostering economic growth.
- **Comparison:** Contrast how the Vicious Circle and Circular Causation focus on internal feedback loops, while these alternative theories highlight the role of global dynamics and human potential.
- **Application:** Analyze how each theory provides different insights and solutions for breaking the cycle of poverty, with an emphasis on global reform and investment in people.

8. Discuss the importance of sustainable development in breaking the cycle of poverty.

- **Sustainable Development Definition:** Define sustainable development as economic growth that meets current needs without compromising future generations' ability to meet their own needs.
- **Economic, Social, and Environmental Balance:** Discuss how sustainable development addresses not only economic growth but also social equity and environmental protection.
- **Poverty and Environmental Degradation:** Explain how environmental degradation (e.g., deforestation, soil erosion) can exacerbate poverty, especially in rural areas, and how sustainable practices can address this.

- Long-Term Strategy: Emphasize that sustainable development is necessary for breaking the cycle of poverty as it ensures that economic growth is inclusive and resilient over time, reducing future poverty risks.

STRUCTURE

10.0 Objective

10.1 Learning Outcomes

10.2 Introduction

10.3 Lewis Theory of Unlimited Supply of Labour

- 10.3.1 The Concept of Unlimited Labour Supply
- 10.3.2 Dual-Sector Model

10.4 Assumptions of Lewis's Model

10.5 Mechanism of Labor Transfer

10.6 Implications for Developing Economies

10.7 Criticisms of the Lewis Model

10.8 The Future of Labor Mobility in a Globalized Economy

10.9 Glossary

10.10 Let's Sum Up

10.11 Suggested Readings

10.12 Hints to Check Your Progress

10.13 Examination-Oriented Questions

10.0 Objectives

By the end of this lesson, you should be able to:

1. Understand the core principles of the Lewis Theory of Unlimited Supply of Labour and its significance in explaining the labor transition from agriculture to industry in developing economies.
2. Grasp the concept of unlimited labor supply in rural agricultural sectors, and how this surplus labor can be utilized for industrial growth without negatively impacting agricultural productivity.
3. Analyze the dual-sector model proposed by Lewis, distinguishing between the traditional agricultural sector and the modern industrial sector, and understand how labor transfer between these sectors drives economic development.
4. Evaluate the mechanism of labor transfer, focusing on the process through which surplus labor in agriculture is absorbed by urban industrial sectors and the implications this has on wages, productivity, and overall economic growth.
5. Assess the impact of labor mobility on developing economies, considering how industrialization, urbanization, and economic diversification can emerge as a result of transferring labor from the agricultural sector.
6. Critically examine the key assumptions of the Lewis model, including the assumption of unlimited labor supply and the neglect of factors like technological change, capital accumulation, and modern globalization.
7. Apply the Lewis model to real-world case studies of developing countries to assess the relevance and effectiveness of the model in addressing the economic transformation from agrarian economies to industrialized ones.
8. Discuss the criticisms and limitations of the Lewis model, including its applicability in the context of current global economic trends, technological advancements, and challenges faced by developing countries today.

10.1 Learning Outcomes

1. Define the key components of the Lewis Theory of Unlimited Supply of Labour and explain how it contributes to understanding the process of economic growth in developing countries.

2. Understand the significance of surplus labor in the agricultural sector and analyze how this labor can be transferred to the industrial sector to stimulate economic development.
3. Demonstrate a clear understanding of the Dual-Sector Model, and how it helps to explain the economic transformation from agrarian economies to industrialized economies.
4. Identify and explain the assumptions made in the Lewis model, and assess their relevance to real-world economic conditions in contemporary developing countries.
5. Examine the mechanism through which labor transfer occurs from the agricultural sector to the industrial sector, and evaluate its effects on wages, productivity, and overall development.
6. Apply the Lewis model to real-world examples, identifying how labor mobility and industrialization have influenced growth in developing economies over time.
7. Evaluate the limitations of the Lewis model and consider how alternative theories of development may provide a more comprehensive understanding of economic transformation in the modern world.
8. Develop critical thinking about how the Lewis Theory aligns with current global challenges such as technological change, globalization, and labor market shifts in the context of economic development.

10.2 Introduction

The process of economic development in developing countries, particularly those that are heavily reliant on agriculture, presents both challenges and opportunities. One of the central concerns of development economics is how to transition from an agrarian economy, where productivity is often stagnant, to a more industrialized and diversified economy that can sustain higher levels of growth and employment. This transformation is essential for improving living standards, creating jobs, and fostering broader economic development. In this context, the Lewis Theory of Unlimited Supply of Labour has provided a critical framework for understanding how such a transition can occur.

Proposed by Sir Arthur Lewis in the 1950s, this theory argues that many developing countries have an excess supply of labor in their agricultural sectors. In these countries, the productivity of labor in agriculture is low, often close to zero, meaning that the marginal productivity of additional workers is effectively negligible. This situation results in a vast pool of underutilized labor that could be harnessed for more productive industrial work without negatively affecting agricultural output. The theory proposes that by transferring this surplus labor to the industrial

sector, which offers higher wages and opportunities for economic growth, developing nations can accelerate their economic development.

The Lewis model operates on the premise that economic development is a process of structural transformation. Initially, economies are primarily agricultural, with a large rural population engaged in subsistence farming or low-productivity agriculture. As industrial sectors grow, they absorb surplus labor, and the productivity of the economy increases. This process of labor transfer is central to the Lewis theory. In essence, the model emphasizes the importance of creating industrial jobs to drive the development of the entire economy, thereby breaking free from the stagnation associated with agrarian economies.

A fundamental aspect of the Lewis model is its dual-sector framework. This model divides the economy into two main sectors: the traditional agricultural sector and the modern industrial sector. The agricultural sector is characterized by low wages, low productivity, and an excess of labor. In contrast, the industrial sector offers higher wages, better working conditions, and more opportunities for economic mobility. The theory suggests that as labor moves from the agricultural sector to the industrial sector, it drives economic growth and leads to an increase in urbanization and industrialization. This process is seen as key to fostering long-term economic development in many developing nations.

For policymakers in developing countries, understanding the Lewis model is critical because it offers a pathway for addressing both high levels of poverty and unemployment in rural areas. By promoting industrial growth and creating jobs in urban areas, countries can absorb surplus labor and encourage migration from rural to urban areas, reducing the pressure on the agricultural sector and enhancing overall economic productivity. However, while the model offers promising insights, it also has limitations in its application to contemporary development challenges.

In this lesson, we will delve into the key elements of the Lewis model, starting with the concept of unlimited labor supply in the agricultural sector. We will explore the assumptions underlying the theory, such as the idea that the marginal productivity of labor in agriculture is negligible, and discuss the mechanism of labor transfer. Furthermore, we will analyze the implications of the model for economic growth and development in low-income economies, as well as the criticisms and challenges it faces in today's globalized world. With rapid technological changes, shifts in global labor markets, and increasing urbanization, the relevance of Lewis's theory in the modern economy requires a nuanced understanding.

We will also discuss the practical application of the theory in terms of policy interventions, such as the role of education, infrastructure development, and industrialization strategies.

Ultimately, students will gain a comprehensive understanding of how economies can navigate the complex process of development, the factors that facilitate or hinder labor transfer, and how to adapt classical theories to the realities of the 21st century economy. By examining the strengths and weaknesses of the Lewis model, this lesson will provide students with valuable insights into the dynamics of economic growth in developing nations, equipping them with the tools to analyze and evaluate strategies for sustainable economic development.

10.3 Lewis Theory of Unlimited Supply of Labour

The Lewis Theory of Unlimited Supply of Labour is one of the most important and influential contributions to development economics. Developed by Sir Arthur Lewis in the 1950s, this theory aims to explain how underdeveloped economies can transform from being primarily agricultural to industrial, and how such a transformation can lead to sustained economic growth. Central to this theory is the idea that many developing countries have a surplus of labor in their agricultural sectors, labor that can be redirected to industrial sectors without reducing agricultural output. The Lewis model addresses the dynamics of labor transfer and its role in spurring economic development, making it a critical tool for understanding the transition from poverty to industrialization.

The theory primarily focuses on the process of labor migration from the traditional agricultural sector to the modern industrial sector, and how this transfer of labor leads to economic growth. By focusing on the movement of surplus labor, Lewis presents a framework that challenges conventional assumptions about labor markets and economic development, particularly in agrarian economies.

This section explores the core elements of Lewis's model, beginning with the concept of unlimited labor supply in the agricultural sector and the mechanisms behind the transfer of labor to the industrial sector. We will also delve into the dual-sector model that Lewis proposes to explain how labor shifts between the two sectors and leads to industrial growth and economic development.

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10.3.1 The Concept of Unlimited Labour Supply

The key concept underlying the Lewis model is the idea of unlimited labor supply in the agricultural sector. Lewis's theory assumes that in many developing countries, the agricultural sector is characterized by low productivity, and there is a significant surplus of labor. This surplus labor refers to workers in the agricultural sector whose marginal productivity is zero or

close to zero. This means that the economy has an excess number of workers in rural areas who are employed in agriculture, but their output does not contribute significantly to increasing overall agricultural productivity.

In more developed economies, labor is generally allocated in a way that optimizes productivity, with workers being employed where their contributions to the economy are most efficient. In contrast, developing economies often face a situation where the agricultural sector employs too many people, given the limited scope for expanding agricultural productivity. The labor in these sectors is often inefficiently distributed, and workers are employed in jobs that do not contribute meaningfully to output.

In the Lewis model, unlimited labor supply refers to the notion that there is an abundance of workers in agriculture who can be transferred to industrial sectors without diminishing agricultural output. Since their marginal productivity in agriculture is almost zero, moving them to higher productivity sectors, like industry, would increase the total output of the economy without sacrificing agricultural production.

This concept is a departure from classical economic theories, which assume that labor has a marginal productivity that contributes to economic output. In traditional economic models, any movement of labor from one sector to another would result in a decrease in the output of the original sector. However, Lewis's model asserts that this is not the case in developing economies with surplus agricultural labor. He proposes that by shifting workers from agriculture to industry, the overall economic productivity will increase without a corresponding reduction in agricultural output.

The concept of unlimited labor supply is particularly relevant for countries that are predominantly agrarian, with large rural populations living in poverty and having low incomes. These workers are often stuck in low-productivity agricultural jobs, and their migration to urban areas can serve as a catalyst for economic growth. Lewis argues that this labor transfer is crucial for industrialization and will drive the economic development of underdeveloped nations.

Key Elements of Unlimited Labour Supply²³⁵

1. **Low Agricultural Productivity:** In the agricultural sector, workers typically use primitive methods of production, and labor productivity is very low. This makes it possible for workers to be absorbed into the industrial sector without affecting agricultural output.

2. **Surplus Labor:** The surplus labor in agriculture is defined as workers whose marginal productivity is so low that their departure from the sector does not significantly reduce total agricultural output.
3. **Economic Growth through Industrialization:** By moving this surplus labor into more productive industrial sectors, economies can grow faster, as the industrial sector tends to have higher productivity and wages.
4. **Labor Migration:** Labor migration from rural agricultural areas to urban industrial centers is viewed as essential for the development process. Lewis's theory implies that industrialization can provide the necessary opportunities for workers to move away from low-productivity agricultural jobs.

10.3.2 Dual-Sector Model

One of the most significant aspects of Lewis's theory is his dual-sector model, which distinguishes between two sectors in an economy: the traditional agricultural sector and the modern industrial sector. The dual-sector model provides a framework for understanding the relationship between these two sectors and how labor is transferred between them.

In the dual-sector model, the agricultural sector is viewed as traditional and underdeveloped, while the industrial sector is considered modern and dynamic. The basic assumption is that the industrial sector offers higher wages and higher productivity than the agricultural sector. As a result, the industrial sector becomes the primary engine of economic growth, while the agricultural sector, despite being important, remains a supporting sector with limited growth potential.

10.3.2.1 Characteristics of the Agricultural Sector

The agricultural sector in Lewis's model is characterized by the following features:

- **Low Productivity:** The agricultural sector relies on traditional farming methods with minimal technological input. Productivity is low because of outdated farming techniques, limited capital investment, and lack of infrastructure. As a result, the marginal productivity of labor is near ²³⁶zero, meaning that additional workers do not significantly increase output.
- **Surplus Labor:** As mentioned earlier, the agricultural sector has an excess of labor. Since the marginal productivity of labor is close to zero, workers can be removed from agriculture and absorbed into the industrial sector without any substantial loss of

agricultural output. These workers are effectively in "reserve," contributing little to overall productivity.

- **Subsistence Farming:** In many developing economies, agriculture is subsistence-based, meaning that farmers produce just enough to feed their families, with little surplus for trade or investment. This further limits the potential for growth in the agricultural sector, as it does not generate enough income to invest in capital, education, or infrastructure.

10.3.2.2 Characteristics of the Industrial Sector

The industrial sector, on the other hand, has the following characteristics:

- **Higher Productivity:** The industrial sector offers higher productivity compared to the agricultural sector. This is due to better capital investment, modern technologies, and economies of scale that increase output and efficiency.
- **Higher Wages:** Industrial jobs typically pay higher wages than agricultural work, attracting workers from the rural areas. The higher wages act as an incentive for workers to migrate from agriculture to industry.
- **Capital Accumulation:** The industrial sector generates higher returns, which can be reinvested into the economy, leading to capital accumulation. This is crucial for driving economic growth, as it allows for the expansion of industrial production and the creation of more jobs.
- **Urbanization:** The growth of the industrial sector leads to urbanization, as workers move from rural areas to cities in search of higher-paying jobs. This urbanization process is central to economic development, as it creates new markets, improves infrastructure, and enhances economic integration.

10.3.2.3 The Process of Labor Transfer

The core of the dual-sector model lies in the transfer of labor from the agricultural sector to the industrial sector. The process of labor transfer is essential for economic development because it leads to increased industrial output, higher wages, and improved productivity. The steps involved in this transfer include:

1. **Surplus Labor Absorption:** In the early stages of development, the industrial sector absorbs labor from the agricultural sector. Since there is surplus labor in agriculture, this transfer does not result in a decrease in agricultural output. The workers moving to industrial jobs help increase overall industrial output without reducing food production.

2. **Capital Investment in Industry:** As more labor is absorbed into the industrial sector, there is a need for capital investment in infrastructure, technology, and industry. This investment is critical for improving the productivity of the industrial sector and generating the income necessary for further development.
3. **Increased Wages in the Industrial Sector:** The migration of labor to the industrial sector increases demand for workers in cities. This increased demand for labor leads to higher wages, which, in turn, makes industrial jobs more attractive compared to agricultural work.
4. **Economic Growth and Development:** As labor is transferred and the industrial sector grows, the overall economy experiences higher levels of productivity, income, and wealth. The industrial sector, with its higher productivity and capital accumulation, drives the economic transformation of the country.
5. **Urbanization and Structural Change:** Over time, as the industrial sector expands and more labor is absorbed, the country becomes increasingly urbanized. This urbanization process contributes to structural change, as rural areas give way to growing urban centers that offer a greater variety of jobs and opportunities for economic advancement.

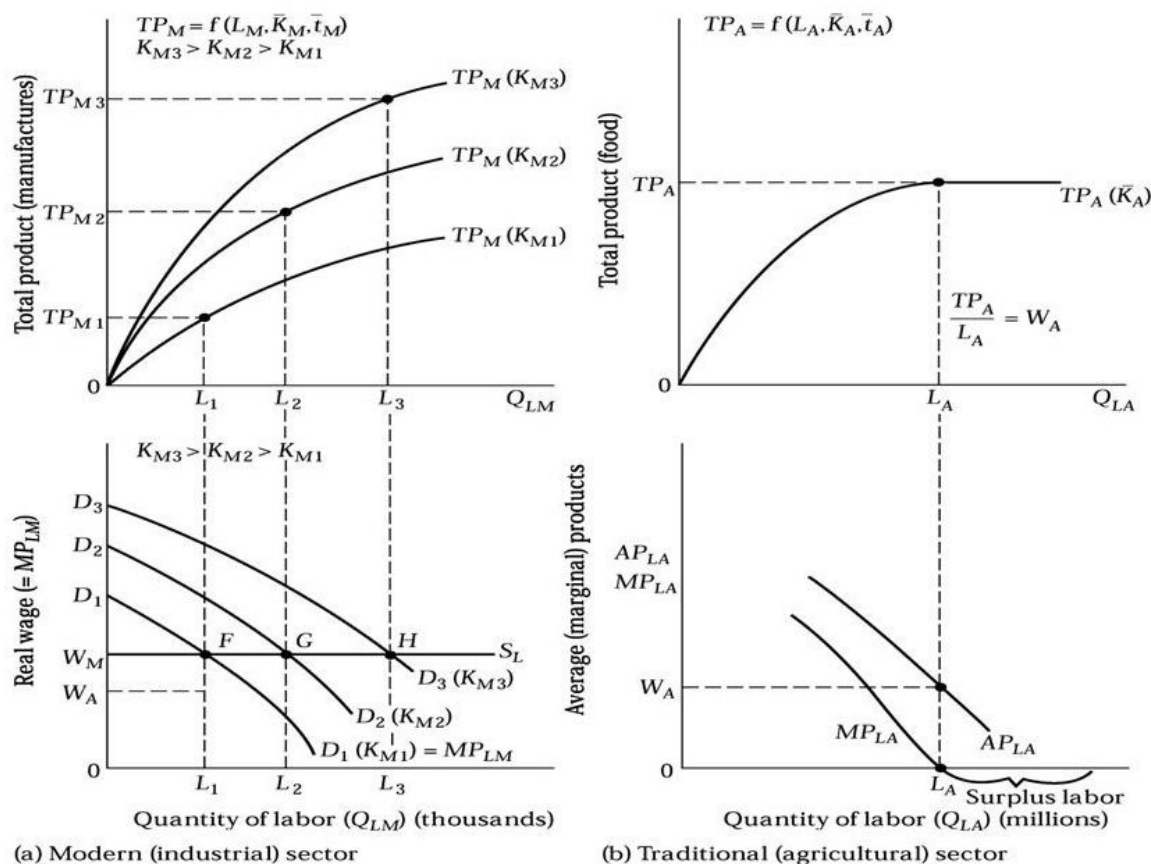
10.3.2.4 Transition to Self-Sustaining Growth

The Lewis model proposes that the process of labor transfer will continue until the surplus labor in agriculture is exhausted. At this point, the economy will no longer be able to absorb labor from agriculture without diminishing agricultural output. Once all surplus labor is absorbed into industry, the economy transitions to a self-sustaining growth phase, characterized by full employment and more balanced growth between agriculture and industry.

At this stage, wages in the industrial sector will rise, and the economy will experience sustained economic growth. The transition to a self-sustaining economy is marked by the development of infrastructure, the expansion of education and skills, and the creation of a modern industrial workforce. This process ensures that the economy can continue to grow without relying on the influx of cheap labor from agriculture.

The Lewis Theory of Unlimited Supply of Labour and its dual-sector model provide a framework for understanding how underdeveloped countries can transition from agrarian economies to industrialized nations. By emphasizing the role of surplus labor in the agricultural sector and the process of labor transfer to more productive industrial sectors, the theory

explains how economic development can be achieved without significant sacrifice in agricultural output.



The Lewis Model of Modern-Sector Growth in a Surplus-Labor Economy.

The diagram here represents the Lewis Model of Economic Growth in a two-sector economy, focusing on the transition from a surplus-labor agricultural sector to a more industrialized economy. The diagram is divided into four quadrants, which describe the key dynamics of both the industrial (modern) sector and the agricultural (traditional) sector.

Top Left: Modern (Industrial) Sector

- This plot illustrates the Total Product (TP_M) in the industrial sector, where the total product increases with the quantity of labor employed, represented by Q_{LM} (quantity of labor in thousands). There are three curves shown:
 - $TP_{M1}(K_{M1})$: Represents the total product at an initial level of capital (K_{M1}).
 - $TP_{M2}(K_{M2})$: Shows the total product when capital increases to K_{M2} .

- TPM3 (K_{M3}): Represents the highest total product when capital is increased further to K_{M3} .

These curves are upward sloping, showing that as more labor is employed in the industrial sector, total product increases. Additionally, the curves become steeper with higher capital, which indicates that more capital investment leads to higher productivity and more output for the same amount of labor. This reflects increasing returns to scale in the industrial sector, meaning that more capital and labor working together create a greater output.

Top Right: Traditional (Agricultural) Sector

- In this plot, the Total Product (TP_A) in the agricultural sector is shown in relation to the amount of labor used, Q_{LA} (quantity of labor in millions). The curve shows that as more labor is employed in agriculture, the total product increases, but at a decreasing rate.
- The curve is concave, indicating diminishing returns in the agricultural sector. Initially, adding labor increases output, but after a certain point, additional workers produce less and less. This is typical in agricultural economies where land and labor are limited resources, and beyond a certain threshold, more workers do not significantly increase agricultural output.

Bottom Left: Real Wage Comparison

- The bottom left quadrant compares real wages in both the industrial and agricultural sectors. The real wage (W) is shown as a function of the quantity of labor employed in each sector.
 - W_M (real wage in the industrial sector) decreases as more labor is employed. This happens because initially, the industrial sector absorbs surplus labor from agriculture, and with increasing employment, the marginal productivity of labor decreases, pushing wages down.
 - W_A (real wage in the agricultural sector) remains constant in the early stages. Since the marginal productivity of labor in agriculture is low (and surplus labor exists), the wage remains stagnant in the agricultural sector.

Bottom Right: Average and Marginal Products in Agriculture

- This plot shows the Average Product of Labor (AP_{LA}) and Marginal Product of Labor (MP_{LA}) in the agricultural sector.

- MP_{LA} initially increases but eventually declines as more labor is employed. The marginal product reflects the additional output generated by adding one more unit of labor.
- AP_{LA} increases at first but flattens out as labor becomes more abundant and less effective in contributing to output.

The key takeaway from this quadrant is that surplus labor in the agricultural sector (shown as the amount of labor that does not contribute significantly to output) can be transferred to the industrial sector. This is where the real potential for growth lies, as transferring labor from agriculture to industry leads to better use of the labor force, higher productivity, and improved wages in the industrial sector.

This diagram encapsulates the core of the Lewis Model of Surplus Labor, which explains the process by which underdeveloped, agrarian economies can transition to industrialized economies. By transferring surplus labor from agriculture (where productivity is low and wages are stagnant) to the industrial sector (where labor can contribute more productively and wages are higher), developing countries can stimulate economic growth. The increasing capital investment in the industrial sector enhances productivity, creating a path to sustained growth.

In summary:

- **Agricultural Sector:** Limited by diminishing returns to labor, with surplus labor that can be moved to industry.
- **Industrial Sector:** Increasing returns to labor with higher capital, leading to higher total product and real wages.
- **Labor Transfer:** Surplus labor is absorbed by the industrial sector, which drives economic growth, increased productivity, and improved wages.

The Lewis model remains an important framework for understanding how labor mobility can play a crucial role in economic development, especially in economies transitioning from agriculture to industry.

The concept of unlimited labor supply challenges traditional economic thinking, and the dual-sector model offers a roadmap for countries seeking to industrialize. However, while the model has been influential, it has also faced criticism, especially in the context of modern globalization and technological change. As developing economies face new challenges, such

as the rise of automation and changes in global labor markets, it is essential to adapt and refine the ideas presented by Lewis to address contemporary issues in development economics.

In the next section, we will critically analyze the assumptions of the Lewis model, explore its criticisms, and discuss how it applies to current economic conditions. Through this analysis, students will gain a deeper understanding of how the theory can be used to inform development policies in today's world.

10.4 Assumptions of Lewis's Model

The Lewis Model of Economic Growth, particularly the concept of unlimited labor supply and labor transfer from the agricultural to the industrial sector, is built on several key assumptions. These assumptions simplify real-world complexities to make the model more tractable and understandable. While they help in explaining the dynamics of economic development, they are also subject to critique, especially when applied to modern economies.

Below are the key assumptions of the Lewis model:

1. Surplus Labor in the Agricultural Sector

One of the central assumptions of the Lewis model is that the agricultural sector has an abundant supply of labor. This surplus labor is characterized by low or zero marginal productivity, meaning that additional workers do not significantly increase agricultural output. This assumption is crucial because it enables the transfer of labor to the industrial sector without reducing agricultural productivity, thereby fostering industrial growth.

2. Dual-Sector Economy

The Lewis model assumes that the economy is divided into two distinct sectors:

- **The Traditional Agricultural Sector:** This sector uses labor-intensive techniques and has limited capital investment, resulting in low productivity.
- **The Modern Industrial Sector:** This sector is capital-intensive, more productive, and characterized by higher wages, better technology, and modern production methods. The industrial sector is considered the engine²⁴² of growth in this model.

3. Constant Wages in the Agricultural Sector

The model assumes that wages in the agricultural sector are fixed and do not change as labor moves to the industrial sector. Since the marginal productivity of labor in agriculture is assumed to be zero, the wage rate (W_A) remains constant in the agricultural sector, even as

more labor is employed. This assumption reflects the idea that agricultural workers are largely in subsistence conditions, earning just enough to maintain their livelihood but not enough to significantly enhance their productivity or quality of life.

4. Increasing Returns to Scale in the Industrial Sector

In the industrial sector, the model assumes that there are increasing returns to scale. As labor is added to the industrial sector, output increases at an increasing rate, thanks to higher capital intensity and the use of better technologies. This assumption implies that productivity in the industrial sector is enhanced by the introduction of more labor, and that higher levels of capital lead to greater output per worker.

5. No Technological Progress in Agriculture

Another assumption is that there is no technological progress in the agricultural sector. This simplifies the model by implying that agricultural productivity remains stagnant, making it easy for surplus labor to be transferred to the industrial sector without affecting the agricultural output. In reality, technological advances in agriculture can significantly increase productivity, which would reduce the surplus labor available for transfer.

6. Capital Accumulation in the Industrial Sector

The Lewis model assumes that capital accumulation occurs in the industrial sector, which leads to increased productivity and higher wages over time. The reinvestment of profits from industrial activities into further capital formation allows the industrial sector to absorb more labor, increasing the demand for workers and wages. This assumption is vital for sustaining industrial growth and development.

7. Perfect Mobility of Labor

It is assumed that labor can freely migrate from the agricultural sector to the industrial sector. This means that workers are mobile and can easily move from rural to urban areas in search of better opportunities in the industrial sector. This assumption simplifies the process of labor transfer but does not take into account potential barriers to migration, such as geographic, social, or institutional constraints.

8. No Barriers to Capital Flow

The model assumes that there are no barriers to the flow of capital from the agricultural sector to the industrial sector. As the industrial sector grows and attracts more labor, it is assumed that

capital flows freely into the sector, facilitating industrial expansion. This assumption implies that there is no restriction on the availability of investment or the establishment of industries, which may not be true in the real world due to financial, political, or institutional constraints.

9. No External Shocks or Global Influence

The model assumes that the economy is closed off from external shocks, meaning there is no significant influence from foreign trade, investment, or global economic trends. This simplifies the model by focusing on internal dynamics but does not account for the impact of globalization, foreign aid, or international trade policies, which can influence labor and capital markets in developing countries.

10. Constant Capital-Output Ratio

Another assumption is that the capital-output ratio is constant in the industrial sector. This means that for every unit of capital invested in the industrial sector, the amount of output produced remains the same. This assumption simplifies the capital accumulation process and ensures steady industrial growth as long as labor is being absorbed and capital continues to flow into the sector.

Implications of These Assumptions

The assumptions made in Lewis's model allow for a simplified understanding of economic growth in a developing country. They provide a clear pathway for how labor can be transferred from an unproductive agricultural sector to a productive industrial sector, driving economic growth. However, these assumptions also limit the applicability of the model in real-world scenarios.

For instance, the assumption of no technological progress in agriculture is highly unrealistic, as many developing countries experience significant agricultural innovation, which can absorb labor and reduce the surplus that can be transferred to industry. Similarly, the assumption of perfect labor mobility overlooks barriers like urban-rural migration restrictions, lack of education, and the availability of jobs in urban centers.²⁴⁴

Furthermore, the closed economy assumption limits the model's relevance in the context of globalization, where foreign trade, capital flows, and international market conditions heavily influence economic development.

While the assumptions of the Lewis model help create a theoretical framework for understanding labor transfer and economic growth, they also simplify the complexities of real-world economies. The model's relevance in contemporary development economics may be limited by these assumptions, but it still offers valuable insights into the importance of industrialization, labor migration, and capital accumulation in driving economic transformation. The assumptions should be viewed critically, and modern adaptations of the model might need to consider external factors, technological progress, and policy interventions to reflect the complexities of today's globalized economy.

10.5 Mechanism of Labor Transfer

The Mechanism of Labor Transfer is a crucial aspect of the Lewis model, as it explains how labor moves from the agricultural sector to the industrial sector and how this migration contributes to economic growth. This transfer of labor is central to the model's theory of development, as it allows for the effective utilization of surplus labor in agriculture to drive industrialization and overall economic growth. Understanding the mechanism behind this transfer is essential for grasping the dynamics of economic transformation in developing countries.

In the Lewis model, the agricultural sector is viewed as having a surplus of labor, where additional workers do not contribute significantly to agricultural productivity. This surplus labor, which is inefficiently employed in subsistence farming or low-productivity agricultural tasks, can be redirected to the industrial sector, where it can be used more effectively. The industrial sector, with its higher productivity and better wages, provides an opportunity for economic development by absorbing this surplus labor.

Key Elements of the Labor Transfer Mechanism

The labor transfer mechanism in Lewis's model operates through several interconnected processes:

1. Surplus Labor in the Agricultural Sector

The process begins with the assumption that the agricultural sector has surplus labor, which is characterized by a marginal productivity of labor close to zero. In this context, additional laborers in the agricultural sector do not increase output significantly. This surplus labor could be employed elsewhere in the economy without diminishing the agricultural output.

The marginal productivity of labor in the agricultural sector decreases as more workers are added, which is why moving some of this labor to the industrial sector does not harm

agricultural production. This is a key feature of the Lewis model, which assumes that agriculture is not harmed when surplus labor moves to industry.

2. Attraction of Labor to the Industrial Sector

As the industrial sector begins to grow, it offers higher wages compared to the agricultural sector. The industrial sector becomes an attractive destination for the surplus labor, especially as it promises better living standards and more opportunities for economic mobility. The wages in the industrial sector, however, initially remain constant due to the influx of labor, but they are still significantly higher than those in agriculture, which serves as an incentive for migration.

The industrial sector, being more capital-intensive and productive, can absorb an increasing number of workers without a corresponding decrease in productivity. As labor is absorbed, total output in the industrial sector increases, leading to further economic expansion.

3. Labor Migration from Rural to Urban Areas

The transfer of labor from the agricultural sector to the industrial sector typically involves migration from rural to urban areas. As industrial centers grow, they create jobs in cities, attracting workers from rural areas. This movement of people is essential for the transition from an agricultural economy to an industrial one.

Urbanization occurs as rural workers migrate to cities in search of better employment opportunities. This urbanization not only provides a labor force for industry but also contributes to the development of urban infrastructure, markets, and services, which further supports industrial growth.

However, in the early stages of labor transfer, migration may be constrained by factors such as geographic isolation, lack of skills, and limited access to information about job opportunities. While the Lewis model assumes free migration, these constraints are important considerations in the real-world application of the model.

4. Industrial Expansion and Capital Accumulation

The industrial sector's ability to absorb surplus labor depends on the availability of capital investment. As more labor moves into the industrial sector, there is an increased demand for capital, which leads to capital accumulation in the sector. This capital accumulation enhances the productivity of the industrial sector, allowing it to absorb even more labor without reducing its output.

The process of capital formation in the industrial sector is critical to the sustainability of labor transfer. Without adequate investment in machinery, technology, and infrastructure, the industrial sector would not be able to sustain the increasing number of workers, and industrial productivity would decline. The increased capital investment in industry leads to higher wages and better working conditions, further attracting labor from agriculture.

5. Rising Wages in the Industrial Sector

As more labor is absorbed into the industrial sector, the demand for workers increases, leading to higher real wages in the industrial sector. Initially, wages in the industrial sector remain relatively constant as labor is absorbed from agriculture, but over time, as the surplus labor is depleted, wages in industry begin to rise.

The rise in wages in the industrial sector has several important effects:

- Higher wages attract more workers from agriculture, stimulating further migration.
- As wages rise, workers experience higher living standards, which leads to greater economic mobility and improved well-being.
- Higher wages in industry also encourage further capital investment, as industries seek to maintain their competitive edge by enhancing productivity through the use of more advanced technologies and better production methods.

6. Diminishing Surplus Labor and the End of the Transfer Process

As labor continues to transfer from the agricultural sector to the industrial sector, the amount of surplus labor in agriculture diminishes. The transfer process eventually reaches a point where the surplus labor in agriculture is fully absorbed by the industrial sector, and the agricultural sector begins to operate with its full, efficient labor force. At this stage, the economy enters a phase of self-sustaining growth, where both sectors (agriculture and industry) contribute equally to economic development.

The industrial sector reaches a point where it can no longer rely on surplus labor from agriculture, and wages in both sectors begin to stabilize.²⁴⁷ The end of surplus labor marks the point at which the economy achieves a more balanced growth, with full employment in both sectors.

Challenges in the Labor Transfer Process

While the labor transfer mechanism outlined by Lewis provides a roadmap for economic growth, the model does not fully account for the challenges that may arise during the process. Some of the challenges include:

- **Skills and Education:** In many developing countries, workers in agriculture may not have the necessary skills for industrial work, making the labor transfer process slower and more complicated. Education and training programs are essential for facilitating the smooth transfer of labor from agriculture to industry.
- **Migration Barriers:** As mentioned earlier, geographic, social, and institutional barriers may impede the free movement of labor. Migrants may face difficulties in finding housing, adapting to urban environments, and accessing employment opportunities.
- **Technological Change:** The impact of technological advancements, especially in agriculture and industry, can affect the speed and efficiency of labor transfer. For instance, improvements in agricultural productivity may reduce the surplus labor available for transfer to industry, slowing down the process of industrialization.

The mechanism of labor transfer in the Lewis model is essential to understanding how surplus labor in the agricultural sector can be effectively utilized to drive industrialization and economic growth. By focusing on the migration of labor, capital accumulation, and wage dynamics, the model provides a clear pathway for transforming agrarian economies into industrialized nations. However, while the model simplifies the process, real-world challenges such as skills development, migration barriers, and technological change must be addressed to ensure the successful transfer of labor and sustainable economic growth.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

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1. What is the core idea behind the Lewis Theory of Unlimited Supply of Labour?
2. How does surplus labor in the agricultural sector contribute to industrial growth in the Lewis model?

3. What is the difference between the modern industrial sector and the traditional agricultural sector in the Lewis model?
4. What does the assumption of no technological progress in agriculture imply in the Lewis model?
5. How does capital accumulation in the industrial sector affect labor transfer in the Lewis model?
6. Why does the Lewis model assume that wages in agriculture remain constant during labor transfer?
7. What are the main factors that encourage labor migration from agriculture to industry in the Lewis model?
8. How does the real wage change as labor moves from the agricultural sector to the industrial sector?
9. What challenges might arise in the labor transfer process that the Lewis model does not fully account for?
10. What happens when the surplus labor in agriculture is completely absorbed by the industrial sector in the Lewis model?

10.6 Implications for Developing Economies

The Lewis Model of Unlimited Supply of Labour offers valuable insights into the path that many developing economies can follow to achieve industrialization and economic growth. The theory focuses on the labor transfer mechanism, which involves the movement of surplus labor from the agricultural sector to the industrial sector, contributing to overall economic development. While the model has been instrumental in understanding economic transitions, its implications for developing economies are far-reaching, especially as they seek to balance agriculture, industry, and services to foster sustainable growth.

Here, we will explore the key implications of the Lewis model for developing economies, considering both the opportunities it presents and the challenges that must be addressed for successful industrialization and development.

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1. Industrialization as the Engine of Growth

The most significant implication of the Lewis model for developing economies is the role of industrialization as the primary engine of economic growth. According to the model, moving surplus labor from the agricultural sector to the industrial sector can increase productivity and output, leading to a more diversified economy.

- **Economic Diversification:** By fostering industrial growth, developing countries can move away from dependency on agriculture, which is often vulnerable to climate change and price volatility in global markets. Industrialization provides new sources of income and employment, thus enhancing the resilience of the economy.
- **Wage Growth and Living Standards:** As the industrial sector grows, wages in the urban centers tend to rise. This leads to improved living standards for workers who transition from low-productivity agricultural jobs to higher-paying industrial jobs. This wage growth is a direct consequence of increased labor productivity in industries, which is driven by capital investment and technological progress.

2. Surplus Labor in Agriculture

The concept of surplus labor in agriculture is central to the Lewis model. Developing economies often have large rural populations, many of whom work in agriculture but have little impact on increasing productivity due to low levels of capital, outdated farming techniques, and subsistence farming.

- **Labor Transfer as a Path to Industrialization:** Surplus labor in agriculture can be redirected to the industrial sector without reducing agricultural output. This offers a direct route to increasing industrial production and urbanization without the need for immediate increases in agricultural productivity or land reform.
- **Long-Term Agricultural Reforms:** As surplus labor is absorbed by industry, the agricultural sector may begin to experience higher productivity levels due to fewer workers and potential shifts in farming practices. However, the model assumes no immediate technological advancements in agriculture. In practice, developing economies must balance this labor transfer with agricultural reforms to ensure food security and sustainable agricultural growth.

3. Importance of Capital Accumulation

A critical aspect of the Lewis model is the assumption of capital accumulation in the industrial sector. For the labor transfer to lead to sustained economic growth, developing economies must invest in infrastructure, machinery, and technology in the industrial sector.

- **Capital Investment for Industrial Expansion:** For the industrial sector to absorb labor effectively, significant capital investment is needed. This includes investment in physical infrastructure (such as roads, factories, and energy supply) and human capital

(education, skills training, and healthcare). Without adequate capital accumulation, industrialization may stagnate, and the surplus labor may not be absorbed.

- **Role of Foreign Direct Investment (FDI):** In many developing economies, foreign direct investment (FDI) plays a critical role in capital accumulation. FDI brings not only financial capital but also technology and expertise, enabling industrial growth and the creation of higher-paying jobs. However, reliance on foreign investment can pose risks, such as economic dependence or vulnerability to global economic shifts.

4. Urbanization and Infrastructure Development

The labor transfer from rural agricultural areas to urban industrial centers leads to rapid urbanization. Urbanization brings both opportunities and challenges for developing economies.

- **Growth of Urban Areas:** The increase in industrial jobs encourages rural-to-urban migration. As workers seek better-paying jobs in cities, there is a rapid growth of urban populations. This growth can lead to a thriving urban economy, with more demand for housing, services, and infrastructure.
- **Challenges of Urbanization:** While urbanization can drive economic growth, it also creates challenges such as overcrowding, inadequate housing, and strain on public services (e.g., transportation, healthcare, and education). Developing economies must ensure that infrastructure development keeps pace with urbanization to avoid creating informal settlements and widening economic inequalities.
- **Balanced Regional Development:** Over-reliance on urban centers for industrial growth can lead to the neglect of rural areas, exacerbating regional disparities. Policymakers must strike a balance between industrializing urban areas and promoting rural development to avoid deepening regional inequalities.

5. Education and Skill Development

The transfer of labor from agriculture to industry requires significant education and skills development. Workers moving from agriculture to industry must be equipped with the skills necessary for industrial jobs, which often require higher levels of education and technical expertise.

- **Training Programs and Vocational Education:** As developing countries industrialize, the need for a skilled workforce becomes crucial. Education systems must evolve to provide the necessary skills for industrial jobs, including technical training,

vocational education, and higher education programs in fields like engineering, management, and technology.

- **Reducing Skills Gaps:** Without proper education and training programs, workers may struggle to transition successfully from agriculture to industry, limiting the potential of the labor transfer mechanism. The skills gap can also affect the productivity of the industrial sector, reducing the long-term benefits of industrialization.

6. Globalization and External Factors

The Lewis model assumes a relatively closed economy where domestic labor migration drives industrial growth. However, in the real world, developing economies are deeply integrated into the global economy through trade, investment, and financial markets.

- **Impact of Globalization:** Globalization has the potential to speed up industrialization by exposing developing economies to new markets, technologies, and investment. However, it also brings challenges such as competition from global markets, price fluctuations, and economic dependency on external factors.
- **Technological Transfer and Innovation:** In a globalized world, the industrial sector in developing countries can benefit from technological transfer through multinational corporations, international partnerships, and research collaborations. Developing economies must invest in innovation and ensure that new technologies are accessible to their industries.

7. Sustainability and Inclusive Growth

While industrialization offers substantial economic benefits, developing economies must focus on ensuring sustainable growth and inclusive development.

- **Sustainability:** Rapid industrial growth can strain natural resources, lead to environmental degradation, and contribute to climate change. Developing economies must adopt green technologies, ²⁵²promote sustainable agricultural practices, and implement environmental regulations to mitigate these risks.
- **Inclusive Growth:** Economic growth must be inclusive, meaning it should benefit all sectors of society, including women, marginalized communities, and rural populations. Industrial growth should be accompanied by policies that address inequality and provide opportunities for all.

8. Policy Implications for Developing Economies

- **Proactive Labor Market Policies:** Policymakers in developing economies must create policies that facilitate labor migration from rural to urban areas, while also ensuring that the workforce is properly trained for industrial jobs.
- **Support for Small and Medium-Sized Enterprises (SMEs):** Supporting SMEs and entrepreneurship in the industrial sector is crucial for creating sustainable jobs and promoting economic diversification.
- **Inclusive Urban Planning:** Urbanization should be accompanied by planning for affordable housing, infrastructure, and social services to ensure that urban growth does not lead to inequalities or social unrest.

South Korea's remarkable economic transformation from a primarily agrarian society to a highly industrialized nation provides a perfect example of the Lewis model in practice. In the post-Korean War era, South Korea's agricultural sector was dominated by low productivity, and its labor force was predominantly employed in agriculture. However, through targeted industrialization strategies and labor transfer from agriculture to industry,

South Korea rapidly grew into a global economic powerhouse.

According to economist **Ha-Joon Chang**, "South Korea's success was rooted in its ability to develop its industrial base, absorb surplus agricultural labor, and build a competitive export-oriented economy" (Chang, 2002). The government played a pivotal role by implementing **land reforms**, improving **education**, and providing **incentives for industrial investment**. The surplus labor from agriculture was absorbed by the manufacturing and export sectors, which began to thrive in the 1960s and 1970s. As **capital accumulation** increased, the industrial sector became more productive, leading to higher wages and living standards for workers.

By the 1980s, South Korea had shifted from being one of the poorest countries in Asia to a highly industrialized economy. The **industrial sector**, which initially offered low wages, became a significant contributor to the country's economic output. As labor was absorbed into the industrial sector, wages in both sectors began to rise, marking a successful **labor transfer** that fueled growth. However, challenges such as **inequality** and **urban congestion** emerged, requiring further reforms in urban planning and **inclusive growth** strategies.

253 South Korea's Industrialization (1960s - 1980s)

The Lewis model offers a valuable framework for understanding how developing economies can transition from an agrarian-based economy to an industrialized one by leveraging surplus labor in agriculture. However, for the model to be successfully applied in today's world, developing economies must address the challenges posed by rapid urbanization, education and

skills development, capital accumulation, and the impact of globalization. Policymakers must adapt the principles of the Lewis model to the modern context, focusing on inclusive growth and sustainable development to ensure that industrialization leads to long-term prosperity for all citizens.

India's post-independence economic journey illustrates both the potential and the limitations of the **Lewis model** in a developing economy. In the 1950s and 1960s, India was primarily an agricultural society with a **large surplus labor force** in rural areas. As part of the government's **Five-Year Plans**, India aimed to industrialize and move its economy toward manufacturing and services.

The Indian government followed the Lewis model's principle of moving surplus labor from agriculture to industry by investing in **state-led industrialization**. The establishment of **public sector enterprises** and investment in **heavy industries** such as steel, coal, and machinery played a key role in this transition. According to **Raghuram Rajan** in his book *"The Indian Economy: A Macro-Economic Perspective"*, "India's industrialization strategy in the 1950s and 1960s was based on the assumption that labor could be absorbed into the modern sector, creating a virtuous cycle of growth and development" (Rajan, 2012).

However, unlike South Korea, India faced significant challenges in the **labor transfer mechanism**. The process was slow due to several factors, including insufficient **capital accumulation**, **poor infrastructure**, and **bureaucratic inefficiencies** in implementing industrial policies. Moreover, **migration barriers** such as lack of urban planning, inadequate education, and underdeveloped urban centers limited the potential for effective labor transfer. The industrial sector did grow, but at a slower pace than anticipated. By the 1980s, India had a growing industrial base, but the **agricultural sector** still employed a significant portion of the population. Despite efforts to attract labor to cities and industries, the **surplus labor** in rural areas remained high, contributing to issues like **rural poverty** and **underemployment** in urban centers. The model's assumptions did not fully account for the complexities of labor mobility in a large and diverse country like India.

India's Post-Independence Industrialization (1947 - 1991)

10.7 Criticisms of the Lewis Model

While the Lewis Model of Unlimited Supply of Labour has been instrumental in explaining the economic transformation of many developing countries, it has also faced several criticisms over time. The simplicity and assumptions of the model, while useful in theory, do not fully capture the complexities of real-world economic dynamics. Here, we explore some of the key criticisms of the Lewis model, focusing on its assumptions and limitations in the context of contemporary economic conditions.

1. Unrealistic Assumptions about Surplus Labor

One of the most significant criticisms of the Lewis model is the assumption of unlimited surplus labor in the agricultural sector. According to the model, surplus labor in agriculture has zero or near-zero marginal productivity, meaning that removing workers from the agricultural sector will not affect agricultural output. In reality, this assumption does not hold in many developing economies.

- **Limited Surplus Labor:** As economies develop, the surplus labor in agriculture diminishes. With the introduction of modern farming techniques and the increased use of technology, the marginal productivity of labor in agriculture may rise, meaning that labor cannot always be easily transferred to industry without affecting agricultural output. The assumption of unlimited surplus labor does not account for the increasing productivity in agriculture as mechanization and modernization take place.
- **Changing Agricultural Productivity:** In many developing countries, improvements in agricultural practices, such as irrigation systems, high-yield crops, and better machinery, have increased agricultural productivity, reducing the number of workers needed. This challenge undermines the assumption that surplus labor can always be removed from agriculture without reducing agricultural output.

2. Insufficient Consideration of Technological Change

The Lewis Model assumes that there is no technological progress in agriculture, which simplifies the process of labor transfer. However, in reality, technological advances in agriculture can have significant implications for labor dynamics. As agricultural productivity improves, fewer workers are needed, and the excess labor may be absorbed by the industrial sector more slowly than the model suggests.

- **Technological Advancements in Agriculture:** Advances in agricultural technology, such as precision farming, better irrigation, and mechanized tools, reduce the need for labor in rural areas. This may reduce the surplus labor available for transfer to the industrial sector, contradicting the Lewis model's assumption that surplus labor will always be available for migration.
- **Globalization and Agricultural Shifts:** With the rise of global trade and modern agricultural techniques, the surplus labor in agriculture may not be as easily transferable to industry as predicted by the model. In some countries, the agricultural sector has

become more capital-intensive, further limiting the amount of surplus labor available for industrialization.

3. Over-Simplification of Labor Migration and Urbanization

The Lewis model assumes perfect mobility of labor from rural to urban areas, where workers can easily migrate to the industrial sector. However, labor mobility is rarely as straightforward as the model suggests. There are several barriers to labor migration, including:

- **Geographical Barriers:** In many developing countries, rural workers face significant geographical barriers to migration. Urban areas may be far from rural regions, and workers may not have the resources to move. The Lewis model assumes that labor will automatically flow from the agricultural sector to the industrial sector, but in practice, rural workers often face challenges in finding affordable housing, transportation, and job opportunities in urban centers.
- **Social and Institutional Barriers:** Migration is not always driven purely by economic incentives. Workers may be reluctant to leave their rural communities due to social ties, family obligations, and cultural factors. Additionally, labor markets in urban areas may not always offer sufficient employment opportunities for the incoming labor force, resulting in underemployment or informal work in cities.
- **Lack of Urban Infrastructure:** The growth of cities, as a result of industrialization, often outpaces the development of necessary infrastructure such as housing, sanitation, education, and healthcare. This can lead to informal settlements, overcrowding, and poor living conditions, making migration less attractive and slowing down the industrialization process.

4. Assumption of Constant Capital-Output Ratios

Another key assumption of the Lewis model is that there is a constant capital-output ratio in the industrial sector, meaning that the capital required for industrial growth remains proportional to the increase in output. This assumption is unrealistic in the context of modern industrial economies, where technological ²⁵⁶advancements and capital-intensive methods of production may allow for much higher productivity with the same amount of capital.

- **Technological Change in Industry:** The industrial sector often experiences increasing returns to scale as new technologies and automation reduce the capital required to produce the same level of output. For instance, industries that use robotics and artificial intelligence are able to increase productivity significantly with less investment in labor

and capital, which contradicts the assumption of a constant capital-output ratio in the Lewis model.

- **Role of Entrepreneurship and Innovation:** The model does not account for the significant role that entrepreneurship and innovation play in industrial growth. In the real world, entrepreneurs often create new industries and expand existing ones without a straightforward linear relationship between capital and output.

5. Ignoring Globalization and International Factors

The Lewis model is primarily based on a closed economy assumption, where labor and capital are primarily allocated within the domestic economy. However, in today's globalized world, international trade, foreign investment, and technology transfer have a significant impact on industrialization in developing economies.

- **Global Trade and Investment:** Many developing countries are highly integrated into the global economy. Globalization brings foreign investment, new markets for exports, and access to advanced technologies. This external factor can speed up the industrialization process, but the Lewis model does not account for the influence of external factors like foreign direct investment (FDI) or trade policies.
- **Technological Transfer and Global Supply Chains:** In the modern world, developing economies often benefit from the transfer of technology and the growth of global supply chains. The model does not address how these external factors may facilitate or hinder the movement of labor and capital, making the model less applicable to the current global economic environment.

6. Failure to Address Income Inequality

The Lewis model tends to focus on overall growth and the movement of labor between sectors, but it does not fully address the issue of income inequality. While industrialization can lead to higher wages in urban areas, it can also lead to rising disparities between rural and urban populations.

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- **Rural-Urban Income Gap:** The migration of labor to urban areas may initially result in better wages, but the rural-urban income gap can become more pronounced. Workers in urban areas may experience better wages, but the increased cost of living, social

inequalities, and the lack of social safety nets may lead to social unrest and disparities in access to resources.

- **Industrialization and Job Quality:** As developing countries industrialize, they often face issues like informal employment, low wages, and poor working conditions in the industrial sector. This can lead to a situation where economic growth does not translate into improved living standards for all, particularly the working poor.

The Lewis model remains an important theoretical framework for understanding the role of labor transfer in the industrialization of developing economies. However, the criticisms outlined above highlight its limitations in addressing real-world complexities. As economies become more globalized and technology-driven, the assumptions of the model become less relevant. Policymakers must consider these criticisms and adapt the model to modern conditions, accounting for factors such as technological change, capital mobility, globalization, and social inequality. While the Lewis model provides a solid foundation for thinking about industrialization, it must be complemented by more nuanced, real-world policies to ensure that economic growth benefits all sectors of society.

10.8 The Future of Labor Mobility in a Globalized Economy

In the context of the Lewis Model of Unlimited Supply of Labour, labor mobility from rural agricultural sectors to urban industrial sectors plays a vital role in driving economic growth in developing economies. However, as the world becomes increasingly interconnected and the global economy continues to evolve, the dynamics of labor mobility are undergoing significant changes. The rise of globalization, advances in technology, and shifts in labor markets worldwide have all altered the landscape of labor mobility. Understanding these shifts is crucial for policymakers in developing economies seeking to harness labor mobility to stimulate growth and industrialization.

This section explores the future of labor mobility in a globalized economy, focusing on the new trends and challenges that arise in light of these changes.

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1. Globalization and Labor Mobility

Globalization has played a transformative role in shaping the movement of labor across borders, facilitating the flow of workers between countries and regions. While the Lewis model primarily focuses on internal labor migration from agriculture to industry within a country, globalization has expanded this view by incorporating international labor mobility.

- **Migration Across Borders:** One of the most significant effects of globalization is the increased migration of labor across borders. Many developing economies, particularly in Asia, Africa, and Latin America, have experienced large outflows of workers seeking better-paying jobs in industrialized countries. These workers often fill roles in industries such as construction, manufacturing, agriculture, and services.

For example, countries like India, Mexico, and the Philippines have seen large numbers of their workforce migrate to countries in the Middle East, Europe, and North America in search of employment. This migration has allowed many families in these countries to improve their living standards through remittances sent back home. According to the World Bank, remittances from migrants represent a significant portion of GDP in several developing nations, indicating how global labor mobility can benefit home countries economically.

- **Return Migration and Skill Transfer:** A growing trend in the globalized economy is return migration, where migrants who have worked abroad return to their home countries with enhanced skills and experience. This flow of knowledge and capital can help boost the local economy by fostering entrepreneurship, technology transfer, and knowledge exchange. In many cases, these returnees can provide valuable expertise in industries that are still developing in their home countries, contributing to the growth of new sectors and industries.
- **Impact of Global Supply Chains:** Globalization has also led to the creation of extensive global supply chains. As companies shift production to lower-cost labor markets, workers are increasingly needed in both developed and developing countries. This trend is particularly evident in sectors like electronics, apparel, and automobile manufacturing, where labor mobility is often required to meet the demand for skilled labor across various regions.

2. Technological Advances and Their Impact on Labor Mobility

Technological advancements are another significant factor reshaping labor mobility. Innovations in automation, artificial intelligence²⁵⁹ (AI), and digitization have transformed the way labor is employed, particularly in industrial sectors. As technology continues to advance, the nature of labor mobility is changing.

- **Automation and Job Displacement:** The rise of automation in manufacturing and agriculture is gradually reducing the demand for low-skilled labor in certain industries.

Machines and robots can now perform tasks that were once carried out by humans, from assembly lines to agricultural harvesting. This shift can lead to job displacement in traditional sectors, particularly in developing economies where cheap labor was previously the primary advantage.

For instance, many manufacturing jobs in countries like China and Mexico have been increasingly automated, reducing the demand for low-skill workers and requiring them to acquire new skills or migrate to industries that still require human labor. The future of labor mobility will likely be heavily influenced by the need for workers to adapt to these technological changes, which may include retraining or moving to new sectors with more labor demand.

- **Remote Work and the Digital Economy:** The digital economy has enabled a new form of labor mobility: remote work. Technological platforms and digital tools allow workers to provide services from anywhere in the world. This trend has exploded in recent years, particularly during the COVID-19 pandemic, when many jobs in sectors such as technology, finance, and education transitioned to remote work. This new form of labor mobility allows skilled workers from developing economies to access job opportunities in developed economies without physically migrating.

This shift can be particularly beneficial for developing countries that face barriers to traditional migration, such as lack of resources or restrictive immigration policies. Remote work provides an alternative way for workers to participate in the global economy and benefit from higher wages without leaving their home countries. However, it also requires significant investment in digital infrastructure and skills development to ensure that workers can effectively participate in the global labor market.

3. Changing Demographics and the Aging Workforce

Another factor influencing labor mobility is the changing demographics of both developed and developing economies. Many industrialized countries are facing aging populations, which leads to a shrinking domestic labor force. This demographic shift creates a significant demand for labor from younger, developing countries²⁶⁰ to fill the gaps in sectors like healthcare, manufacturing, and services.

- **Labor Demand in Developed Economies:** Countries such as Japan, Germany, and Italy are experiencing a decline in their working-age populations due to aging societies. To sustain economic growth, these countries need to import labor from younger

populations in developing countries. This demand for foreign labor has led to an increase in immigration policies that allow workers from developing countries to fill critical labor shortages in developed economies.

- **Youthful Populations in Developing Economies:** In contrast, many developing economies have young populations with a large proportion of individuals entering the labor market each year. This youth bulge presents both an opportunity and a challenge. On the one hand, these countries have the potential to meet the labor demands of developed economies. On the other hand, they must ensure that they can create enough domestic jobs to absorb this growing workforce, especially in the face of automation and shifting demand in global industries.

4. Barriers to Labor Mobility

Despite the growing trend of labor mobility, several barriers still exist that hinder the free movement of labor across borders and sectors. These barriers can prevent workers in developing economies from accessing global opportunities and reduce the effectiveness of labor transfer mechanisms in the Lewis model.

- **Immigration Policies:** Many developed countries have strict immigration laws and policies that limit the movement of foreign workers. These policies often make it difficult for workers in developing economies to migrate for work, even if there is demand for labor. Restrictions on visas, work permits, and the quality of immigration systems can prevent labor mobility and reduce opportunities for migrants.
- **Cultural and Social Barriers:** Cultural and social factors, such as language barriers, family obligations, and local customs, can prevent workers from migrating. Even when migration is economically beneficial, workers may be reluctant to leave their communities, particularly in societies with strong social ties.
- **Skill Gaps and Education:** Labor mobility is also constrained by educational and skill gaps. Many workers in developing countries may not have the necessary skills or qualifications to take advantage of job opportunities abroad. Additionally, the lack of training and educational systems that align with global demand for skills can limit the ability of workers to migrate to higher-paying jobs.

5. The Future of Labor Mobility in a Globalized Economy

Looking ahead, labor mobility will continue to be a central feature of the global economy, but its nature will evolve due to globalization, technological advancements, and demographic shifts. The future of labor mobility in a globalized economy will depend on several key factors:

- **Increased Integration of Global Labor Markets:** As countries become more integrated into the global economy, labor mobility will likely increase, allowing workers to access more opportunities across borders. However, this integration will need to be managed carefully to ensure that it benefits all parties and addresses issues such as **brain drain** and **income inequality**.
- **Adapting to Automation and Technological Change:** The rise of automation and digital technologies will change the types of labor in demand. Future labor mobility will focus on workers who are skilled in technology and innovation, rather than low-skilled labor. Developing economies must invest in education and training programs to equip their workforce with the skills needed to participate in a tech-driven global economy.
- **Regional Labor Mobility:** As migration restrictions in some developed economies tighten, regional agreements may emerge that facilitate labor mobility within specific geographic areas, such as the European Union or the African Continental Free Trade Area (AfCFTA). These regional agreements could ease labor mobility for workers within those regions, addressing some of the barriers to international migration.

The future of labor mobility in a globalized economy will be shaped by a combination of global trends, technological advancements, demographic shifts, and policy changes. Developing countries must adapt to these changes by ensuring that their labor forces are equipped with the skills and knowledge required to participate in a rapidly evolving global market. Additionally, policymakers in both developing and developed countries must create inclusive labor migration policies that address barriers to movement, facilitate skills development, and ensure that migration is beneficial for all parties involved. ²⁶² As labor mobility continues to evolve, it will remain a key driver of economic growth and development worldwide.

Check your Progress - II

Based on your understanding of the previous section, answer these questions in your

own words:

1. How does industrialization in developing economies act as the primary engine of growth according to the Lewis model?
2. What are the key challenges developing economies face when attempting to transfer surplus labor from agriculture to industry?
3. In what ways does technological progress in agriculture impact the labor transfer process outlined in the Lewis model?
4. How does globalization affect labor mobility and industrialization in developing economies?
5. What are the limitations of the Lewis model's assumption of unlimited surplus labor in the agricultural sector?
6. How can technological advancements in both agriculture and industry challenge the assumptions made by the Lewis model?
7. What role does remote work play in the future of labor mobility in developing economies?
8. How does the aging population in developed countries create new opportunities for labor mobility from developing economies?

10.9 Glossary

1. **Surplus Labor:** Labor in the agricultural sector that has zero or very low productivity, which can be transferred to the industrial sector without reducing output.
2. **Industrialization:** The process of developing industries in an economy, leading to increased productivity and economic growth.
3. **Capital Accumulation:** The process of increasing the stock of physical capital in the economy through investment, which drives industrial growth.
4. **Urbanization:** The movement of people from rural areas to urban centers, often driven by industrialization, creating larger cities.
5. **Marginal Product of Labor (MPL):**²⁶³ The additional output produced by adding one more unit of labor, often decreasing in agricultural sectors.
6. **Dual-Sector Economy:** An economy divided into two sectors: agriculture (traditional) and industry (modern), with labor transitioning between them.
7. **Real Wage:** The income earned by workers adjusted for inflation, reflecting the purchasing power of their wages.

8. **Capital-Output Ratio:** The ratio of capital invested to output produced, often assumed to be constant in traditional economic models but variable with technological advances.

10.10 Let's Sum Up

1. **Lewis Model:** Describes the transfer of surplus labor from agriculture to industry, driving economic growth.
2. **Labor Migration:** The movement of workers from rural to urban areas is essential for industrialization and urbanization.
3. **Industrial Sector Growth:** Capital accumulation and technological advancement in the industrial sector fuel overall economic progress.
4. **Agricultural Sector Constraints:** The agricultural sector has limited growth potential, leading to reliance on labor transfer to industry for development.
5. **Policy Importance:** Industrialization requires active government policies for capital investment, infrastructure, and labor migration.
6. **Education and Skill Development:** Workers must be trained for industrial jobs to effectively transition from agriculture to industry.
7. **Challenges of Globalization:** Global trade and labor migration pose both opportunities and challenges for developing economies.
8. **Economic Diversification:** Developing economies benefit from diversifying beyond agriculture, improving resilience and reducing dependency on external factors.

10.11 Suggested Readings

- "Economic Development" by Michael P. Todaro and Stephen C. Smith (2011)
- "Development as Freedom" by Amartya Sen (1999)
- "Theories of Economic Growth and Development" by Richard N. Cooper (2018)
- "Industrialization and Economic Development" by James M. Cypher (2017)
- "The Economics of Development" by A.P. Thirlwall (2017)
- "Development Economics" by Debraj Ray (1998)
- "Globalization and Its Discontents" by Joseph E. Stiglitz (2002)

10.12 Hints to Check Your Progress (CYP)

CYP-I

1. How does the Lewis Theory of Unlimited Supply of Labour explain economic development?

Review Section 10.3 to understand the concept of surplus labor and its transfer to the industrial sector.

2. What are the key characteristics of the dual-sector model in Lewis's framework? Refer to Section 10.3.2 and identify how the agricultural and industrial sectors differ in terms of productivity and labor usage.

3. What is the mechanism of labor transfer from agriculture to industry in the Lewis model?

Go over Section 10.5 to understand the process through which surplus labor is absorbed by the industrial sector.

4. How does capital accumulation influence labor transfer in the industrial sector? Look into Section 10.6 to analyze how investment in infrastructure and technology supports the growth of industry and labor absorption.

5. Why does the Lewis model assume constant wages in agriculture during labor transfer? Refer to Section 10.4 to understand the assumptions about wage stability in the agricultural sector and their implications for labor migration.

6. What are the implications of the surplus labor concept for the economic growth of developing countries?

Review Section 10.6 to evaluate how surplus labor drives industrialization and urbanization in low-income economies.

7. What challenges might arise in the labor transfer process that Lewis's model overlooks? Examine Section 10.7 to identify the limitations of the Lewis model in addressing real-world migration barriers.

8. How does the model's assumption of no technological progress in agriculture affect its applicability today?

Refer to Section 10.7 to assess how ²⁶⁵advancements in agricultural technology challenge the Lewis model's assumptions.

CYP-II

1. What role does industrialization play in the growth of developing economies according to the Lewis model?

Review Section 10.6 to analyze the importance of industrialization as the engine of growth.

2. How do migration barriers affect the effectiveness of labor transfer in developing countries?

Go over Section 10.7 to understand the obstacles that slow the movement of labor from rural areas to industrial centers.

3. How can technological advancements in both agriculture and industry challenge the assumptions of the Lewis model?

Refer to Section 10.7 to evaluate the effects of automation and modernization on labor mobility and industrial growth.

4. In what ways does globalization impact labor mobility in developing economies?
Review Section 10.8 to assess how globalization facilitates or hinders labor migration between countries.

5. What are the criticisms of the assumption that agricultural labor has zero marginal productivity?

Refer to Section 10.7 to understand the limitations of the surplus labor assumption in the Lewis model.

6. How does the aging population in developed countries create labor mobility opportunities for developing economies?

Go over Section 10.8 to explore how demographic shifts in developed countries increase the demand for labor from developing economies.

7. How can remote work contribute to labor mobility from developing economies to developed countries?

Review Section 10.8 to understand how the digital economy facilitates remote work opportunities.

8. How do policy frameworks in developing countries influence labor migration to industrial sectors?

Go over Section 10.6 to evaluate the role of proactive labor market policies in managing the flow of labor.

10.13 Examination-Oriented Questions

Q1: How does the Lewis model explain the process of economic development in developing economies?

- Briefly explain the core concept of the Lewis model, i.e., the surplus labor in the agricultural sector.
- Describe the dual-sector model, distinguishing between the agricultural and industrial sectors.
- Explain how labor is transferred from agriculture to industry and its impact on overall productivity.
- Discuss the role of capital accumulation and industrial growth in stimulating economic development.

Q2: What are the main criticisms of the Lewis model in the context of modern economic realities?

- Point out the criticism of unlimited surplus labor and its relevance today.
- Explain how technological advancements in both agriculture and industry affect labor transfer.
- Discuss how migration barriers and urbanization challenges hinder the free movement of labor.
- Address the assumption of no technological progress in agriculture and its limitations in current economies.

Q3: What is the significance of capital accumulation in the industrial sector according to the Lewis model?

- Define capital accumulation and its importance in industrial growth.
- Explain how capital investments in industry allow for greater productivity and higher wages.
- Discuss how industrial growth leads to the absorption of surplus labor and economic development.
- Provide examples of how capital accumulation has supported industrialization in real-world cases like South Korea.

Q4: How does the concept of surplus labor²⁶⁷ in agriculture contribute to the labor transfer process in the Lewis model?

- Define surplus labor and explain why it exists in the agricultural sector (low productivity).
- Discuss how surplus labor can be transferred to the industrial sector without impacting agricultural output.

- Highlight the importance of this labor transfer in the context of economic development in developing countries.
- Use an example or case study to show how surplus labor migration leads to industrial growth.

Q5: What role does globalization play in labor mobility and industrialization in developing countries?

- Explain how globalization impacts the migration of labor between countries.
- Discuss the positive effects of FDI (Foreign Direct Investment) and how it facilitates industrial growth.
- Highlight how remittances from migrant workers contribute to economic development in their home countries.
- Discuss how globalization creates job opportunities in both domestic and international markets.

Q6: How does the aging population in developed countries influence labor mobility from developing economies?

- Discuss how the aging population in developed countries creates labor shortages.
- Explain how this demographic shift increases the demand for migrant labor in sectors such as healthcare and services.
- Describe how developing economies can benefit by sending workers to fill labor gaps in developed countries.
- Use real-world examples of how immigration policies in countries like the US or Germany accommodate migrant labor.

STRUCTURE

11.0 Objectives

11.1 Learning Outcomes

11.2 Introduction

11.3 Key Concepts in Fei & Ranis' Model

11.4 The Role of Agriculture in Economic Growth

- 11.4.1 Agricultural Surplus and Labor Transfer
- 11.4.2 Role of Agricultural Investment

11.5 Fei & Ranis' Model of Development

- 11.5.1 The Two-Sector Economy: Agriculture vs. Industry
- 11.5.2 Mechanism of Labor Transfer and its Implications

11.6 Transition from Agricultural to Industrial Society

- 11.6.1 Institutional Changes for Development
- 11.6.2 Investment in Technology and Its Economic Impact

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11.8 Criticisms and Limitations of Fei & Ranis' Model

11.9 Glossary

11.10 Let's Sum Up

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11.12 Hints to Check Your Progress

11.13 Examination-Oriented Questions

11.0 Objectives

By the end of this lesson, you should be able to:

- Understand the Fei-Ranis dual-sector model of economic development.
- Analyze the role of agriculture in fostering economic growth and industrialization.
- Evaluate the process of labor transfer from agriculture to industry.
- Examine the relationship between agricultural productivity and industrial development.
- Explore the concept of surplus labor and its impact on economic transformation.
- Assess the implications of the Fei-Ranis model for developing economies.
- Identify the policy measures that support the transition from agriculture to industry.

11.1 Learning Outcomes

- Grasp the core concepts of the Fei-Ranis model and its application to economic development.
- Understand the dynamics of labor transfer between the agricultural and industrial sectors.
- Analyze the role of agricultural productivity in supporting industrial growth.
- Identify the factors that contribute to surplus labor in the agricultural sector.
- Explain how surplus labor can drive industrialization without harming agricultural output.
- Evaluate the impact of the dual-sector model on the economic transformation of developing countries.
- Assess the connection between capital accumulation in agriculture and industrial growth.
- Apply the Fei-Ranis model to real-world development scenarios and policy implications.

11.2 Introduction

Agriculture has long been a cornerstone of economic development, particularly in the early stages of economic growth. For many developing nations, agriculture remains the primary sector of the economy, but the challenge lies in the transition from an agrarian economy to an industrialized one. Fei and Ranis' model of economic development, which builds upon the dual-sector model, offers an insightful framework for understanding this transition and the central role of agriculture in the process. It focuses on the transfer of labor and resources from agriculture, where productivity is relatively low, to industry, where higher productivity levels exist. This model not only highlights the importance of agriculture in fostering economic growth but also provides a theoretical framework that overcomes certain limitations in other models of development, particularly the Lewis theory.

The Fei-Ranis model posits that economic development occurs through a process of labor transfer from the traditional agricultural sector to the more productive industrial sector. The key idea is that agriculture, in the early stages of development, often has a surplus labor force. These workers contribute little to agricultural output because their marginal productivity is low or even close to zero. The model assumes that agriculture has a surplus of labor, and as labor moves to the industrial sector, it is gradually absorbed into more productive activities, which then drives industrial growth and overall economic development. This surplus labor—where marginal productivity of labor (MPL) is near zero—forms the central concept of the model.

In comparison, the Lewis model of development, which is a cornerstone of development economics, emphasizes that the transfer of labor from the rural agricultural sector to the urban industrial sector is a key driver of economic growth. According to Lewis, the agricultural sector has an unlimited supply of labor, and this surplus labor can be transferred to the industrial sector, leading to higher overall productivity. However, one of the criticisms of the Lewis model is its oversimplification of labor transfer. Lewis assumes that there is an unlimited supply of surplus labor in the agricultural sector, but it does not account for the potential constraints in the agricultural sector's capacity to release labor without diminishing agricultural output.

The Fei-Ranis model improves on the Lewis theory by incorporating a more nuanced view of labor and productivity. Unlike Lewis, Fei and Ranis define marginal productivity of labor (MPL) in the agricultural sector in a more realistic manner. Initially, when the economy is in a state of agricultural stagnation, the MPL in agriculture is low or even negligible. As agricultural productivity increases due to technological advancements, investment, and better resource management, the MPL begins to rise, providing the opportunity for more labor to be transferred to industry without disrupting agricultural output.

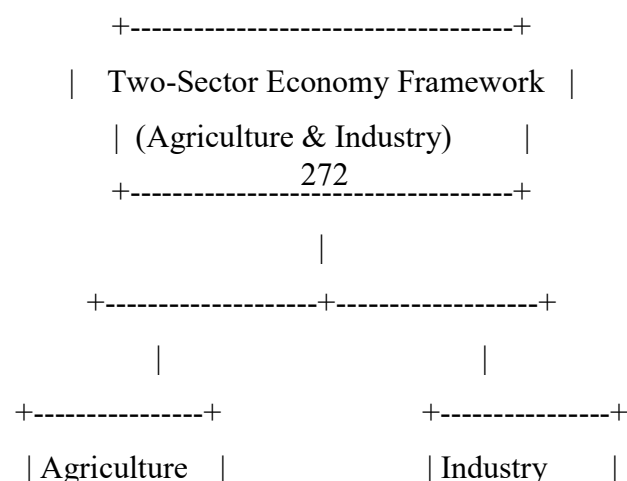
The Fei-Ranis model also introduces the concept of surplus labor in the context of agricultural productivity. Surplus labor exists in agriculture when the MPL is low, and these workers can be transferred to the industrial sector without causing a loss in agricultural output. However, as labor continues to move out of agriculture, the agricultural sector's MPL increases due to investments and improvements in technology²⁷¹ and farming practices. This process is essential for understanding how agriculture can continue to support industrialization while gradually reducing the share of the labor force dependent on the land.

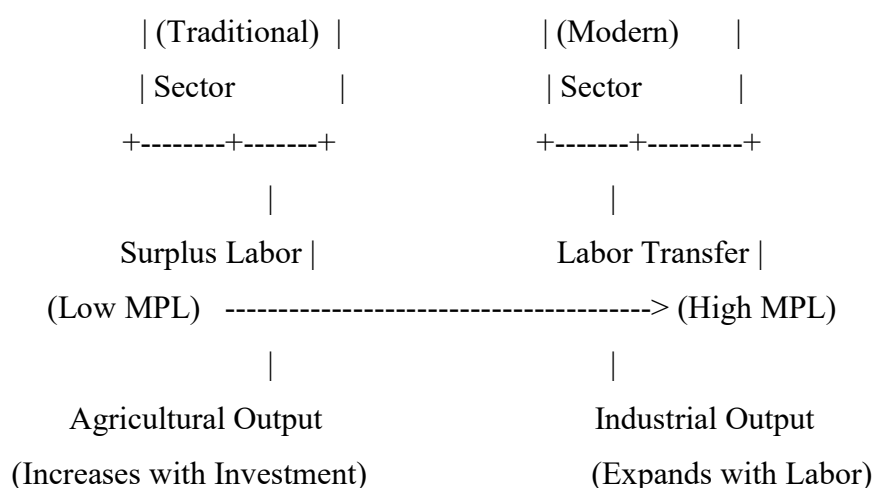
The transition from agriculture to industry in the Fei-Ranis model is not instantaneous but occurs in stages. The model suggests that agricultural development and industrialization can proceed simultaneously, provided that there is an adequate increase in agricultural output. This,

in turn, allows for the reinvestment of agricultural surplus into industrial sectors, thereby creating a dynamic growth process where both sectors reinforce each other. The marginal productivity of labor (MPL) in agriculture becomes an essential metric in understanding the stages of development. Initially, labor in agriculture has a low or even zero marginal product, meaning that additional workers have little to no impact on total output. However, once agricultural productivity rises due to improved technology and resource allocation, the MPL increases, and more labor can be absorbed into the industrial sector without diminishing agricultural production.

Fei and Ranis also address the limitations of the Lewis model by recognizing that there are thresholds beyond which agriculture cannot absorb an unlimited amount of labor without reducing output. While the Lewis model assumes an infinite supply of surplus labor, the Fei-Ranis model presents a more realistic scenario where agricultural productivity improves, thus increasing the MPL and creating the necessary conditions for labor absorption into the industrial sector. This framework allows for a more sustainable model of economic growth, as the agricultural sector's contributions to overall output continue to grow even as labor is transferred to industry.

Furthermore, the Fei-Ranis model offers a clearer perspective on the role of investment in agriculture. As agricultural productivity increases, capital accumulation in the industrial sector becomes more feasible. The model stresses that agricultural productivity is a fundamental condition for generating the surplus needed for industrial capital formation. Investment in agriculture, therefore, has a multiplier effect that not only enhances agricultural output but also stimulates industrial growth. In this sense, agricultural development is not merely a precursor to industrialization; rather, it is an ongoing process that drives the economy toward modernization and diversification.





The Fei-Ranis Model of Economic Development diagram illustrates the transition of labor and output between the two key sectors of an economy: Agriculture (Traditional Sector) and Industry (Modern Sector). It highlights how surplus labor from agriculture, where marginal productivity of labor (MPL) is low, is transferred to the industrial sector, where productivity is higher. This labor transfer, depicted by the arrow from agriculture to industry, leads to increasing industrial output and drives overall economic growth. Agricultural output improves through investment, which enhances productivity without diminishing the sector's capacity to support industrialization. The model underscores the symbiotic relationship between the two sectors, with agricultural development providing the necessary surplus labor and capital for industrial growth, ultimately fostering sustained economic development

11.3 Key Concepts in Fei & Ranis' Model

The Fei-Ranis model of economic development introduces a structured approach to understanding the role of agriculture and industrialization in the process of economic transformation. The model builds upon the dual-sector theory, where the economy is divided into two major sectors: agriculture and industry. This framework describes how labor is transferred from the traditional agricultural sector to the more productive industrial sector, which leads to sustained economic growth. Below, we will explore the key concepts of the Fei-Ranis model in depth, including surplus labor, marginal productivity of labor (MPL), and the interaction between agricultural and industrial productivity. The mathematical expressions used to represent these concepts will further illustrate the dynamic and transformational relationship between the two sectors.

1. Dual-Sector Model: Agriculture vs. Industry

At the core of the Fei-Ranis model is the dual-sector framework, which splits the economy into two sectors: agriculture and industry. In this model, agriculture represents the traditional sector,

where the majority of the labor force is initially employed, but labor productivity is relatively low. The industry sector, on the other hand, is the modern, more productive sector that drives economic growth as it absorbs labor from agriculture.

The agricultural sector is characterized by:

- A relatively low marginal productivity of labor (MPL), meaning additional workers in agriculture do not significantly contribute to increasing output.
- Surplus labor, which exists because the MPL is low and the sector can afford to release labor without a reduction in agricultural output.

The industrial sector is characterized by:

- Higher MPL compared to agriculture, which leads to greater productivity as labor is absorbed into this sector.
- Capital accumulation, which enhances productivity and supports industrial growth.

2. Surplus Labor in Agriculture

A key concept in the Fei-Ranis model is the presence of surplus labor in the agricultural sector. Surplus labor refers to the situation where the marginal productivity of labor is near zero, meaning that adding more workers to the agricultural sector does not significantly increase total output. In the early stages of development, agriculture has a large number of workers, but the amount of land and capital is limited, resulting in diminishing returns to labor.

Mathematically, we can express this surplus labor as:

$$MPL_A = \frac{\partial Y_A}{\partial L_A} = 0 \text{ (where } Y_A \text{ is agricultural output and } L_A \text{ is labor in agriculture)}$$

Here, MPL_A is the marginal productivity of labor in agriculture. The equation shows that adding more labor to agriculture does not lead to an increase in agricultural output, indicating the existence of surplus labor.

As labor moves from agriculture to industry,²⁷⁴ the MPL in agriculture increases, driven by improvements in agricultural productivity, such as technological advancements and better resource management.

3. Labor Transfer to Industry

The Fei-Ranis model emphasizes the transfer of **surplus labor** from agriculture to the industrial sector as a key driver of economic growth. This transfer of labor occurs when the industrial sector becomes more productive, providing higher wages and better living standards compared to agriculture.

Let the total labor force be represented by L , with L_A representing labor in agriculture and L_I representing labor in industry. The labor transfer is given by:

$$L_A + L_I = L \text{ (where } L \text{ is the total labor force)}$$

As labor moves from agriculture to industry, we see an increase in industrial output and a corresponding increase in the marginal productivity of labor in the industrial sector. This movement of labor can be mathematically expressed as:

$$MPL_I = \frac{\partial Y_I}{\partial L_I} > MPL_A$$

Here, MPL_I is the marginal productivity of labor in the industrial sector, and MPL_A is the marginal productivity in agriculture. The condition $MPL_I > MPL_A$ indicates that industrial labor is more productive, and the economy benefits as labor moves from agriculture to industry.

4. Marginal Productivity of Labor (MPL) and Economic Growth

In the Fei-Ranis model, economic growth is driven by the increase in marginal productivity of labor as labor moves from agriculture to industry. In the early stages of development, agriculture has a low MPL, and the industrial sector absorbs surplus labor at higher wages, increasing the overall productivity of the economy.

The total output of the economy, Y , can be represented as the sum of output from agriculture (Y_A) and industry (Y_I):

$$Y = Y_A + Y_I$$

The output in each sector depends on labor and capital, and is influenced by technological advancements in both sectors. In agriculture²⁷⁵, improvements in technology lead to higher productivity, which increases the MPL in the sector, and helps in releasing labor to industry.

The agricultural output can be modeled as:

$$Y_A = A_A \cdot F_A(L_A, K_A)$$

where A_A represents technological progress in agriculture, and K_A is the capital in agriculture.

Similarly, industrial output depends on the number of workers L_I and capital K_I , as well as the technological progress A_I in industry:

$$Y_I = A_I \cdot F_I(L_I, K_I)$$

As labor is transferred from agriculture to industry, L_A decreases and L_I increases. This labor transfer leads to increased output in the industrial sector and helps accumulate the capital required for further industrial growth.

5. Capital Accumulation and Reinvestment

One of the essential features of the Fei-Ranis model is the role of capital accumulation. As agricultural productivity increases and surplus labor moves to industry, the economy experiences higher industrial output, which can be reinvested in both sectors. Capital accumulation in agriculture provides the surplus necessary for industrial investment.

The capital accumulation process can be represented as:

$$K_I(t+1) = K_I(t) + \Delta K_I$$

where $K_I(t+1)$ is the capital in industry at time $t+1$, and ΔK_I represents the increase in industrial capital resulting from the reinvestment of profits. Capital accumulation is a driver of industrial growth and is essential for sustaining the transition from agriculture to a modern industrial economy.

6. Technological Progress and Sectoral Productivity

Technological progress plays a critical role in the Fei-Ranis model. In the agricultural sector, technological improvements such as better farming techniques, mechanization, and increased use of fertilizers lead to higher productivity, which allows labor to be transferred to the industrial sector without reducing agricultural output. Similarly, technological advancements in industry boost productivity and the marginal productivity of labor.

The production function in both sectors reflects the impact of technological progress. For agriculture:

$$Y_A = A_A \cdot F_A(L_A, K_A)$$

where A_A represents technological progress in agriculture.

For industry:

$$Y_I = A_I \cdot F_I(L_I, K_I)$$

where A_I represents technological progress in the industrial sector. Over time, as both sectors experience technological advancements, the economy becomes more efficient, leading to increased output and economic growth.

s7. The Balanced Growth Path

The Fei-Ranis model suggests that for sustained economic development, there must be a balance between agricultural and industrial growth. As labor moves from agriculture to industry, there is a need for investment in both sectors to maintain overall growth. The growth path of the economy can be modeled as a function of the balanced growth rates of agricultural output, industrial output, and capital accumulation.

The equilibrium condition for balanced growth is:

$$\frac{dY_A}{dt} = \frac{dY_I}{dt} = \text{Growth rate of total output}$$

This ensures that growth in both sectors is aligned, and the economy can continue to expand without major disruptions.

The Fei-Ranis model provides a comprehensive framework for understanding the role of agriculture in economic development. It emphasizes the dynamic interaction between the agricultural and industrial sectors, where labor transfer and capital accumulation are key drivers of economic growth. By incorporating concepts like surplus labor, marginal productivity of labor (MPL), and technological progress, the model presents a detailed view of how economies transition from agriculture to industry. The mathematical expressions highlight the importance of these processes in fostering sustainable growth, where improvements in both sectors work in tandem to drive long-term development.

11.4 The Role of Agriculture in Economic Growth

Agriculture plays a foundational role in economic development, particularly in the early stages of industrialization. The Fei-Ranis model emphasizes the significance of the agricultural sector in providing essential resources—specifically, surplus labor and capital accumulation—which facilitate the growth of the industrial sector. This dual-sector model shows how labor and capital are transferred from agriculture to industry, leading to structural transformation and sustained economic growth.

In many developing economies, agriculture remains the largest sector by employment, and its development can generate the surplus labor and capital needed to fuel industrialization. However, as industrialization takes place, labor shifts from agriculture to more productive industrial work, driving a growth process that benefits both sectors.

11.4.1 Agricultural Surplus and Labor Transfer

In the context of the Fei-Ranis Model, one of the most critical concepts is the idea of agricultural surplus and its relation to labor transfer. This concept plays a central role in driving economic development by facilitating the shift of labor from the agricultural sector to the industrial sector, which in turn accelerates overall economic growth. The transition of labor from agriculture to industry is a key factor that enables the economy to move from an agrarian-based structure to a more diversified, industrialized one.

Agricultural Surplus: Definition and Importance

In the Fei-Ranis model, agricultural surplus refers to the excess production in the agricultural sector that is not immediately consumed by the population and can be used for economic investment and labor release. This surplus is primarily driven by low marginal productivity of labor (MPL) in agriculture, which is often present in economies with traditional agricultural methods. When the MPL in agriculture is low, additional workers do not significantly contribute to increasing agricultural output. This leads to the accumulation of surplus labor that can be transferred to other sectors, especially industry, without a negative impact on agricultural production.

Agricultural surplus is important because it helps create the necessary capital for industrialization. As labor moves from the agricultural sector to the industrial sector, the surplus labor can be redirected towards more productive activities in the industrial and services sectors. This transition helps to boost overall economic output and contributes to the structural transformation of the economy.

Surplus Labor and the Marginal Productivity²⁷⁸ of Labor (MPL)

The concept of marginal productivity of labor (MPL) is essential to understanding the presence of surplus labor in agriculture. The MPL refers to the additional output produced by one more unit of labor. In an agricultural economy, the MPL is initially low because the sector often relies on traditional farming methods, low levels of capital investment, and limited technological innovation.

In this environment, additional labor does not lead to a significant increase in output. For example, in many developing countries, farmers may continue to work on the land using traditional farming tools and techniques, resulting in diminishing returns to labor. As more workers are added, the contribution of each additional worker to total agricultural output becomes smaller, eventually leading to the situation of surplus labor.

This surplus labor is crucial for industrial growth because it provides the necessary workforce to fuel the expansion of industrial activity. In essence, agriculture becomes a reserve from which the industrial sector can draw labor to meet the demands of expanding industrial production.

Empirical Examples of Surplus Labor

Empirical data from developing countries consistently illustrates the presence of surplus labor in agriculture. For example, in many parts of sub-Saharan Africa, agriculture remains the largest employer, with the majority of the population working in farming. However, the marginal productivity of labor in agriculture is extremely low, leading to surplus labor. According to the World Bank (2020), agriculture in sub-Saharan Africa employs about 60% of the workforce, but the sector's contribution to GDP is only around 25%. This mismatch suggests that a significant portion of the labor force is employed in agriculture without contributing meaningfully to economic output.

In India, the agricultural sector employed about 58% of the labor force in the early 2000s, but agriculture's contribution to GDP was only around 17% by 2021. This gap between employment and productivity in agriculture demonstrates the surplus labor available for transfer to more productive sectors like industry. Over the last two decades, the labor share in agriculture has steadily decreased as more workers have been absorbed into industrial and service sectors. As of 2021, agriculture now employs around 42% of the workforce, showing the success of labor transfer from agriculture to industry.

Similarly, China's agricultural sector employed over 70% of the population in the 1970s, but rapid industrialization and economic reforms led to the transfer of labor to the industrial sector, contributing significantly to China's economic ²⁷⁹miracle. The share of the rural labor force in agriculture in China has fallen dramatically from 70% in 1978 to around 35% in 2019, with millions of workers moving to urban centers to work in manufacturing and services.

These empirical examples highlight the fundamental role of surplus labor in agricultural economies and its transfer to industry, which is a central mechanism in the Fei-Ranis model.

Labor Transfer Mechanism in the Fei-Ranis Model

In the Fei-Ranis model, the process of labor transfer is portrayed as gradual and dynamic. Initially, agriculture dominates the economy, and most of the labor force is employed in the agricultural sector. However, as agricultural productivity increases (often due to technological advancements, better infrastructure, or increased capital investment), the sector can support fewer workers. This surplus labor then begins to flow into the industrial sector, where labor productivity is higher.

The Role of Capital Accumulation

One of the key drivers that enables labor transfer is capital accumulation. As agriculture becomes more productive, surplus output (in the form of profits or capital generated from agricultural sales) can be reinvested in the industrial sector. This reinvestment leads to industrial capital accumulation, which is essential for absorbing surplus labor into the modern industrial sector.

For example, in South Korea during the 1960s and 1970s, agricultural productivity was increased through land reforms and investment in new technologies. The surplus capital generated from these improvements was used to build infrastructure, such as roads and factories, which absorbed labor from agriculture and shifted it to the industrial sector. This process of capital accumulation and labor transfer helped propel South Korea into a newly industrialized economy within just a few decades.

In Vietnam, similar dynamics were at play after the Đổi Mới economic reforms in 1986. The government invested in agricultural productivity through new irrigation systems, better seeds, and mechanization, which resulted in increased output. The labor that was freed from agriculture due to these productivity improvements was absorbed into the growing industrial and service sectors, leading to the rapid industrialization of the economy.

Labor Transfer and Economic Growth

The process of labor transfer is closely tied to economic growth in the Fei-Ranis model. As labor moves from the agricultural sector, where ²⁸⁰ marginal productivity is low, to the industrial sector, where marginal productivity is high, overall economic output increases. This labor shift allows for more efficient use of the workforce, which in turn drives greater capital accumulation and technological progress in industry.

For instance, in Mexico, labor transfer from agriculture to industry has contributed significantly to the country's economic transformation. According to the World Bank (2021), agriculture's

share of GDP decreased from about 25% in 1990 to about 3% in 2020, while industry and services grew to dominate the economy. The shift of labor to more productive sectors has been a key driver in Mexico's diversification away from agriculture towards manufacturing, services, and technology.

The shift from an agricultural-based economy to an industrialized one involves more than just a transfer of labor. It also involves the transformation of the capital base, where the surplus generated in agriculture is reinvested in industrial growth. As industries expand and the demand for labor increases, wages rise, creating more incentives for workers to move to urban areas for industrial jobs.

The Impact of Labor Transfer on Industrialization

Labor transfer is critical for industrialization in the Fei-Ranis model. As surplus labor from agriculture enters the industrial sector, it increases the supply of labor available for industrial activities, which boosts productivity and overall economic output. Additionally, as more labor is absorbed into industry, the agricultural sector becomes more capital-intensive, leading to higher productivity in the remaining agricultural labor force.

For instance, Brazil's industrialization in the 20th century was fueled by agricultural reforms and labor transfer. The country's agricultural productivity increased with investments in mechanization, which allowed for the release of labor to the expanding industrial sector. As a result, Brazil transitioned from an agrarian-based economy to an industrial powerhouse by the mid-20th century, with significant portions of the labor force moving to urban areas for industrial employment.

11.4.2 Role of Agricultural Investment

Agricultural investment is critical for raising the productivity of the sector and generating the surplus labor and capital that can be transferred to industry. Investment in agriculture can take multiple forms, such as technological improvements, better infrastructure, and higher capital input, all of which lead to increased output.

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Technological Advancements in Agriculture

Technological progress in agriculture can significantly enhance productivity, leading to higher output with less labor. For example, the introduction of modern farming techniques, such as mechanized irrigation, improved seed varieties, and fertilizer use, can increase yields. In many

parts of Asia and Africa, these innovations have been crucial in improving agricultural productivity.

For instance, Ethiopia's agricultural sector has seen significant improvements due to investment in irrigation systems, which have helped improve the efficiency of farming. Between 2004 and 2014, Ethiopia's agricultural GDP grew by an average of 6% per year, driven largely by the introduction of new farming technologies and practices. This increase in agricultural productivity allowed surplus labor to be released for industrial growth, contributing to the country's economic diversification.

Moreover, technological improvements in agriculture are not limited to mechanization and irrigation. In countries like Brazil, the adoption of genetically modified crops has significantly increased crop yields. Brazil's soybean production, for instance, increased by over 300% from 1990 to 2019, largely due to technological advancements and investment in agricultural infrastructure.

Infrastructure Development and Market Access

Investments in agricultural infrastructure, such as roads, storage facilities, and market access, are also vital for improving agricultural productivity. In many developing countries, rural infrastructure has been a bottleneck for agricultural growth. However, recent improvements in infrastructure in countries like Vietnam have boosted agricultural productivity and trade.

For example, Vietnam's agriculture export sector has grown significantly since the early 2000s. As of 2020, Vietnam is the world's largest exporter of cashew nuts and a major exporter of rice, coffee, and seafood. This growth has been supported by government investments in rural roads, storage, and market linkages, which helped farmers reduce waste and access larger markets. These improvements in infrastructure have not only enhanced agricultural output but also contributed to the overall growth of the industrial and services sectors.

Capital Flow from Agriculture to Industry

As agricultural productivity improves through investment, the surplus generated by agriculture is transferred to industry. The capital that results from increased agricultural output is used to fund industrialization. This reinvestment of surplus is essential for the transition from an agrarian to an industrial economy. In the case of South Korea, significant investments in agriculture in the 1960s helped create surplus capital, which was then used to fund the country's industrialization. South Korea's agricultural sector was modernized, and the surplus was

reinvested into industrial infrastructure, leading to the growth of heavy industries such as steel, shipbuilding, and automotive manufacturing.

In countries like China, the rapid industrialization process was fueled by agricultural reforms that not only improved productivity but also generated the capital needed for industrial investment. Since the 1970s, China has implemented several reforms that encouraged higher agricultural output, and this surplus capital was used to support the development of industry. The Industrial Revolution in China was largely funded by the agricultural surplus, which allowed for the development of a robust industrial base.

Government Policies and Agricultural Investment

Government policies also play an essential role in stimulating agricultural investment. For instance, India's National Agricultural Policy has encouraged investment in technology, irrigation, and rural infrastructure, leading to an increase in agricultural productivity and economic diversification. The government has also introduced several schemes to boost rural income and employment, which in turn help facilitate the labor transfer to industry.

In Africa, the Malawi government has implemented fertilizer subsidy programs that have substantially increased maize yields, improving food security and releasing labor for industrial sectors. Similarly, the Ghanaian government has focused on improving irrigation and rural infrastructure, resulting in higher productivity in the agricultural sector and further growth in the industrial sector.

Agriculture continues to play a critical role in economic growth and development, particularly in developing economies. In the Fei-Ranis model, agriculture provides the necessary surplus labor and capital that enable industrialization. Surplus labor in agriculture, characterized by low marginal productivity, is absorbed into the industrial sector, driving economic transformation. Agricultural investment in the form of technological advancements, infrastructure development, and capital reinvestment accelerates the process of industrialization by increasing agricultural output and generating the surplus needed for further development.

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As demonstrated by real-world examples from China, India, Ethiopia, and other developing economies, agriculture not only supports industrial growth but also drives broader economic development. By investing in agriculture and ensuring that surplus labor is efficiently transferred to industry, countries can achieve sustained economic growth, create jobs, and improve living standards across sectors. The interdependence of agriculture and industry in the

Fei-Ranis model remains a powerful tool for understanding the dynamics of economic development in the contemporary world.

11.5 Fei & Ranis' Model of Development

The Fei-Ranis Model of economic development provides a detailed framework for understanding how economies transition from agricultural-based economies to industrialized ones. Central to this model is the dual-sector economy, which divides the economy into two main sectors: agriculture (the traditional sector) and **industry** (the modern sector). This model highlights the process of labor transfer from agriculture to industry, driving economic growth and development.

The model emphasizes that economic development occurs through the interaction between these two sectors. The agricultural sector, in its early stages, provides both the surplus labor and capital necessary to fuel industrialization. The industrial sector, in turn, provides higher wages and better living standards, which incentivizes labor to move from agriculture to industry. As labor moves, the economy experiences both sectoral growth and the overall shift from an agrarian economy to an industrial economy.

11.5.1 The Two-Sector Economy: Agriculture vs. Industry

The two-sector economy framework in the Fei-Ranis model divides the economy into two distinct but interconnected sectors: agriculture and industry. Both sectors play critical roles in the development process, with agriculture serving as the initial phase and industry driving the next phase of economic growth.

Agriculture: The Traditional Sector

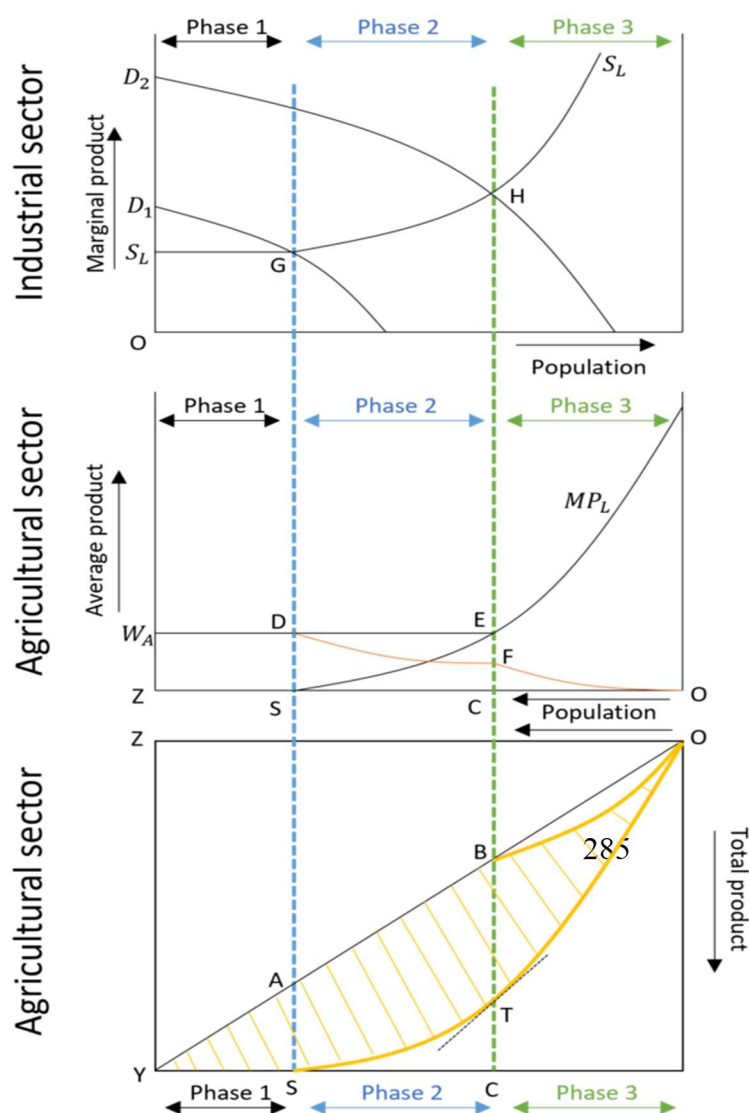
In the early stages of economic development, agriculture is typically the dominant sector of the economy. It is characterized by low productivity, traditional farming methods, and high levels of labor engagement. The agricultural sector's productivity is often constrained by limited capital investment, outdated technologies, and insufficient infrastructure. Due to the low marginal productivity of labor (MPL) in agriculture, labor is often underutilized. This results in the surplus labor that can be transferred to the industrial sector.

The agriculture sector provides food, raw materials, and the labor force required to fuel industrialization. Despite the limited growth prospects in terms of productivity in agriculture, the surplus labor becomes a key resource for industrial development. This surplus labor exists

because increasing the number of workers in agriculture does not lead to a significant increase in output, especially when technology and capital are not sufficiently advanced.

Industry: The Modern Sector

In contrast to agriculture, the industry or modern sector in the Fei-Ranis model is characterized by higher productivity, technological advancement, and capital intensity. As the agricultural sector releases surplus labor, the industrial sector absorbs this labor, leading to economic growth. The industrial sector is where capital accumulation is central. As industries grow, labor productivity increases, wages rise, and economies of scale are realized. The industrial sector also tends to benefit from economies of agglomeration, where the concentration of industries leads to synergies in production and innovation. The Fei-Ranis model stresses that industrial growth leads to greater output, higher wages, and more efficient use of resources.



The **Fei-Ranis Model** of economic development, much like the Lewis Model, highlights the relationship between two sectors of an economy: agriculture and industry. The model illustrates how surplus labor in the agricultural sector can be transferred to the industrial sector, leading to economic development. This process involves changes in wages, labor demand, and the total output in both sectors. Below is an explanation based on the diagram that shows the transition of labor between agriculture and industry, which corresponds to the two-sector model.

Labor Demand and Supply in Industry

In the top portion of the diagram, the marginal product and demand curves for the industrial sector are shown. As in the Lewis Model, the marginal product of labor (MPL) in the industrial sector is depicted as a horizontal demand curve at the beginning (up to point G). This flat curve reflects the presence of surplus labor in the agricultural sector. Essentially, the industrial sector can hire as much labor as it wants at a constant wage, as long as there is surplus labor available in agriculture to meet the demand. The wages in the industrial sector and employment levels are determined at the point where the demand curve for labor (MPL) intersects with the supply curve of labor. This means that, initially, the industrial sector's demand for labor is essentially met by the surplus labor coming from the agricultural sector.

Agricultural Surplus and Transition Process

The bottom two figures of the diagram focus on the agricultural sector. In the early stages of economic development, the economy operates at point Y on the diagram, where the agricultural sector has surplus labor (denoted by SY). This surplus labor is key to the process of industrialization as it provides the workforce needed to drive industrial growth without diminishing agricultural output.

The agricultural sector operates under the OS curve, which represents the total product in agriculture. Initially, as labor is transferred from agriculture to industry, the agricultural output does not decrease because the surplus labor is redundant, meaning that adding more workers does not increase agricultural output significantly. The total product of agriculture is maximized at point S, which is the point at which the marginal productivity of labor (MPL) reaches zero. Beyond this point, additional labor in agriculture would lead to a diminishing return on agricultural output, and the agricultural sector reaches its full potential. The MPL curve in agriculture becomes flat after point S, indicating that no further labor can be productively absorbed by the agricultural sector.

Wages in the Agricultural Sector

In the agricultural sector, wages are not determined by the marginal product of labor (MPL),²⁸⁶ as they would be in a perfectly competitive market. Instead, wages are fixed due to institutional factors, represented by the slope of the OY line in the diagram. These institutional wages (WA) remain constant even as labor is transferred to industry. The reason for this is that, due to the surplus labor in agriculture, the marginal product of labor is low (approaching zero), and the wages would fall to zero if they were determined by MPL. To prevent wages from falling to

zero, institutional forces (like minimum wage laws, cultural practices, or union agreements) set the agricultural wages at a fixed level, denoted as WA .

The Commercialization and Shortage Points

As labor continues to shift from agriculture to industry, the wages in agriculture begin to rise. This occurs at point C on the diagram. At point C, the agricultural sector starts to experience a shortage of surplus labor, and wages begin to rise as the labor supply becomes more constrained. At this point, institutional wages (WA) begin to align with the competitive wage level, represented by point T. This marks the beginning of a shift towards more market-determined wages in agriculture.

The shortage point (S), as depicted in the diagram, represents the point at which the agricultural surplus (AAS) begins to fall as labor is increasingly absorbed into industry. This is a critical transition point, as agricultural productivity and output start to decline because there are fewer workers available in the sector. Despite this, the total agricultural surplus (TAS) continues to rise up until point S, after which it begins to decline as labor is reduced further. The total agricultural surplus (TAS) is represented by the shaded area in the third diagram, while the average agricultural surplus (AAS) is represented by the curve WADFO in the second diagram.

Commercialization of Agriculture

The commercialization point (C) marks a key turning point in the Fei-Ranis model. Beyond point C, as the labor force in agriculture continues to shrink, wages in agriculture start rising due to the growing scarcity of labor. Landowners and agricultural producers are willing to pay more for labor, which is necessary for continuing agricultural production. Additionally, industrial wages also increase to attract workers from the agricultural sector, creating a situation where both sectors are competing for labor.

At point C, agriculture becomes commercialized, meaning that the agricultural sector begins to shift away from traditional, subsistence farming towards more capital-intensive, market-oriented production. This shift is important because it marks the point at which the economy moves beyond surplus labor and disguised ²⁸⁷unemployment. In the earlier stages, disguised unemployment in agriculture existed, where labor was employed but not effectively contributing to output (i.e., $MPL < WA$). After point C, agriculture begins to operate in a more efficient, competitive manner, with market-driven wages and reduced surplus labor.

Table: Phases of Labor Transfer and Agricultural Surplus in the Fei-Ranis Model

Phase	Agricultural Sector	Industrial Sector	Total Agricultural Surplus (TAS)	Average Agricultural Surplus (AAS)
Phase 1	Institutional wage WA	Constant wages as surplus or redundant labor are being absorbed	Increasing TAS	AAS equal to the institutional wage
Phase 2	SS = shortage point, Institutional wage WA	Wages start rising because surplus labor has been removed from agriculture YC = disguised unemployment in the agriculture sector	TAS still rising	AAS starts declining, leading to shortages in output surplus
Phase 3	C = commercialization point, Wages start rising	Wages keep increasing	TAS starts falling	AAS declines rapidly

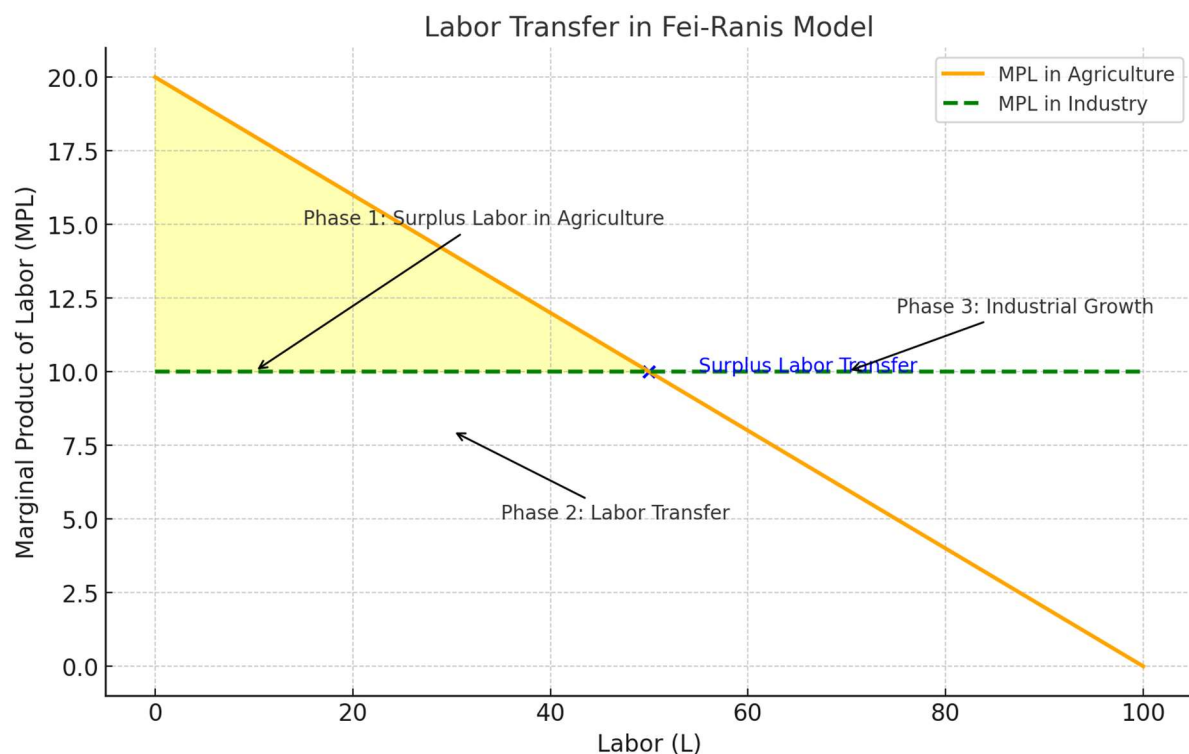
11.5.2 Mechanism of Labor Transfer and its Implications

In the Fei-Ranis model of economic development, the mechanism of labor transfer from the agricultural sector to the industrial sector plays a pivotal role in shaping the development trajectory of an economy. This process is essential for facilitating the transition from an agrarian economy to an industrialized one. It involves the shift of surplus labor, characterized by low productivity in agriculture, to the industrial sector, where labor is employed more productively, thereby spurring economic growth.

The process of labor transfer, however, is not instantaneous and is influenced by several economic and institutional factors. The model identifies key stages in this transition, from the release of surplus labor in agriculture to its absorption into industry, and the associated implications for both sectors.

Labor Transfer Process

The labor transfer from agriculture to industry begins when the agricultural sector, which employs a large proportion of the labor force, has surplus workers whose marginal productivity of labor (MPL) is close to zero or very low. In such a case, increasing the number of workers in agriculture does not substantially increase agricultural output. This surplus labor becomes available for the industrial sector, where productivity is higher and where wages are often more attractive.



Phase 1: Surplus Labor in Agriculture

In the initial phase, agriculture employs most of the labor force, but due to the inefficiency of traditional farming practices and low capital investment, the marginal productivity of labor in agriculture remains low. In this phase, agriculture does not generate enough output per worker to support a large, growing labor force. As a result, there is a build-up of surplus labor, which becomes available for migration to the industrial sector. This is represented in the Fei-Ranis model as a situation where the marginal productivity of labor in agriculture is almost zero.

In Phase 1 of the diagram, the agricultural sector operates with constant wages as surplus labor continues to be absorbed into industry. The industrial sector, as long as it can access cheap, surplus labor from agriculture, keeps its demand for labor relatively constant, shown by a horizontal marginal product curve for labor in industry.

Phase 2: Labor Transfer Begins

Once the surplus labor from agriculture begins to move into industry, Phase 2 marks the beginning of labor transfer. The industrial sector absorbs this labor and starts to expand its production capacity. Because industry has a higher marginal productivity of labor than agriculture, the industrial sector can accommodate more labor without diminishing returns. The wages in the industrial sector start to rise as the demand for workers increases.

As labor moves from agriculture to industry, agricultural output may not decrease immediately because of the surplus labor in agriculture. Since agriculture operates with redundant labor, the total product in agriculture remains constant or even increases slightly due to more efficient labor use in both sectors.

During this phase, the wages in agriculture remain fixed at an institutional level because they are not driven by market forces. They remain constant due to institutional factors such as minimum wage laws or cultural norms. The wages in industry start to rise as labor is absorbed into more productive sectors.

This process of labor transfer creates a positive feedback loop: as industry expands, it increases the demand for labor, which draws even more workers from agriculture. This leads to higher wages in the industrial sector, making industrial jobs increasingly attractive to rural workers.

Phase 3: Commercialization and Wage Growth

In Phase 3, as labor continues to shift to the industrial sector, the agricultural sector faces a reduction in its labor force. As a result, agricultural wages start to rise. The rise in agricultural wages occurs because there is less surplus labor available for agriculture, increasing the competition for workers. This marks the beginning of the commercialization of agriculture, where agricultural wages move towards market levels and become more competitive with industrial wages.

At Point C in the diagram, the agricultural sector has now reached the commercialization point, where wages in agriculture are no longer set purely by institutional forces but are influenced by the competitive market forces. At this point, agriculture becomes more market-oriented, and the sector can offer higher wages to attract labor, making it more profitable and efficient. This point signals that the agricultural sector is no longer dependent on surplus labor and is evolving into a more capital-intensive, productivity-driven sector.

In contrast, industrial wages continue to rise as industries need to attract labor from the agricultural sector. The increasing industrial wages further motivate workers to leave agriculture for better-paying jobs in the cities. This process leads to an increasingly competitive labor market, where both sectors must offer attractive wages to recruit workers.

Implications of Labor Transfer

1. Agricultural Productivity and Capital Formation

As labor shifts from agriculture to industry, agricultural productivity begins to increase due to the reduced workforce, which results in higher capital intensity in agriculture. The remaining labor in agriculture works with more capital, better technology, and more advanced farming methods, leading to higher output per worker. This capital-intensive agriculture improves agricultural productivity even with a smaller labor force.

However, the reduction in agricultural labor has some short-term consequences. Agricultural output may initially decrease due to labor shortages, particularly in labor-intensive crops. As more labor moves to the industrial sector, agricultural production could suffer unless there is corresponding capital investment and technological improvement. This underscores the need for continuous **investment in agriculture** to maintain output levels despite the shrinking labor force.

2. Industrialization and Structural Change

The transition from agriculture to industry is the main driver of structural change in the economy. In the Fei-Ranis model, industrialization leads to the creation of new jobs, rising wages, and more efficient production. The industrial sector becomes the key driver of economic growth, and the economy shifts from being primarily agrarian to industrialized. This structural shift leads to increased overall productivity, as industries typically have higher marginal productivity of labor (MPL) compared to agriculture.

As labor moves to industry, industrial output increases, which drives economic growth, boosts capital accumulation, and creates more job opportunities. The industrial sector also benefits from economies of scale and technological innovation, which further enhance productivity. These developments support the long-term growth of the economy and help transition it from low-income, labor-intensive agriculture to a high-income, capital-intensive industrial sector.

3. Social and Economic Impacts

Labor transfer also has significant social and economic implications. As labor shifts from rural areas to urban centers, the urbanization process accelerates. Cities grow rapidly as people migrate in search of better employment opportunities, and this creates both opportunities and challenges. On the one hand, urbanization leads to increased demand for goods and services, stimulating further economic activity in cities. On the other hand, rapid urbanization can lead to issues such as overcrowding, housing shortages, and increased inequality if the industrial sector does not provide sufficient jobs for the growing urban population.

Additionally, the shift of labor from agriculture to industry may contribute to income inequality. Workers in agriculture who remain may experience wage stagnation or decline as their sector becomes less labor-intensive. In contrast, workers in the industrial sector may enjoy rising wages as they are absorbed into higher-productivity jobs. If the transition is not managed effectively, it can lead to **social tensions** between rural and urban populations and exacerbate regional economic disparities.

4. Institutional Factors and Market Forces

The Fei-Ranis model also highlights the importance of institutional factors in the labor transfer process. The wage-setting mechanisms in both sectors are influenced by institutional factors, such as government policies, labor unions, and minimum wage laws. In many developing countries, institutional factors often prevent wages in agriculture from adjusting to market conditions, leading to the persistence of disguised unemployment or underemployment in the agricultural sector. As the economy develops and labor transfers to industry, these institutional barriers begin to break down, allowing wages to adjust more freely.

In contrast, in countries with well-functioning labor markets and strong labor institutions, the labor transfer process may be smoother, as wages and employment levels adjust quickly in response to changes in labor supply and demand.

The mechanism of labor transfer in the Fei-Ranis model is a critical driver of economic growth and structural transformation. The gradual shift of labor from the agricultural sector, which initially employs surplus labor, to the industrial sector, where labor is more productive, leads to increased overall productivity, capital accumulation, and economic development. However, this process has significant social, economic, and institutional implications. Effective management of the transition from agriculture to industry, through policies that support both agricultural productivity and industrialization, is essential for ensuring that labor transfer leads to sustainable economic growth and reduces inequality.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the primary difference between the agricultural and industrial sectors in the Fei-Ranis model?

2. How does surplus labor in agriculture contribute to industrialization in the Fei-Ranis model?
3. What role does the marginal productivity of labor (MPL) play in the transition from agriculture to industry?
4. In Phase 1 of the Fei-Ranis model, why does the agricultural sector experience surplus labor?
5. How does agricultural investment impact industrial growth in the Fei-Ranis model?
6. How does the shift of labor from agriculture to industry lead to economic growth in the Fei-Ranis model?
7. How does the concept of agricultural surplus affect wages in the agricultural sector?
8. What happens to agricultural output as labor is transferred to the industrial sector in the Fei-Ranis model?
9. Explain the relationship between the total agricultural surplus (TAS) and the average agricultural surplus (AAS) during labor transfer.
10. How does the commercialization of agriculture impact the wage structure in both sectors?

11.6 Transition from Agricultural to Industrial Society

The transition from an agricultural to an industrial society is a cornerstone of economic development in the Fei-Ranis model. This shift entails a fundamental structural change in the economy, with labor moving from the agricultural sector—where productivity is low and surplus labor is abundant—into the industrial sector, which is characterized by higher productivity, greater capital investment, and advanced technology. The Fei-Ranis model emphasizes that for this transformation to be successful, key factors such as institutional changes and investment in technology play a crucial role in facilitating growth and fostering the industrialization process.

This section explores the factors that support the transition from an agricultural to an industrial economy, focusing on the importance of institutional changes that foster development, as well as the technological investments required to enhance productivity in both agriculture and industry. Both of these factors are integral to driving economic growth, ensuring the shift from subsistence agriculture to industrial production, and promoting a more diversified and dynamic economy.

11.6.1 Institutional Changes for Development

Institutional changes represent the policy-driven frameworks and reforms that support the structural transformation of an economy. In the context of the Fei-Ranis model, institutional changes are not only about the movement of labor from agriculture to industry but also about creating the conditions for economic modernization. These changes are critical for facilitating industrial growth, encouraging investment, and ensuring that labor can move effectively from the agricultural sector to the industrial sector without disrupting overall economic stability.

1. Property Rights and Land Reforms

One of the foundational institutional changes necessary for economic development is the reform of property rights in the agricultural sector. In many developing economies, land is often held by a small elite, with the majority of the rural population working as tenants or sharecroppers. This creates inefficiencies in the agricultural sector, as farmers have little incentive to invest in land or improve productivity.

Land reforms that grant secure land tenure to small-scale farmers are crucial for improving productivity in agriculture. By giving farmers ownership or long-term leases, they are more likely to invest in the land, adopt new technologies, and improve production methods. For example, the land reforms in Japan in the post-World War II period were instrumental in transforming agriculture, helping raise productivity and releasing surplus labor that could be absorbed into the industrial sector.

Similarly, China's land reforms during the late 20th century, particularly after the Household Responsibility System was introduced in the 1980s, allowed farmers to retain the produce from their land while making individual decisions about crop choice and land use. These reforms resulted in increased agricultural output, freeing labor for industrial employment and significantly reducing poverty.

2. Financial Institutions and Access to Capital

Effective financial institutions are essential for industrialization because they provide the capital needed for investment in both agriculture and industry. The Fei-Ranis model emphasizes the role of capital accumulation in industrial growth, which is facilitated by a functional financial system capable of mobilizing savings and directing them toward productive investments. This includes banking systems, credit markets, and capital markets that support both agricultural and industrial investments.

For example, microfinance institutions in countries such as Bangladesh have provided access to capital for small-scale farmers and entrepreneurs, enabling them to invest in technologies that improve productivity. Such financial institutions bridge the gap between agriculture and

industrialization by ensuring that the surplus generated in agriculture can be invested in the industrial sector, supporting its growth.

3. Legal and Regulatory Frameworks

Legal and regulatory frameworks are necessary for industrialization because they create the institutional foundation for a functioning market economy. These frameworks include property laws, contract enforcement, intellectual property rights, and labor laws. A robust legal system ensures that investors have confidence that their investments will be protected and that industries can operate in a fair and competitive environment.

For instance, the intellectual property rights (IPR) system has been central to the industrial growth of many countries, encouraging innovation and the protection of new technologies. South Korea's industrial development during the 1960s and 1970s, which included the establishment of legal protections for intellectual property, was a key factor in the country's rise as a global technology leader.

Moreover, labor laws that ensure fair wages, safe working conditions, and job security for industrial workers are critical for maintaining social stability and encouraging labor force participation in industrial growth.

4. Education and Human Capital Development

As economies shift from agriculture to industry, human capital development becomes vital. A well-educated and skilled workforce is essential for industrialization, as the growing industrial sector requires workers who can operate advanced machinery, manage production processes, and innovate in new fields. Investment in education, vocational training, and technical skills development is critical for ensuring that labor can transition from agriculture to more productive industrial jobs.

South Korea's education system, which emphasized the development of high-quality primary, secondary, and higher education, played a significant role in the country's successful transition to an industrialized economy. Likewise, Singapore's technical training programs have created a skilled workforce that is central to the country's success as a global financial hub.

11.6.2 Investment in Technology and Its Economic Impact

Technological progress is arguably the most significant driver of the transition from an agricultural to an industrial society. Investments in technology—whether in the form of new machinery, farming techniques, industrial processes, or digital innovations—are crucial for boosting productivity in both sectors and for ensuring that the industrial sector can absorb labor from the agricultural sector.

1. Technological Advancements in Agriculture

In the agricultural sector, technological improvements are essential for increasing productivity with fewer workers. Key technological innovations include mechanization (such as the use of tractors, harvesters, and irrigation systems), biotechnology (like genetically modified crops), and precision farming techniques that use data and analytics to optimize crop yields.

For example, the Green Revolution in India during the 1960s, which introduced high-yielding varieties of wheat and rice, as well as modern irrigation and farming practices, significantly boosted agricultural output. These technologies not only raised food production but also helped release surplus labor from agriculture, enabling that labor to be absorbed by the industrial sector. The introduction of mechanized farming methods also allowed farmers to increase their productivity, producing more with fewer workers and thus creating the labor needed for industrial employment.

2. Industrialization and Technological Advancements

As the economy transitions to an industrial base, technology in manufacturing plays a central role. Automation, robotics, advanced machinery, and artificial intelligence (AI) all contribute to increased productivity in industry. These technological advancements allow for the production of goods at lower costs and at a faster pace, thus boosting the growth of the industrial sector.

A historical example is the introduction of the assembly line by Henry Ford in the early 20th century, which revolutionized the automobile industry by reducing costs and increasing production efficiency. Similarly, more recent advances in robotics and automation have transformed industries such as electronics, automobiles, and consumer goods, leading to more efficient production and the creation of high-paying jobs in these sectors.

In developing economies, technology investments in industries such as textiles, manufacturing, and electronics have had a profound impact. For example, China's industrial growth in the 21st century has been largely fueled by investments in advanced manufacturing technologies, making the country the world's leading manufacturer of electronic goods, machinery, and textiles.

3. The Role of Information Technology (IT)²⁹⁶ and Services

The development of information technology (IT) and its integration into industrial processes have radically changed the way industries operate. The digital revolution, with innovations in software, cloud computing, and the internet, has opened up entirely new sectors, such as e-commerce, financial services, and technology-driven industries like fintech and software

development. These sectors not only contribute to GDP growth but also create new job opportunities, particularly in urban areas.

Countries such as India and Ireland have capitalized on IT as a source of economic growth, with India becoming a global hub for software development and outsourcing. In Ireland, a combination of investment in IT and favorable tax policies has helped establish the country as a leader in technology and pharmaceuticals.

4. Environmental Technology and Sustainability

As industrialization accelerates, environmental technology becomes crucial to ensure sustainable growth. Renewable energy, waste management systems, and energy-efficient technologies help mitigate the negative environmental impacts of industrialization. Investment in green technologies is essential for creating a sustainable industrial society that does not compromise future growth or environmental health.

The rise of solar energy, wind power, and electric vehicles reflects the shift toward greener technologies in the industrial sector. For instance, Germany's investment in renewable energy has made it one of the leaders in solar and wind power production, while Tesla's innovations in electric vehicles are helping drive the transition to a greener, more sustainable automotive industry.

The transition from an agricultural to an industrial society requires both institutional changes and technological investments to foster economic development. Institutional reforms in areas such as property rights, financial systems, labor laws, and education provide the foundation for a more dynamic economy, while technological advancements increase productivity in both the agricultural and industrial sectors. Together, these factors drive the structural transformation from an agrarian economy to a modern, industrialized economy capable of sustaining long-term growth, increased wages, and a higher standard of living for its population.

11.7 Theoretical and Policy Implications

The Fei-Ranis model of economic development has far-reaching theoretical and policy implications for understanding how economies²⁹⁷ transition from agrarian-based systems to industrialized ones. This model underscores the importance of labor mobility, capital accumulation, and agricultural productivity in stimulating industrial growth. It offers valuable insights into the structural transformation process that many developing economies undergo as they shift away from agriculture toward more diversified, industrial economies. In this section,

we will explore the theoretical underpinnings of the Fei-Ranis model and the policy implications for governments seeking to promote sustainable economic development.

Theoretical Implications

The Fei-Ranis model provides a framework for understanding the dynamics between the agricultural and industrial sectors and how this interplay fosters economic growth. Its key theoretical implications are centered on the dual-sector economy, labor mobility, and the role of agricultural surplus.

1. Dual-Sector Economy and Labor Transfer

One of the key theoretical contributions of the Fei-Ranis model is its depiction of the economy as a dual-sector system, with agriculture and industry operating as separate but interconnected sectors. This dual-sector model suggests that economic development proceeds in stages, where labor is first concentrated in agriculture, and as the industrial sector grows, labor is gradually transferred from agriculture to industry.

The model builds on the idea of surplus labor in agriculture, where additional workers do not significantly increase agricultural output because the marginal productivity of labor (MPL) in agriculture is low. The industrial sector, with its higher MPL, absorbs this surplus labor, leading to higher productivity, growth, and capital accumulation in both sectors. The theory suggests that the surplus labor in agriculture is a key driver of industrialization because it provides the necessary workforce for the emerging industrial economy.

This theory has profound implications for understanding development in economies where agriculture is still the dominant sector, particularly in less developed countries (LDCs). It emphasizes that economic growth does not require a sudden shift of all labor from agriculture to industry but can proceed gradually, allowing labor mobility to stimulate industrial growth without causing economic instability.

2. Agricultural Surplus and Capital Accumulation

A crucial aspect of the Fei-Ranis model is the relationship between agricultural surplus and industrialization. As labor moves from agriculture to industry, the surplus created by increased agricultural productivity—often fueled by technological advancements—becomes a source of capital for the industrial sector. The agricultural surplus generated through better farming techniques and higher yields can be reinvested in industrial development, leading to capital accumulation in the industrial sector.

This process shows that capital formation in an economy is not solely dependent on the industrial sector. It suggests that agricultural development can drive industrialization by

creating the necessary surplus for reinvestment, which is a crucial point for policymakers in agricultural economies. Reinvestment in agriculture not only boosts agricultural output but also contributes to the overall economic development of the country by stimulating the industrial sector.

3. The Role of Technological Advancements

The Fei-Ranis model highlights the importance of technological progress in both agriculture and industry. Agricultural productivity can be greatly enhanced through the use of new farming technologies, such as better irrigation systems, mechanization, and the introduction of genetically modified crops. These technological advancements not only increase agricultural output but also facilitate the movement of labor from agriculture to industry.

Similarly, industrial growth is closely tied to technological innovation. Investments in automation, robotics, and information technology can lead to significant productivity gains in the industrial sector. This technological shift also aligns with the model's focus on the dual-sector economy, where progress in one sector fuels development in the other.

Policy Implications

The Fei-Ranis model has several key policy implications that governments can implement to facilitate the transition from an agricultural to an industrial economy. These policies focus on managing labor mobility, supporting agricultural productivity, and promoting industrial growth. Successful implementation of these policies is critical for ensuring that the shift to an industrialized economy leads to sustainable economic development.

1. Policies for Facilitating Labor Transfer

One of the central policy implications of the Fei-Ranis model is the need for policies that support the smooth transfer of labor from agriculture to industry. Since agriculture initially provides the surplus labor needed for industrialization, it is essential for governments to facilitate this transition without destabilizing the agricultural sector. Key policies in this regard include:

- Investing in education and training: As labor moves to the industrial sector, workers need to acquire new skills. Governments should invest in education and vocational training to equip the labor force with the skills necessary for industrial jobs. Education in fields such as engineering, manufacturing, and technology is essential to ensuring a smooth transition and meeting the demand for skilled workers in the industrial sector.
- Urbanization policies: As labor moves from rural to urban areas, governments must create policies that ensure efficient urbanization. This includes the development of

infrastructure such as housing, transportation, and public services, to accommodate the growing urban population. The success of industrialization depends on the availability of labor in urban areas, and urban planning should anticipate and manage the migration of workers.

- Social protection programs: Labor transitions can be disruptive, particularly for workers moving from low-productivity agricultural jobs to industrial work. Governments can implement social protection programs to support these workers during the transition, such as unemployment insurance, retraining programs, and assistance for rural areas affected by labor outflow.

2. Policies for Agricultural Development

The Fei-Ranis model also stresses the importance of agricultural development as a prerequisite for industrialization. Even as labor moves from agriculture to industry, a strong agricultural sector remains crucial for generating surplus labor and capital to fuel industrial growth. Policymakers must focus on improving agricultural productivity through:

- Agricultural modernization: Governments should promote the adoption of new agricultural technologies, such as improved seeds, irrigation systems, and mechanized farming. These technologies increase agricultural output and reduce the need for labor in the sector, creating surplus labor for industrialization.
- Land reforms: Reforming land tenure systems is critical for increasing agricultural productivity. Providing secure land rights and promoting efficient land use ensures that farmers are incentivized to invest in their land and improve output.
- Financial support for farmers: Governments can support farmers by providing access to credit, subsidies for inputs like fertilizers and machinery, and extension services that help farmers adopt new technologies. This ensures that agriculture remains productive even as labor moves to industry.

3. Industrial Policies to Promote Growth

To ensure that the industrial sector can absorb labor and drive economic growth, governments must promote industrial development through targeted policies, including:

- Investment in infrastructure: Industrial³⁰⁰ growth requires significant investments in infrastructure such as roads, energy, water supply, and telecommunications. Governments must prioritize the development of infrastructure to support industrial activities and create an environment conducive to business.
- Support for industrial innovation: Governments should invest in research and development (R&D) to foster innovation in the industrial sector. Supporting the growth

of technology-driven industries such as information technology, biotechnology, and renewable energy can help create high-value jobs and accelerate economic development.

- Attracting foreign direct investment (FDI): To stimulate industrial growth, governments can implement policies that attract foreign investment. These policies may include tax incentives, trade liberalization, and improved regulations that make it easier for foreign companies to invest in the industrial sector.

4. Addressing Inequality and Regional Disparities

As labor moves from rural agricultural areas to urban industrial centers, regional inequalities may emerge. Policymakers need to address these disparities by ensuring that both urban and rural areas benefit from economic growth. Some key policies include:

- Regional development programs: These programs should aim to balance growth between urban and rural areas, promoting industrial development in smaller towns and rural areas to reduce migration pressure on cities.
- Redistribution policies: To reduce income inequality, governments can implement progressive taxation, social welfare programs, and policies that ensure fair wages in both agriculture and industry.

The Fei-Ranis model provides a valuable framework for understanding the dynamics of economic development in less developed countries. Its theoretical implications emphasize the importance of labor transfer, agricultural surplus, and capital accumulation in the industrialization process. Policymakers can take several steps to facilitate the transition from agriculture to industry, including reforms to labor markets, agricultural policies, and industrial development strategies. By implementing policies that support both sectors, governments can promote sustainable economic growth, reduce inequality, and achieve a more equitable distribution of wealth. The Fei-Ranis model offers essential guidance for managing the structural changes required for a successful transition to an industrial society.

11.8 Criticisms and Limitations of Fei & Ranis' ³⁰¹Model

While the Fei-Ranis model has been influential in the field of development economics, it is not without its criticisms and limitations. The model, which emphasizes the role of labor transfer from the agricultural sector to industry, the importance of agricultural surplus, and the gradual process of industrialization, provides a useful framework for understanding the development process. However, several aspects of the model have been criticized for oversimplifying certain

dynamics and for failing to account for complexities that arise in real-world economies. Below, we explore some of the key criticisms and limitations of the Fei-Ranis model.

1. Overemphasis on Surplus Labor

One of the most significant criticisms of the Fei-Ranis model is its overemphasis on surplus labor in the agricultural sector. The model assumes that in the early stages of development, labor in agriculture is surplus and can be easily transferred to the industrial sector without negatively affecting agricultural output. However, this assumption does not always hold true in many developing countries, where labor in agriculture is not necessarily redundant but may actually be needed for production.

In many countries, particularly in sub-Saharan Africa, agriculture faces labor shortages rather than surpluses, due to high levels of rural-urban migration, underdeveloped infrastructure, and low productivity in agriculture. In these economies, the idea of “surplus labor” is more nuanced, and the assumption that agriculture can afford to lose labor without impacting output may not be accurate.

Furthermore, the model assumes that the agricultural sector will always be able to accommodate the release of labor into industry without causing substantial declines in agricultural output. In reality, when labor leaves agriculture too quickly, it can lead to food insecurity and hinder agricultural growth, particularly in economies dependent on agriculture for sustenance and employment.

2. Neglect of Technological Advancements in Agriculture

The Fei-Ranis model does not sufficiently address the role of technological advancements in agriculture. Although the model acknowledges that agricultural productivity can be enhanced through capital accumulation and investment, it focuses more on the transfer of labor rather than the technological evolution of agriculture itself. In the real world, technological innovations such as genetically modified crops, advanced irrigation systems, and mechanized farming equipment can significantly increase agricultural output, reducing the need for surplus labor and promoting industrial growth indirectly.

For instance, in countries like Brazil, Argentina, and China, agricultural productivity has risen sharply due to technological advancements³⁰² and innovations in crop management. These innovations allow agriculture to sustain itself and grow while simultaneously releasing labor for industrial work. The Fei-Ranis model overlooks the potential of agriculture-led industrialization, where agricultural growth, spurred by technology, can drive industrial development through the accumulation of capital and the expansion of the labor force.

3. Assumption of Smooth Labor Transfer

The Fei-Ranis model assumes that the process of transferring labor from agriculture to industry is smooth and gradual. However, in many developing countries, this transition is far from seamless. The model assumes that industrial growth will always be able to absorb labor at a consistent rate, but in reality, several barriers to labor transfer can prevent a smooth transition, such as:

- **Skill mismatches:** Labor in agriculture is often unskilled and may require significant retraining to be absorbed into the industrial sector. The model assumes that workers can easily transition from agricultural jobs to industrial ones, but in many cases, the lack of skills and education hinders this shift.
- **Lack of infrastructure:** In many developing countries, especially in Africa and rural Asia, infrastructure such as transportation, energy, and communication networks is underdeveloped, making it difficult for industries to expand in rural areas or for laborers to migrate to urban centers.
- **Urbanization challenges:** The model does not address the potential challenges of rapid urbanization, such as overcrowded cities, informal housing, and insufficient public services. As rural workers move to urban areas, there may not be enough industrial jobs to absorb them, resulting in underemployment or unemployment.

These practical barriers can disrupt the smooth flow of labor from agriculture to industry, resulting in slower industrialization, increased inequality, and social unrest.

4. Limited Focus on External Factors

The Fei-Ranis model focuses predominantly on internal factors driving economic growth, such as the movement of labor and capital. However, the model does not sufficiently consider external factors that can significantly affect the transition from agriculture to industry. In particular:

- **Global trade dynamics:** Developing countries are often subject to global trade patterns and international market conditions that affect the success of their industrialization efforts. For example, developing economies may struggle to industrialize if they are subject to unfavorable trade terms or global market fluctuations that undermine the competitiveness of their industries.
- **Foreign direct investment (FDI):** The model overlooks the importance of foreign direct investment (FDI) in promoting industrial growth. FDI can be a major source of capital and technology transfer, which can significantly enhance the industrialization process in developing countries. Without external capital and technological assistance, many

developing economies may struggle to achieve the growth predicted by the Fei-Ranis model.

- Globalization and technological change: The rapid pace of globalization and technological advancements in recent decades has changed the dynamics of industrialization. The rise of automation, digital economies, and global supply chains means that industrialization is no longer solely dependent on the traditional labor-intensive industries that the Fei-Ranis model primarily emphasizes. These changes require economies to adapt to new challenges and opportunities, which the model does not fully account for.

5. Simplification of Agricultural Sector Dynamics

The Fei-Ranis model simplifies the dynamics of the agricultural sector by assuming that as labor is transferred to the industrial sector, the agricultural sector's marginal productivity increases, and agricultural output remains stable or rises slightly. However, this does not always hold true in practice. In many cases, the reduction in agricultural labor can have negative effects on food production, especially in economies with low productivity and limited technology in agriculture.

For instance, in developing countries with smallholder farming systems, a large portion of agricultural labor is necessary for tasks such as planting, harvesting, and processing. The rapid movement of labor out of agriculture can therefore result in decreased agricultural output, food shortages, and economic instability, particularly if there are insufficient investments in agricultural productivity.

6. Over-simplification of the Capital-Industrialization Link

The Fei-Ranis model suggests that the surplus labor from agriculture provides the capital needed for industrial growth, assuming a simple, direct relationship between capital accumulation in agriculture and the growth of industry. In practice, however, this link is more complex. The model fails to account for the fact that:

- Capital formation in agriculture might not always be sufficient to drive industrialization. For example, agricultural surpluses might be consumed domestically or invested in non-industrial sectors,³⁰⁴ limiting the available capital for industrial development.
- Industrial growth may require additional factors, such as foreign capital, technology transfer, and advanced infrastructure, which are not automatically generated by agricultural surpluses alone. The Fei-Ranis model's assumption of a seamless transfer

of capital from agriculture to industry underestimates the structural constraints that many developing countries face in achieving industrial growth.

While the Fei-Ranis model provides valuable insights into the process of economic development and industrialization, its assumptions and simplifications limit its applicability to real-world economies. The model's overemphasis on surplus labor, the assumption of smooth labor transfer, and its neglect of external factors, technological advancements, and the complexities of the agricultural sector all present significant limitations. Policymakers and economists must consider these criticisms when applying the model to contemporary development challenges. More nuanced models that incorporate the role of external influences, technological change, and the social dynamics of development are needed to fully understand the complex process of transitioning from an agricultural to an industrial economy.

Check your Progress - II

Based on your understanding of the previous section, answer these questions in your own words:

1. What role do institutional changes play in facilitating the transition from an agricultural to an industrial society?
2. How do land reforms contribute to industrialization in the Fei-Ranis model?
3. Why is investment in technology crucial for economic development in both agriculture and industry?
4. What is the impact of agricultural technological advancements on labor transfer to industry?
5. How does the Fei-Ranis model explain the relationship between agricultural surplus and industrial capital accumulation?
6. What are the main barriers to smooth labor transfer from agriculture to industry in developing economies?
7. How does the Fei-Ranis model account for external factors such as globalization and trade in the industrialization process?
8. Why does the Fei-Ranis model oversimplify the dynamics of agricultural productivity during labor transfer?

9. What are the criticisms of the Fei-Ranis model regarding its treatment of capital formation for industrial growth?
10. How can policymakers address the limitations of the Fei-Ranis model in real-world economic development strategies?

11.9 Glossary

1. **Agricultural Surplus:** Excess agricultural output that is not consumed by the population, but can be used for reinvestment and labor transfer to the industrial sector.
2. **Marginal Productivity of Labor (MPL):** The additional output generated by one more unit of labor in a given sector. In agriculture, MPL tends to be low or zero during early development stages.
3. **Capital Accumulation:** The process of gathering or accumulating capital, such as machinery, tools, and infrastructure, which facilitates industrialization and supports growth.
4. **Surplus Labor:** Labor that is employed in sectors with low productivity (e.g., agriculture), where additional labor does not significantly increase output.
5. **Labor Transfer:** The process by which labor moves from the agricultural sector, where productivity is low, to the industrial sector, where productivity is higher and wages are typically better.
6. **Institutional Reforms:** Changes in laws, regulations, and policies that improve the efficiency and functionality of markets and sectors, such as land reform or financial sector development.
7. **Technological Advancements:** Innovations and improvements in tools, machinery, and processes that increase productivity in both agriculture and industry.

11.10 Let's Sum Up

1. **Dual-Sector Model:** The Fei-Ranis model highlights the transition of labor from agriculture to industry, with agriculture providing surplus labor that fuels industrial growth.
2. **Role of Agriculture:** Agriculture not only provides surplus labor but also generates capital through increased productivity that supports industrialization.
3. **Labor Transfer Mechanism:** Labor is gradually absorbed into the industrial sector, leading to increased productivity and economic development in both sectors.

4. **Institutional and Technological Change:** Effective institutional reforms and technological innovations in agriculture and industry are critical for the successful transition from agriculture to industry.
5. **Surplus Labor in Agriculture:** The model stresses that surplus labor in agriculture, where marginal productivity is low, provides the workforce necessary for industrial expansion.
6. **Capital for Industrialization:** The agricultural surplus and capital generated through increased productivity are reinvested into industrial sectors, leading to sustainable economic growth.
7. **Criticisms of the Model:** The model oversimplifies labor transfer, neglects technological advancements in agriculture, and assumes a smooth labor transfer process, which may not always be true in developing economies.

11.11 Suggested Readings

- Economic Development by Michael P. Todaro & Stephen C. Smith (2015) – A comprehensive text on development economics, covering various growth models, including Fei-Ranis.
- Development Economics by Debraj Ray (1998) – An in-depth analysis of development theories, focusing on agriculture, industry, and labor market dynamics.
- Theories of Development: Contentions, Arguments, Alternatives by Peter Preston (1996) – A critical exploration of development theories, including the role of structural change in economic development.
- Industrialization and Development: A Comparative Analysis by Peter N. L. Chia (2007) – A detailed examination of industrialization processes and their impact on economic growth.
- Agricultural Development and Economic Growth by R.E. Evenson & L. Gollin (2003) – A key resource for understanding agricultural productivity and its role in facilitating industrialization.

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11.12 Hints to Check Your Progress (CYP)

CYP-I

Q1. Refer to Section 11.3 and review the Fei-Ranis model's key concepts, such as the role of surplus labor and its contribution to industrialization through the transfer from agriculture to industry.

Q2. Review Section 11.4 to understand the relationship between agricultural surplus and the transfer of labor to industry. Pay particular attention to how agricultural productivity and investment in agriculture support the industrial sector.

Q3. For a deeper understanding, revisit Section 11.5 to explore the mechanism of labor transfer and its implications for the growth of the industrial sector, focusing on marginal productivity and labor absorption.

Q4. Go over Section 11.5 to better understand the dynamics of industrial growth and how the labor market adjusts when surplus labor is absorbed into the industrial sector.

Q5. Refer to Section 11.3 to review the theoretical foundations of the dual-sector economy and how the Fei-Ranis model explains the gradual transition of labor and capital from agriculture to industry.

CYP-II

Q1. To understand the importance of institutional reforms in economic development, refer to Section 11.6.1 and review how changes in property rights, financial institutions, and educational systems support the shift to an industrial economy.

Q2. Review Section 11.6.2 to explore the role of technological investments in agriculture and industry, focusing on how innovation drives productivity and supports the transition to an industrial society.

Q3. Revisit Section 11.7 to evaluate the theoretical implications of the Fei-Ranis model, particularly how capital accumulation and labor transfer are central to economic growth.

Q4. For a better understanding of the criticisms of the Fei-Ranis model, revisit Section 11.8 to explore its limitations, such as the oversimplification of labor transfer and its neglect of technological advancements in agriculture. 308

Q5. Refer to Section 11.8 to examine the external factors affecting industrialization that are often overlooked in the Fei-Ranis model, such as globalization, foreign direct investment, and global trade dynamics.

11.13 Examination-Oriented Questions

Q1. Discuss the Fei-Ranis model of economic development and explain how labor transfer from agriculture to industry drives economic growth.

- Introduction to the Fei-Ranis model: Briefly introduce the two-sector model and the main assumptions regarding agriculture and industry.
- Surplus Labor Concept: Explain the concept of surplus labor in agriculture and how it provides the industrial sector with the necessary workforce.
- Labor Transfer Mechanism: Discuss how surplus labor is absorbed into the industrial sector, increasing productivity and capital accumulation in both sectors.
- Economic Growth: Highlight the link between labor transfer, industrial growth, and overall economic development, emphasizing how labor transfer leads to a rise in capital and industrial output.

Q2. What are the institutional changes required for successful industrialization according to the Fei-Ranis model?

- Role of Institutions: Define the role of institutions in economic development, focusing on how property rights, legal frameworks, and financial systems support industrialization.
- Land Reforms: Explain how land reforms, such as improving land tenure and enabling access to land, contribute to agricultural productivity and labor release.
- Financial Development: Discuss the importance of financial institutions in mobilizing capital from agriculture for investment in industrial growth.
- Education and Human Capital: Mention the significance of education and vocational training in preparing the workforce for industrial jobs and supporting labor mobility.

Q3. Explain the role of technological advancement in facilitating the transition from an agricultural to an industrial economy.

- Technological Progress in Agriculture: Discuss technological advancements in farming (e.g., mechanization, better seed varieties, and irrigation) and how they free up labor for industry.
- Industrialization and Innovation: Explain how technological advancements in industry, such as automation and innovation, boost industrial productivity and attract more labor.

- Capital Formation: Highlight how technological improvements contribute to higher productivity in both sectors, leading to capital accumulation that funds industrial expansion.
- Real-World Examples: Use examples of countries like China or India where technological advancements in agriculture have supported industrial growth.

Q4. Critically evaluate the criticisms and limitations of the Fei-Ranis model in the context of modern economic development.

- Overemphasis on Surplus Labor: Critically examine the assumption that surplus labor is always available in agriculture, and how this does not hold true in many developing countries.
- Neglect of Technological Innovation in Agriculture: Point out the model's limited consideration of the role of agricultural technology in enhancing productivity and reducing the need for surplus labor.
- Labor Transfer Issues: Discuss the challenges of labor transfer, such as skill mismatches, infrastructure constraints, and urbanization challenges, that prevent a smooth transition.
- External Factors: Evaluate the model's neglect of external influences such as globalization, trade, and foreign direct investment (FDI), which have become more prominent in modern economic development.

Q5. How do capital accumulation and agricultural surplus contribute to industrialization according to the Fei-Ranis model?

- Capital Formation through Agricultural Surplus: Explain how agricultural surplus, generated by technological improvements and higher productivity, provides the capital needed for industrial growth.
- Capital Investment in Industry: Discuss how the capital generated in agriculture is reinvested in industry, leading to industrial expansion and job creation.
- Role of Surplus Labor: Mention how the labor released from agriculture, due to increased agricultural efficiency, is absorbed into industry, further driving economic growth.
- Economic Cycle: Describe the cyclical process of agricultural growth leading to industrialization, where higher agricultural productivity fuels more capital formation, which in turn sustains industrial growth.

Strategies of Economic Development- Balanced & Unbalanced Theory

STRUCTURE

12.0 Objectives

12.1 Learning Outcomes

12.2 Introduction

12.3 The Theory of Balanced Growth

12.3.1 The Size of Market and the Inducement to Invest

12.3.2 Determinants of the Size of the Market

12.3.3 The Need and Rationale of Balanced Growth

12.3.4 How Can Balance Growth Be Accomplished

12.3.5 A Critical Appraisal of the Balanced Growth Theory

12.4 Theory of Unbalanced Growth

12.4.1 Meaning of Unbalanced Growth

12.4.2 Explaining the Theory of Unbalanced Growth

12.4.3 Classification of Investment by Hirschman

12.4.4 Balanced Growth Path

12.4.5 Growth Process

12.4.6 Forward and Backward Linkages

12.4.7 Features of Theory of Unbalanced Growth

12.4.8 Merit of the Theory of Unbalanced Growth

12.4.9 Criticism of the Unbalanced Theory of Growth

12.5 Lets Sum-up

12.6 Glossary

12.7 Further Readings

12.8 Hints to Check your Progress (CYP)

12.10 Self- Assessment Exercises

12.0 OBJECTIVES

After going through this lesson, the students should be able to:

1. Understand the concept and significance of Balanced Growth Theory.
2. Explain the Size of the Market and Its Impact on Investment Decisions.
3. Analyze the Determinants of Market Size.
4. Evaluate the Need and Rationale for Balanced Growth.
5. Discuss How Balanced Growth Can Be Accomplished.
6. Understand the Theory of Unbalanced Growth.
7. Examine the Features and Criticisms of Unbalanced Growth Theory.

12.1 Learning Outcomes

After completing this lesson, students will be able to:

1. Explain and compare key development strategies such as Balanced Growth, Unbalanced Growth, Big Push, Critical Minimum Effort, and Low-Level Equilibrium Trap.
2. Understand the role of investment patterns, externalities, and linkages in economic growth models.
3. Analyze the challenges and limitations of applying different growth theories to underdeveloped economies.

4. Evaluate the importance of strategic sectors and state intervention in initiating and sustaining economic development.

12.2 Introduction

The big push model is a concept in development economics or welfare economics that emphasizes that a firm's decision whether to industrialize or not depends on its expectation of what other firms will do. It assumes economies of scale and oligopolistic market structure and explains when industrialization would happen.

The originator of this theory was Paul Rosenstein-Rodan in 1943. Further contributions were made later on by Murphy, Shleifer and Robert W. Vishny in 1989. Analysis of this economic model ordinarily involves using game theory.

The theory of the model emphasizes that underdeveloped countries require large amounts of investments to embark on the path of economic development from their present state of backwardness. This theory proposes that a 'bit by bit' investment programme will not impact the process of growth as much as is required for developing countries.

The critical minimum effort theory has been given by Harvey Leibenstein, in his book, "Economic Backwardness and Economic Growth". This theory relates to overpopulated and underdeveloped or developing nations such as India and Indonesia. This theory is based on Malthusian theory of population.

This theory is one of the balanced growth theories. In this theory Leibenstein essentially talks about how large doses of investments in an economy can help the economy in development.

The low-level equilibrium trap is a concept in economics developed by Richard R. Nelson, in which at low levels of per capita income people are too poor to save and invest much, and this low level of investment results in low rate of growth in national income. As per capita income rises above a certain minimum level at which there is zero saving, a rising proportion of income will be saved and invested and this will lead to higher rate of growth in income.

12.3 THE THEORY OF BALANCED GROWTH

We can distinguish at least four versions of the balanced growth theory depending upon the size of the balanced growth programme.

1. The first and the narrowest version of the theory (put forward by P.N. Rosenstein-Rodan in his article 'Problems of industrialization of Eastern and South Eastern Europe' first published in 1943) confined the balanced growth programme to the production of light consumers' goods. The argument was that a single factory, even when it uses more efficient methods of production, would fail to set up on its own because of the smallness of the market outlet for its output. Therefore, what is required is the simultaneous setting up of a number of factories producing different consumer goods so that between them they create enough new employment and purchasing power to provide a sufficiently large market for each other.
2. The second version of the theory advocates simultaneous investment in consumers' goods industries and social overhead capital. Investment in the latter is considered essential because a number of underdeveloped countries (particularly in Asia and Africa) have inadequate transport and communication facilities and insufficient power supply. However, since investments in social overhead capital are 'lumpy' this version emphasizes the 'technical individuality in social overhead capital'.
3. The third version emphasizes the simultaneous setting up of industries in the consumers' goods sector. Thus, this version of the balanced growth theory advocates a comprehensive and integrated programme of industrialization. It is argued that for a country to initiate successful economic development it is necessary not only to enlarge the size of the market and obtain the 'internal economies' of large-scale production, but also to obtain the external economies which arise from simultaneously setting up industries which are technically interdependent with each other. Technical complementarities do not usually exist between a horizontal group of

consumers goods industries at the same stage of production but are very important between a vertical group of industries at different stages of production.

4. The fourth version of the theory advocates balanced growth of the industrial and agricultural sectors of the economy. This version realizes, and quite rightly so, that the expansion and broad inter balance between agriculture and manufacturing is necessary so that each of these sectors provides the market for the products of the other sector and in turn, supplies the necessary ingredients for the development of the other.

12.3.1 THE SIZE OF MARKET AND THE INDUCEMENT TO INVEST

Adam Smith had long ago asserted in his “Wealth of Nations” that the division of labour is limited by the extent of the market. Allyn A. Young reinterpreted Smith’s proposition and argued that inducement to invest is limited by the size of market. Nurkse approvingly refers to Young’s reinterpretation of Smith’s proposition so he uses it for the analysis of the vicious circle of poverty that exists in underdeveloped countries. Underdeveloped countries suffer from shortage of purchasing power and, as a consequence, their domestic markets are limited. Since the demand for various consumer goods and services remains generally small, it is but natural that the demand for capital is also small. Now let us understand in what sense economists talk of shortage of purchasing power in underdeveloped countries. Obviously they do not mean that the purchasing power in money is lacking in these countries.

The size of market determines inducement to invest irrespective of the nature of economy. In an exchange economy the small size of the market discourages big scale use of capital, because the entrepreneurs invariably take decision in respect of the size of plant on the basis of the demand for the concerned product. Let us, for example, consider the case of automobile industry. Say under given technological conditions only three plants with annual capacity to manufacture 1 lakh, 5 lakh and 10 lakh, motor vehicles are available. Since even the smallest plant is too big for small countries like Sri Lanka, Sudan, Kenya, Fiji, Angola, etc. none of these countries will setup

automobile industry. Demand for motor vehicles is certainly much more in bigger underdeveloped countries like India, Brazil, Argentina, Indonesia, etc. than in smaller underdeveloped countries, but even in these countries setting up of a relatively bigger plant will not be an economically viable proposition. There are bigger markets for automobiles in Germany, the U.K., France, Italy and Japan though their population is far less than that of India. People in developed countries are affluent and their demand for automobiles is large. Hence automobile manufacturing units on big scales have been established in these countries and the capital investment in them is massive.

When we consider the question of inducement to invest in terms of aggregated demand, we notice that because of the low level of national incomes in less developed countries, their aggregate expenditure on consumer goods is low and as such investors hardly get any incentive for big investment in large scale industrial units. In the early seventies with the exception of China and India there was no Third World country whose national income exceeded the annual income of the General Motors of the United States.

In the exchange economy of the real world when an entrepreneur looks at the limited size of the market for a particular product, he decides not to enter the industry concerned. He knows that the big industrial unit employing capital-intensive technique, in spite of its technological soundness, will not prove to be an economically viable proposition. Individual entrepreneurs, however, sometimes make investment with the hope that they will succeed in attracting buyers for their produce through advertisement. There is no doubt that such a thing does actually happen in a free market economy. In this manner markets for individual products are expanded but advertisement will not help in expanding aggregate demand in any country. In underdeveloped countries, however, even the markets for individual products cannot be expanded as the people subsisting under sub human living conditions are not expected to increase their spending on various goods in response to advertisements made by the producers.

12.3.2 DETERMINANTS OF THE SIZE OF THE MARKET

In order to break the vicious circle of poverty in a less developed country, the inducement to invest has to be increased by expanding the size of the market.

Some people believe that the size of the market can be expanded by increasing the money supply. According to Nurkse, this viewpoint is theoretically incorrect. He has traced the root of this wrong notion to an attempt to apply Keynes' theory in underdeveloped countries where prevailing conditions are entirely different from those in the developed countries. Nurkse has forcefully argued that the effective demand does not lack in underdeveloped countries in the Keynesian sense. In other words, the real purchasing power lacks due to low level of productivity and cannot be increased merely by expanding the quantity of money. If the demand is to be augmented or, one may say that, if the market is to be expanded, the supply of goods and services must be increased. In underdeveloped countries, because of the low level of production, supply is limited and since there is shortage of capital in these countries it cannot be easily expanded either.

The size of population does not affect the extent of domestic market in a decisive manner. In highly populated underdeveloped countries, the size of the market remains limited due to low levels of productivity resulting in low per capita incomes. In contrast, there are developed rich countries with extensive markets in spite of their smaller population. Since their national incomes are larger due to high levels of productivity, their consumption spending is also greater than those in highly populated underdeveloped countries.

According to Nurkse, the size of the market mainly depends on the level of productivity. When we examine the problem links totality, we observe that the amount of production not only determines the extent of the market, it also decides the limits of the expansion of the market. Stability in neither the output of goods and services nor in their amount of consumption will be necessary even though the population of the country remains unchanged. An improvement in the productivity level generally increases the flow of goods and services and the consumption level also rises in response to it. Therefore, underdeveloped countries should endeavour to raise their productivity levels both in agricultural and industry. In less developed countries even now farming

techniques are traditional. As a consequence, agriculture hardly contributes 40 to 45 per cent of the national income in these countries though working population.

The low agricultural productivity is possibly the main reason why there is not much demand for industrial goods in the countryside. Once meaningful land reforms are carried out in a country, and the tiller of the soil becomes the owner of the land, scope for agricultural development is created. Farmers while enjoying the proprietary rights make all possible attempts to raise the productivity on their farms. For this purpose, they may create irrigation facilities. They can also use high yielding variety of seeds, fertilizers, pesticides etc. and if farm size permits, they may switch over to mechanized farming. These efforts invariably raise the farm productivity and thus farmers have larger purchasing power with them. Their living standard rises above the subsistence level and increased demands are made for all sorts of manufactured goods. This expansion of market provides incentive to investors who hopefully make larger investments. It is a well known fact of history that the industrialists in France, England and some other European countries had strongly advocated land reforms in the period of industrial revolution because they had known that it would release latent productive forces in agriculture, which, in turn, would raise the agricultural productivity. This development in agriculture was logical as it created large demands for industrial products in the countryside.

In discussion on the size of the market, it is often that in case of stability in the money incomes, it is possible to expand the market merely by lowering down the prices. This policy will, however, work only when the money and the real incomes of the people rise. The size of the market may also expand if the money incomes of the people rise while the prices remain unchanged. But this too will materialize only when the real incomes of the people rise as a consequence of an increase in productive efficiency.

12.3.3 THE NEED AND RATIONALE OF BALANCED GROWTH

Rosenstein-Rodan has strongly made out a case for the balanced growth in his famous article of 1943. Marginal investment is different from its Private Marginal Product and if in some country a

group of industries are set up together in accordance with their Marginal Products, the economy records a higher rate of growth than that would be possible otherwise.

Individual private entrepreneur is never interested in knowing the Social Marginal Product of an investment because this does not influence his decisions with respect to his investment activity. His entire concern is with the Private Marginal Product of the investment.

Rosenstein-Rodan gives some examples to prove his fundamental argument. In these examples he underlines the point that the Social Marginal Product of an investment could be greater than its Private Marginal Product. His examples, however, are not to be confused with his basic argument and if any example is found logically inconsistent, it should not mean that the basic argument also suffers from a logical mistake. Rosenstein-Rodan's one example which has now become a classic is as to how investment in a factory in one line of production reduces the risk for some other firms in the various other lines of production. Rosenstein-Rodan in this example argues that when a new factory (shoe-making factory) is set up in a new region and employs hitherto unemployed workers, the problem this factory might face would be that there may not be enough demand for its product because the workers will not spend all their earnings on it. However, if investment is made in a number of industries simultaneously, there would be no shortage of demand. The rising income of the people engaged in these diverse industries would provide sufficient market for all the goods. Increased supply of goods would, therefore, generate its own demand. Rosenstein-Rodan's other example is the training of labour for the new technological processes of production. Such a training programme is often unprofitable from the standpoint of the society. Rosenstein-Rodan thus argues that external economies of this sort cannot be overlooked particularly in countries which are in the process of structural transformation and where optimization of social gains from given investments is of prime importance.

Nurkse was not concerned with the problem that arises from the Social Marginal Product of an investment exceeding its Private Marginal Product. According to him, the limited size of market is the main obstacle to economic development and in order to overcome this problem there has to

be an all-round improvement in the productivity. It is thus quite logical for him to argue that a large-scale investment programme should be undertaken by the underdeveloped countries to enlarge the size of their market.

WA. Lewis has advocated balanced growth for two reasons which are not clearly distinguishable from one other. The first reason why Lewis wants balanced growth is that as the economy expands the relative prices of the products of the different sectors of the economy should remain unaltered. This is necessary for preventing discouragement to any one sector that may be caused by the movement of the terms of trade against it. The other reason why balanced growth strategy is to be adopted is that in order to avoid any severe bottlenecks in the process of the economy's expansion the growth in the different sectors should be in accordance with the income elasticity's of demand for their products. For building up his argument Lewis considers a case of an economy having three broad sectors, viz., agricultural production for the home market, industrial production for the home market and exports. In his opinion, if the industrial output for home market increases, it causes an expansion in the demand for agricultural products (the assumption of course is that the income elasticity of demand for agricultural goods is greater than zero). This demand obviously has to be met by the increased output of agricultural products. In case, such a thing does not happen, then the exports should increase to enable the country to meet its increased demand for agricultural goods by increased imports. Similarly in case of agricultural development led growth, demand for industrial products will increase, and this will require expansion in the industrial output for domestic consumption. If the industrial output for home market does not expand, exports of the country should increase sufficiently to enable it to meet its increased demand for industrial goods by increasing imports. Only in the case of an increase in exports a balancing increase in the output in both agricultural and industrial sectors for the home market would not be necessary. Lewis, however, does not favour a strategy of growth which is totally dependent on increased exports. In his opinion, such a policy may turn the terms of trade against the country which pursues it." **R.V. Findlay has pointed out that the two reasons stated by Lewis for adopting the strategy of balanced growth are not always consistent. He shows with reference**

to a two-goods model with given production functions that the two will not be consistent if rate of capital accumulation is the same or lower than the rate of increase in the workforce.”

12.3.4 HOW CAN BALANCE GROWTH BE ACCOMPLISHED

Balanced growth may be accomplished in two ways. Where as in a mixed economy reliance is placed on price incentives for maintaining a balance among the various sectors in the process of its development, in a planned economy this objective is realised by the State through its intervention in the economy. When some country employs price incentives for achieving the objective of balanced growth, not only growth rate remains relatively modest, but the balance among the various sectors of the economy and also within each sector is brought about rather slowly. Further, it involves risk of technological problems becoming rather formidable. If all this happens, the possibility of growth rate turning out to be inadequate for a country in which pressure of population is considerable cannot be ruled out.

Nurkse asserts that presently underdeveloped countries have no choice except to follow the balanced growth path. For accomplishing the task of development, whether a country should introduce planning or it can wholly rely on private enterprise is a subject of great controversy. In Nurkse's opinion, the question about who should promote and direct the development process should not concern economists. This is simply an administrative problem. For an economist, it is enough to emphasize that irrespective of the form of administration, the investment should be dispersed over a wide range of industries so that markets for their products expand adequately. However, general consensus amongst the economists of underdeveloped countries these days is that the amount of investment that balanced growth theory requires is simply beyond the capacity of the private entrepreneurs. Therefore, the State must undertake the initiative on own or in cooperation with the private sector. Many economists also argue that even if the private sector is in a position to undertake the responsibility of initiating a balanced growth programme, the socio-economic milieu of the underdeveloped countries requires active participation of the State. absence of such participation, inequalities in income, wealth and economic power are bound to

increase as development proceeds.

12.3.5 A CRITICAL APPRAISAL OF THE BALANCED GROWTH THEORY

- **The Inadequacy of resources.** Like the theory of the big push, the theory of balanced growth also fails to take into account the inadequacy of resources in the underdeveloped countries. In fact, it is precisely because of the inadequacy of resources that these countries are underdeveloped. How can they be then expected to invest simultaneously over a large range of industries and the agricultural sector? Since the theory of balanced growth advocates investment in agriculture also, the size of the investment programme would be much larger than advocated even by the theory of the big push. Given the paucity of resources in these countries it is difficult to visualize how they can undertake such a massive programme of investment. As emphasized by A.O. Hirschman, the application of balanced growth doctrine requires huge amounts of precisely those abilities (particularly, entrepreneurial ability) which are in extremely short supply in underdeveloped countries.
- **Applies to underemployment in the developed countries.** According to Hirschman, balanced growth doctrine is a right therapy for a situation of underemployment in the developed countries. In conditions of slack activity and underemployment conditions in these countries, the resources, machines, entrepreneurs, etc., are all present. What is lacking is sufficient demand to work as an inducement to invest. In such circumstances, simultaneous investment in a large number of industries is a right policy since it would enlarge the size of the market and push up the demand for the products of all industries. This would enable the economy to get out of the situation of slump and underemployment. However, since the underdeveloped countries do not possess the necessary machinery, entrepreneurs, etc. simultaneous investment in a large number of industries is just not possible. Hans W. Singer is quite right in his assertion that the doctrine of balanced growth is premature rather than wrong as it is applicable to a subsequent stage of sustained growth rather than to the breaking of a deadlock.

- **Fails as a theory of development.** Hirschman argues that the theory of balanced growth fails as a theory of development. Development presumably means the process of change of one type of economy into some other more advanced type. However, the theory of balanced growth fails to perceive this and advocates that “an entirely new, self-contained modern industrial economy must be superimposed on the stagnant and equally self-contained traditional sector.” This ‘jumping’ from one stage of development to another and considerably higher stage of development is not growth. It is a perfectly dualistic pattern of development.
- **Relationship between Industries competitive.** As noted earlier, the theory of balanced growth is based on the complementarity of demand as the persons working in different industries become each other’s customers and create demand sufficient to exhaust all output. However, it fails to realize that due to the scarcity of resources in underdeveloped countries, the relationship between different industries is not complementary but competitive as they have to compete amongst themselves for the same resources.’
- **Lacks historical sense.** Hans W. Singer argues that the theory of balanced growth lacks historical sense. It assumes that an underdeveloped country starts from a scratch. In reality, every underdeveloped country starts from a position that reflects previous investment decisions and previous development. Thus, at any point of time there are highly desirable investment programmes which are not in themselves balanced investment packages, but which represent unbalanced investment to complement existing imbalance. And once such an investment is made, a new imbalance is likely to appear which will require still another ‘balancing’ investment, and so on. Therefore, historically speaking, growth does not take place in a balanced way but is unbalanced.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your

own words:

Q1 (a) What are the four main versions of the Balanced Growth Theory?

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(b) Why is a large-scale investment programme necessary in the balanced growth model?

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Q2 (a) Explain Rosenstein-Rodan's argument for simultaneous investment across industries.

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(b) How does the size of the market affect investment decisions in underdeveloped countries?

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12.4 THEORY OF UNBALANCED GROWTH

12.4.1 MEANING OF UNBALANCED GROWTH

Scholars such as Hirschman, Rostow, Fleming and Singer propounded the theory of unbalanced growth as a strategy of development to be used by the underdeveloped countries.

This theory stresses on the need of investment in strategic sectors of the economy instead of all the sectors simultaneously.

According to this theory, the other sectors would automatically develop themselves through what is known as “linkages effect”.

12.4.2 EXPLAINING THE THEORY OF UNBALANCED GROWTH

Prof. Hirschman that creating imbalances in the system is the best strategy for growth. Owing to the lack of availability of resources in the less developed countries, the little that is available must be used efficiently.

Accordingly strategic sectors in the economy should get priority or precedence over others where income is concerned.

1. External Economies: –

Unbalanced growth according to Prof. Hirschman generates externalities. Further explaining, we could say that the growth of industry A leads to or stimulates the growth of industry B and C and so on, similarly the growth of industry B and C will lead to the subsequent growth of industries E and F. Thus, the growth of a strategic industries apart from providing the benefits belonging to itself also stimulates the growth of other set of industries. The existing externalities are explored, and fresh ones generated.

2. Complementaries:–

Growth of output of industry A may generate the demand for the products of B and C and also

may reduce the marginal cost of production in these industries.

There are technical complementaries which stimulate the growth of related industries, following the strategy of unbalanced growth.

Thus states Prof. Hirschman, "Economic growth follows the course of imbalances in the system. Competitions, tensions as well as inducements are the inevitable outcome of the unbalanced growth, and more these are, greater the prospects of growth."

12.4.3 CLASSIFICATION OF INVESTMENT BY HIRSCHMAN:

A. Social Overhead Capital or SOC:

Social overhead capital comprises of those basic devices without which primary, secondary and tertiary activities cannot function. This includes in it the expenditure on roads, irrigation works, power, transport and communications. The investment on these projects create more economies and this is called divergent series of investment. Such investments are undertaken by Public agencies.

B. Direct Productive Activities or DPA:

These are those activities which are a consequence of some investment, add to the flow of final goods and services. It is called convergent series of investment because these project appropriate more economies than they have created. These series of investments are undertaken by private entrepreneurs. Thus investment in agriculture or industry would be deemed as that belonging to Direct Productive Activities.

Therefore, both SOC and DPA cannot be taken up simultaneously in less developed countries, owing to the general lack of resources. Initially, we should concentrate on either of the two, the other one would be automatically stimulated.

Hirschman, thus suggests the growth of the economy in two ways:

1) Unbalancing the economy through SOC: Growth of SOC, according to Hirschman would stimulate investment in DPA. For example, availability of cheap electricity is expected to encourage the growth of small scale industries. Similarly, the development of irrigation works is expected to stimulate the growth of agricultural works.

2) Unbalancing the economy with Direct Productive Activities or DPA: Investment in DPA would press for investment in SOC. Demand for irrigation, roads, transport and communication would increase, pressing for greater investment in these activities. It is through this process of linkages that the economy will grow.

12.4.4 BALANCED GROWTH PATH

Fig 7.1 demonstrates the path of development, using strategy of unbalanced growth.

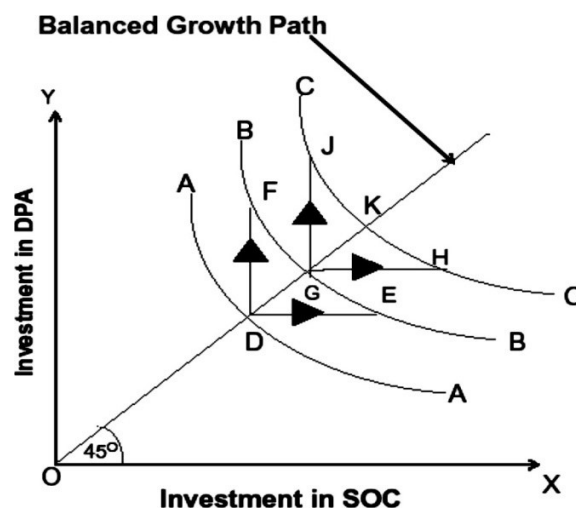


Figure 7.1

X-axis: Investment cost in Socially Productive Activities

Y-axis: Investment Cost in Direct Productive Activities

AA, BB, CC curves: equi-productive curves indicating various combinations of SOC, DPA

corresponding to given level of national income.

Growth process may be explained by making initial investments either to DPA or SOC. It is because it is assumed that in underdeveloped countries SOC or DPA cannot be expanded simultaneously.

While the former is called Development by Excess Capacity of SOC, the latter is known as Shortage of SOC.

12.4.5 GROWTH PROCESS

The growth process can be explained in two ways:

1. Development via excess capacity of SOC:

In this sequence development takes place when expansion of SOC reduces the cost of infrastructure in transportation, power etc. this encourages investment in DPA. If investment is made in SOC, the economy will follow DEGHK route of development. Increase in investment in SOC from D to E will induce greater investment in DPA upto point F because transportation and power will become cheaper. Investment in DPA increases until balance is restored at G. However is located at high equi-product curve BB which implies that there will be caused increase in the level of output in economy.

2. Development via Shortages of SOC:

In this sequence development takes place when investment is made first in Direct Productive Activities (DPA). The Expansion of DPA builds up pressure on SOC. In the figure, Investment is made first in DPA, the route of development is DFGJK. We increase DPA from D to F. this results in increase in production costs and DPA producers would realise the possibility of considerable economies through more investment in SOC facilities.

Thus, SOC would increase to point E and then to equilibrium point G on BB curve implying the higher level of output. If investment is further increased from G to J, this would create pressure for more investment in SOC shifting G to H and like this the equilibrium will be struck at point K on higher iso-product curve CC the path of growth being DGK.

12.4.6 FORWARD AND BACKWARD LINKAGES

Creating unbalances are a pre-requisite of economic growth, according to Hirschman. However the question arises, how to identify the activities with which to create imbalances in the system. This necessitates the knowledge of inter linkages across different sectors of the economy.



Figure 7.2

The following are classified as linkages by Hirschman :

Backward linkages- Growth of a set of industries stimulates the growth of those which supply raw materials. Setting up a steel plant for example, would stimulate the demand for steel scrap, coal and other related goods. Production of these goods will accordingly increase.

Forward linkages- Forward linkages refer to the growth of certain industries owing to the initial growth of those which supply raw materials.

Expansion of steel industry, for example, will encourage industries making machine, tools, etc. using steel as their basic input..

Study of these linkages facilitates the choice of activities through which growth with imbalances should be generated in the system. Industries with maximum linkages ought to be developed first.

12.4.7 FEATURES OF THEORY OF UNBALANCED GROWTH

1. The theory propagates that with a view to accelerating the process of growth, investment should be first made in the key sectors of the economy.
2. The theory is based on the principles of inducement and pressures. It is the inducement or pressure generated by some initial investment that calls for subsequent investment in other activities or production.
3. The theory correlates the hypothesis of the “BIG PUSH”.
4. The theory is based on real life observation.
5. The theory recognizes the significance of public sector with regard to SOC activities.

12.4.8 MERIT OF THE THEORY OF UNBALANCED GROWTH

1. **Realistic Theory:** The theory of unbalanced growth is a realistic theory. The theory suggests appropriate utilization of the scarce resources in less developed countries. The theory considers all aspects of growth planning.
2. **More Importance to Basic Industries:** The theory underlines the significance of basic industries in the process of growth. This will automatically press for the growth of consumer-goods industries.
3. **Economies of Large Scale Production:** The strategy of unbalanced growth generates economies of large scale production. Establishing key industries calls for the establishment of ancillaries, generating all round increase in income and employment.
4. **Encouragement to New Inventions:** Unbalanced growth generates pulls and pressures in the system, calling for new inventions and innovations.
5. **Self-reliance:** Self-reliance is the under-current of the theory of unbalanced growth. It starts with the realistic assumption of chronic scarcity of resources in less developed countries and contemplates to initiate and accelerate the process of growth in accordance with the needs and means of the country concerned.
6. **Economic surplus:** The strategy of unbalanced growth is expected to generate greater surplus in the system. This is because of its emphasis upon the capital-goods industries. This strategy is also expected to produce a very strong multiplier effect in the system, stimulating income and employment.

12.4.9 CRITICISM OF THE UNBALANCED THEORY OF GROWTH

1. **Inflation-** The theory gives undue emphasis to development through industrialization, notwithstanding the significance of agriculture. Because of long gestation lags in industries, flow of goods is expected to be constricted during the short period, causing inflation.
2. **Wastage of Resources-** Being concentrated on a couple of industries, resources may not be appropriately utilized. Some sectors of the economy will grow at a faster rate while other sectors will remain neglected.
3. **No mention of obstacles-** Paul Streeten observes that the theory only mentions the establishing key industries presses for the establishment of other industries. But the theory is oblivious to the possible difficulties in establishing key industries to begin with. It is not an easy task to establish key industries right at the beginning of a development programme.
4. **Increase in uncertainty-** The theory inherently assumes that the success of the growth process depends on external trade and foreign aids. This increases uncertainty of the growth process.
5. **Unbalance is not necessary-** The critics are of the opinion that deliberately introducing unbalances in the system is not so much needed in the less developed countries. These imbalances are caused on their own due to technical indivisibility and uncertain behaviour of demand and supply forces.
6. **Neglect of the degree of unbalance-** How much to imbalance and where to imbalance are not known by the theory of unbalanced growth. It only tells of the need to imbalance.
7. **Linkages effects are not based on empirical data-** Prof. Hirschman has advocated to start only those industries that have maximum linkages effect. But these effects are not based on statistical data pertaining to the less developed countries.
8. **Lack of basic facilities-** 'Unbalanced Growth Theory' assumes the availability of certain basic facilities in terms of necessary raw materials, technical know how and developed means of transport. However in less developed countries mostly these are insufficient.

Dissimilarities between Balanced Theory and Unbalanced Theory:

1. The theory balanced growth advocates the simultaneous growth of all sectors of the economy. The theory of unbalanced growth, on the other hand, focuses on the growth of some key sectors of the economy to begin with.
2. Balanced growth hypothesis seeks to accelerate the process of growth through simultaneous investment across all sectors of the economy. The unbalanced hypothesis however, seeks to accelerate the process of growth through imbalances in the system.
3. Balanced growth requires a lot of capital investment right from the beginning of the growth process. Unbalanced growth requires relatively much less investment.
4. Balanced growth strategy is a long period strategy of growth, while unbalanced growth is a short period strategy for growth.
5. Size of the market is the principal limiting factor as according to the balanced growth theory. But according to the unbalanced growth theory, it is decision making and entrepreneurial skill.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1 (a) What is the central idea behind Hirschman's Unbalanced Growth Theory?

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(b) How do forward and backward linkages guide investment decisions?

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Q2 (a) What are the advantages of investing in Social Overhead Capital (SOC) first?

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(b) What criticisms are levelled against the Unbalanced Growth Strategy?

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12.5 Lets Sum-up

Starting from this low-level equilibrium trap, any small increase in per capita income will not be able to sustain itself or lead to further increase in per capita income because the rate of growth in population is higher than the rate of growth in total income. Consequently, per capita income will fall to previous low equilibrium level.

This happens till the time rate of growth in population is greater than the rate in growth of total income. It is only when the level of per capita income is increased by a discontinuous jump that the country can hope to come out of the low-level equilibrium trap, because the rate of growth exceeds the rate of growth of population. Nelson's thesis advocates that if the country is to break the shackles of low-level equilibrium trap, its rate of growth of total income must be higher than 3 percent per year. This can be done only when, to use Leibenstein's terminology, that amount of minimum effort is undertaken which pushes up the level of per capita income.

12.6 Glossary

- **Balanced Growth:** A strategy that promotes simultaneous investment in all sectors to generate mutual demand and avoid bottlenecks.
- **Unbalanced Growth:** A strategy that initiates growth by investing in strategic sectors, which then induce growth in other sectors through linkage effects.
- **Social Overhead Capital (SOC):** Basic infrastructure like roads, power, and transport, essential for enabling productive activities.
- **Direct Productive Activities (DPA):** Industries directly involved in producing goods and services (e.g., agriculture, manufacturing).
- **Forward Linkages:** Industries that use the output of an investment as input (e.g., steel → machinery).
- **Backward Linkages:** Industries that supply input to the sector receiving the initial investment (e.g., coal → steel).

12.10 FURTHER READINGS

Agarwal R.C: Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L: The Economics of Development and Planning

Jhingan M.L: Advanced Economic Theory

12.11 Hints to Check your Progress (CYP)

CYP-I

Q1 Refer to Sections 7.3.1

Q2 Refer to Sections 7.3.5

CYP-II

Q1 Refer to Sections 7.4.1

Q2 Refer to Sections 7.4.9

12.12 SELF ASSESSMENT EXERCISES

Q1. What is meant by Balanced Growth? Discuss the need and rationale of balanced growth?

Q2. Define unbalanced growth. Explain the theory of unbalanced growth?

Q3. Briefly explain the big push theory on economic development?

Q4. What is meant by Low level equilibrium trap? Discuss the difference between model and income determination equation?

Q5. Explain the critical appraisal on economic development?

Strategies of Economic Development- Big push, critical minimum efforts, low level equilibrium trap

STRUCTURE

13.0 Objectives

13.1 Learning Outcomes

13.2 Introduction

13.3 Big Push Theory-The three indivisibilities

13.3.1 Indivisibility in production function

13.3.2 Indivisibility (or complementarily) of demand

13.3.3 Indivisibility in the supply of savings

13.3.4 How the big push works

13.3.5 Indivisibilities and external economies

13.3.6 Role of the State

13.3.7 Criticisms

13.4 The critical minimum effort theory- Assumptions

13.4.1 Thesis

13.4.2 Explanation

13.4.3 Stimulants and shocks

13.4.4 Factors determining the need for a minimum effort

13.4.5 Critical evaluation

13.5 The low-level equilibrium trap- Theory

13.5.1 Model

13.5.2 Income determination equation

13.5.3 New investment is equal to capital created out of savings

13.5.4 Population growth equation

13.5.5 Critical Appraisal

13.6 Lets Sum-up

13.7 Glossary

13.8 Suggested Readings

13.9 Hints to Check your Progress (CYP)

13.10 Self-Assessment Exercises

13.0 Objectives

After going through the lesson, the student should :

1. Understand the key concepts of the Big Push Theory, Critical Minimum Effort Theory, and the Low-Level Equilibrium Trap.
2. Analyze the application of these theories in developing countries for overcoming barriers to economic growth.
3. Evaluate the role of indivisibilities in the Big Push Theory and their impact on development strategies.
4. Discuss the importance of minimum investment efforts in initiating economic growth according to the Critical Minimum Effort Theory.
5. Assess the implications of the Low-Level Equilibrium Trap for economies stuck at subsistence income levels.
6. Explore the role of government intervention and social overhead capital in facilitating industrialization.
7. Compare and contrast the strategies proposed by the Big Push and Critical Minimum Effort theories.
8. Understand the criticisms and limitations of these development theories in real-world applications.

13.1 Learning Outcomes

1. Define the Big Push Theory and explain how it applies to industrialization in underdeveloped countries.
2. Distinguish between the Critical Minimum Effort Theory and other economic development models.
3. Identify the causes and consequences of the Low-Level Equilibrium Trap and how to escape it.

4. Assess the role of social capital and human capital in fostering economic growth under these theories.
5. Recognize the relationship between investment levels and economic progress in underdeveloped economies.
6. Evaluate how indivisibilities in production, demand, and savings can influence the effectiveness of development policies.
7. Analyze case studies where the Big Push and Critical Minimum Effort strategies have been applied successfully or unsuccessfully.
8. Formulate practical policy recommendations based on these theories for addressing poverty and stagnation in developing countries.

13.2 Introduction

Economic development is a complex process that requires a comprehensive understanding of various growth theories and strategies. Among the numerous approaches to economic development, the Big Push, Critical Minimum Effort, and Low-Level Equilibrium Trap theories have been widely discussed for their practical implications in developing countries. These theories address the challenges faced by underdeveloped nations, particularly in terms of overcoming the barriers to sustained economic growth and industrialization.

The Big Push theory, proposed by Rosenstein-Rodan, suggests that a large, coordinated investment in multiple sectors simultaneously is essential for breaking the cycle of poverty in underdeveloped countries. This theory emphasizes the need for significant external or internal investment to overcome indivisibilities in production, demand, and savings, which are common in underdeveloped economies. The success of this approach relies heavily on the state's role in mobilizing resources for large-scale investment in infrastructure and industries, which can spur economic activity and provide a foundation for sustainable growth.

On the other hand, the Critical Minimum Effort Theory, formulated by Harvey Leibenstein, posits that economic development requires a minimum level of investment to generate the momentum necessary to break the cycle of underdevelopment. This theory is more flexible

than the Big Push model, as it advocates for gradual, staged investments rather than a single massive push. The theory recognizes the importance of social structures, human capital, and entrepreneurship in driving development, but stresses that a critical minimum effort is necessary to set the economy on a path of sustainable growth.

Lastly, the Low-Level Equilibrium Trap, developed by Richard Nelson, addresses the phenomenon where economies stagnate at a low level of per capita income, unable to break free from the cycle of poverty. According to this theory, the economy is trapped in a state where both the rate of investment and the saving rate are insufficient to raise per capita income above subsistence levels. The theory argues that in order to escape this trap, economies must overcome certain structural barriers, including high population growth, low savings rates, and inefficient production methods, through strategic investment and policy interventions.

Each of these theories presents a distinct framework for understanding the challenges and opportunities in developing economies. By exploring these theories in depth, this lesson aims to provide a nuanced understanding of how developing countries can navigate the path to sustainable economic development, focusing on the critical role of investment, savings, and policy interventions in overcoming underdevelopment. Through examining the Big Push, Critical Minimum Effort, and Low-Level Equilibrium Trap theories, students will gain insights into the complex dynamics of economic development and the strategies necessary to foster growth and industrialization.

13.3 THE BIG PUSH THEORY- THE THREE INDIVISIBILITIES

According to Rosenstein-Rodan, there exist three indivisibilities in underdeveloped countries. These indivisibilities are responsible for external economies and thus justify the need for a big push. The externalities are as follows-

1. Indivisibility in production function
2. Indivisibility of demand
3. Indivisibility in the supply of savings

13.3.1 INDIVISIBILITY IN PRODUCTION FUNCTION

Indivisibilities in the production function may be with respect to any of the following:

- Inputs
- Processes
- Outputs

These lead to increasing returns (i.e., economies of scale), and may require a high optimum size of a firm. This can be achieved even in developing countries since at least one optimum scale firm can be established in many industries. But investment in social overhead capital comprises investment in all basic industries (like power, transport or communications) which must necessarily come before directly productive investment activities. Investment in social overhead capital is 'lumpy' in nature. Such capital requirements cannot be imported from other nations. Therefore, heavy initial investment necessarily needs to be made in social overhead capital (this is approximated to be about 30 to 40 percent of the total investment undertaken by underdeveloped countries). Social overhead capital is further characterized by four indivisibilities:

1. **Irreversibility in time:** It must precede other directly productive investments

2. **Minimum durability of equipment:** Any lesser level of durability is either impossible due to technical reasons or much less efficient
3. **Long gestation periods:** The investment in social overhead capital takes time to generate returns and its impact in the economy is not immediately or directly visible
4. **Irreducible minimum social overhead capital–industry mix:** Investment needs to be of a certain minimum magnitude and spread across a mix of industries, without which it will not significantly impact the process of growth.

13.3.2 INDIVISIBILITY (OR COMPLEMENTARILY) OF DEMAND

Developing countries are characterized by low per-capita income and purchasing power. Markets in these countries are therefore small. In a closed economy, modernization and increased efficiency in a single industry has no impact on the economy as a whole since the output of that industry will fail to find a market. A large number of industries need to be set up simultaneously so that people employed in one industry consume the output of other industries and thus create complementary demand.

To illustrate this, Rosenstein Rodan gives the example of a shoe industry. If a country makes large investments in the shoe industry, all the disguisedly employed labour from the other industries find work and a source of income, leading to a rise in production of shoes and their own incomes. This increased income will not be expended

only on buying shoes. It is conceivable that the increased incomes will lead to increased spending on other products too. However, there is no corresponding supply of these products to satisfy this increased demand for the other goods. Following the basic market forces of demand and supply, the prices of these commodities will rise. To avoid such a situation, investment must be spread out amongst different industries.

The situation may be different in an open economy as the output of the new industry may replace former imports or possibly find its market by way of exports. But even if the world market acts as a substitute for domestic demand, a big push is still needed (though its required

size may now be reduced due to the presence of international trade).

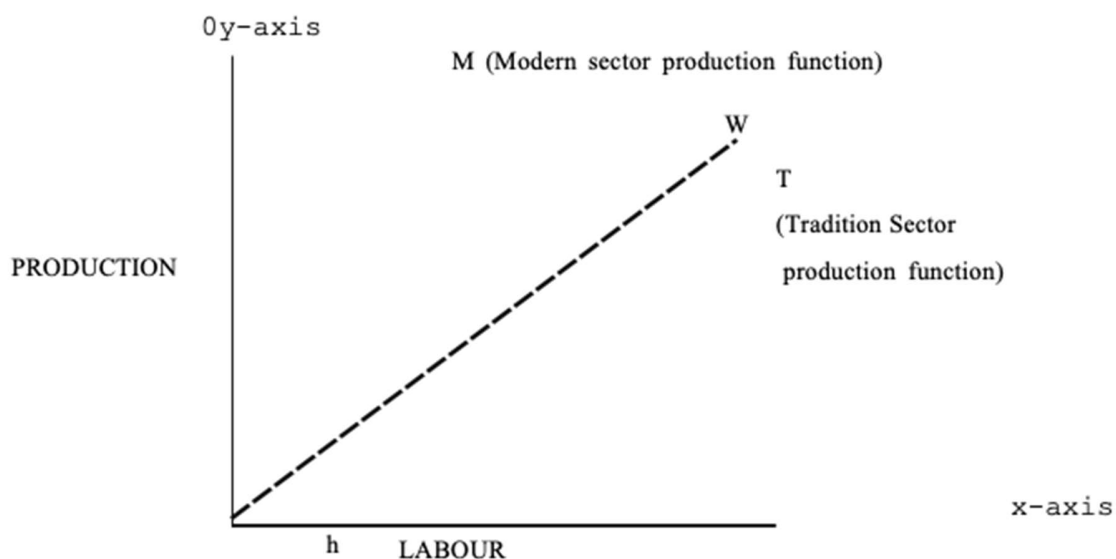
13.3.3 INDIVISIBILITY IN THE SUPPLY OF SAVINGS

High levels of investment require a corresponding high level of savings. We cannot always rely on foreign aid as the huge levels of investments in the different sectors need to be made not only once, but multiple numbers of times. Hence domestic savings are a must. But in an underdeveloped economy, this is a challenge due to the low income levels. Marginal rate of savings needs to be increased following the rise in incomes due to higher investment.

13.3.4 HOW THE BIG PUSH WORKS.

Using traditional technology, a sector would produce l/n amount of output, with each worker producing one unit of the commodity. Using modern technology a sector would produce more as the productivity would be greater than one unit per worker. However, a modern sector would require some of the workers (say h) to perform administrative tasks.

In figure 13.3, the x-axis represents the labor employed and the y-axis represents the level of production. The production in the traditional sector is given by the curve T and the production in the modern sector is given by M .



The curve M has a positive intercept on the x-axis, implying that even with zero production, there is a minimum level of workers who still remain employed for carrying out administrative activities. With our assumption of l/n workers in the economy, the modern sector will have a higher level of productivity than the traditional sector. The production function of the modern sector is steeper than that of the traditional sector because of the higher productivity of workers in the former. The slope of both production functions is $1/m$ where m is the marginal labor required to produce an additional unit of output. This level of m is lower for the modern sector than it is for the traditional sector.

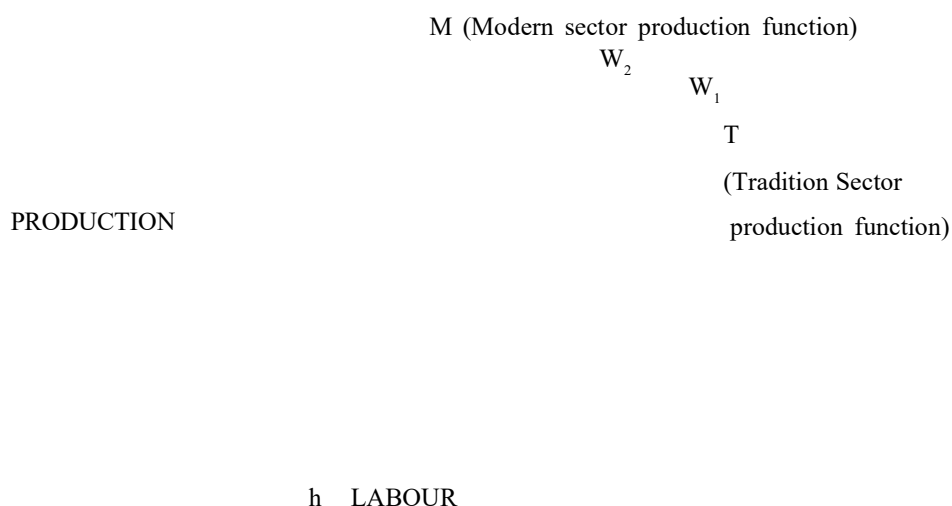


Figure 13.4

Assume that the traditional sector pays workers one unit of output which is subsequently spent equally by them in all sectors. The modern sector pays higher wages to workers. If all the workers are employed by the traditional sector, then the demand generated for the output of each sector is $D_1 = 1/n$. We have two possible cases:

Wages are low – When low wages are prevalent in the economy, say w_1 , a firm which faces demand D_1 will need to employ l^* workers if it wants to modernize. This will cost the firm

$w_1 l^*$.

Now, wages are low. Therefore $w_1 l^* > D$

This implies that costs (given by $w_1 l^*$) are lower than the earnings (given by D_1). So the firm makes a profit and will choose to modernize (even if other firms do not).

Wages are high – When high wages are prevalent in the economy, say w_2 , a firm which faces demand D_2 will make losses if no other firms choose to modernize.

This is because $w_2 l^* > D$.

This implies that costs (given by $w_2 l^*$) are higher than the earnings.

However, if all the other firms have modernized, the firm faces a higher demand, arising out of higher income levels of workers of these modernized firms. The firm will hence choose to modernize as well so that it makes profits:

13.3.5 INDIVISIBILITIES AND EXTERNAL ECONOMIES

The concept of externalities is relevant for the Industrialization of underdeveloped countries, where decisions are to be made regarding distribution of savings among alternative investment opportunities. These arise from the interdependence in market economies.

Pecuniary economies are external economies transmitted through the price system, as prices are the signalling device (under conditions of perfect competition in a market economy). They arise in an industry (say industry X) due to internal economies of overcoming technical indivisibilities. This reduces the price of its product, which will benefit another industry (say industry Y) which uses this output as an input or a factor of production. Subsequently, the profits of industry Y will rise, leading to its expansion and generating demand for the output of industry X. As a result, industry X's production and profits also expand.

However in underdeveloped countries, conditions of perfect competition are not present due to

the decentralized and differentiated nature of the market. Prices fail to act as a signaling system in the following ways:

- (a) Prices express the situation as it is and do not predict future economic situations
- (b) Prices can decide present productive activities but cannot determine investments which would be appropriate for developing countries
- (c) The response of the private sector to price signals is inadequate and imperfect due to the differentiation and decentralization in developing countries
- (d) This justifies the need for centralized pan-industry planning of investment in developing countries, as the private sector cannot undertake such planning.
- (e) Enlargement of the market size is another important externality which arises from the complementarity of industries. There exists an incentive to expand the scale of operations because the employees of one industry become the customers of another industry. In terms of products too (as in the above example of industries X and Y), one industry generates demand for the output of the other when the scale of operations increase.

Marshallian economies also accrue to a firm within a growing industry, resulting from agglomeration of industrial districts or clusters in a particular area. These occur due to the following advantages of agglomeration identified by Alfred Marshall:

1. Spillover of information
2. Specialization and division of labor
3. Development of a market for skilled labor.

Availability of skilled labour is an externality which arises when industrialization occurs, as workers acquire better training and skills. This is not achievable by mere establishment of a few industries, but requires a large program of industrial growth. It is one of the most important external economies because absence of skilled labor is a strong impediment to industrialization.

13.3.6 ROLE OF THE STATE

The large-scale programme of industrialization advocated by this model requires huge investments which are beyond the means of the private sector. The investment in infrastructure and basic industries (like power, transport and communications) is ‘lumpy’ and has long gestation periods. The role of the state in this theory is therefore critical for investment in social overhead capital. Even if the private sector had the requisite resources to invest in such a programme, it would not do so since it is driven by profit motives. Many investments are profitable in terms of social marginal net product but not in terms of private marginal net product. Due to this there is no incentive for individual entrepreneurs to invest and take advantage of external economies.

13.3.7 CRITICISMS

The theory has been criticized by Hla Myint and Celso Furtado, among others, primarily on the grounds of the massive effort required to be taken by underdeveloped countries to move along the path of industrialization. Some of the major criticisms are as follows:

- 1. Difficulties in execution and implementation:** The execution of related projects during the course of industrialization may involve unexpected or unavoidable changes due to revisions of plans, delays and deviations from the planned process. Hla Myint notes that the various departments and agencies involved in the process of development need to coordinate closely and evaluate and revise plans continuously. This is a challenging task for the governments of developing countries.

2. **Lack of absorptive capacity:** The implementation of industrialization programmes may be constrained by ineffective disbursement, short-term bottlenecks, macroeconomic problems and volatility, loss of competitiveness and weakening of institutions. Credit is often utilized at low rates or after long time lags. There is often a loss of competitiveness due to the Dutch disease effect.
3. **Historical inaccuracy:** When viewed in light of historical experience of countries over the last two centuries, no country displayed any evidence of development due to massive industrialization programmes. Stationary economies do not develop simply by making large-scale investment in social overhead capital.
4. **Problems in mixed economies:** In a mixed economy, where the private and public sectors co-exist, the environment for growth may not be a conducive one. Unless there is a complementarity between the sectors, there is bound to arise competition between them, with the government departments keeping their plans confidential out of fear of speculative activities by the private sector. The private sector's activities are simultaneously inhibited due to lack of information of government policies and the general economic situation.
5. **Neglect of methods of production:** Rather than capital formation, it is productive techniques which determine the success of a country in economic development. The big push model ignores productive techniques in its support for capital formation and industrialization.
6. **Shortage of resources in underdeveloped countries:** Eugenio Gudín criticizes the theory of the big push on the grounds that underdeveloped countries lack the capital required to provide the big push required for rapid development. If an underdeveloped nation had ample capital supply and scarce factors, it would not be classified as underdeveloped at all. Limited resource availability is the first impediment to such countries. Though this problem may be overcome by foreign aids, industrialization may not take off as expected if the aid flows are volatile.

7. **Ignores the agricultural sector:** With its heavy emphasis on industry, the model finds no place for agriculture. This is a gaping flaw in the theory, as in most underdeveloped countries it is this sector which is large and has labor surplus. Investments in agriculture need to go hand-in-hand with those in industry so as to stimulate the industrial sector by providing a market for industrial goods. If neglected, it would be difficult to meet the food requirements of the nation in the short run and to significantly expand the size of the market in the long run.
8. **Inflationary pressures:** It follows from the neglect of the agricultural sector that food shortages are likely to occur with industrialization. Though it would take time for investments in social overhead capital to yield returns, the demand would increase immediately, thus imposing inflationary pressures on the economy. Cost escalations may even cause projects to be postponed and the development process in general to slow down.

13.4 THE CRITICAL MINIMUM EFFORTS THEORY-ASSUMPTIONS

There are two points which are assumed to be true in this theory:

- (a) The output is subject to diminishing returns with respect to population growth.
- (b) Population Growth is a function of per capita income and Rate of Investment is a function of per capita income.

Also there are three other important points apart from the assumptions, which are of prime importance to Harvey Leibenstein's theory:

- (a) For every disturbance, no matter how large it is, the long run population growth effects will be more significant than the effects of induced investment.
- (b) The system is quasi-stable for small displacement but not large ones.
- (c) Equilibrium is unstable to begin with.

13.4.1 THESIS

The critical minimum effort theory is more or less an extension of the Harrod-Domar model. Harvey Leibenstein's thesis is based on the following propositions: Nelson (1956) and Leibenstein (1957) proposed that when population will increase per capita income will also increase along with it, and thus the per capita income of the economy rises above the minimum subsistence level. Both, Nelson and Leibenstein said that even though the income rises initially, there is an upper limit to it, which is about 3-4% per annum, after this point a rise in the per capita income will not be accompanied by a rise in the rate of growth of population, instead it may also decrease after a certain point (this is because at high income levels people want to keep their family size small so that they can maintain high standards of living.)

Nelson and Leibenstein have stressed on the importance of Social structure, Human capital, and Entrepreneurship, but they say that the development of these and investment in these sectors alone can not attain critical minimum effort.

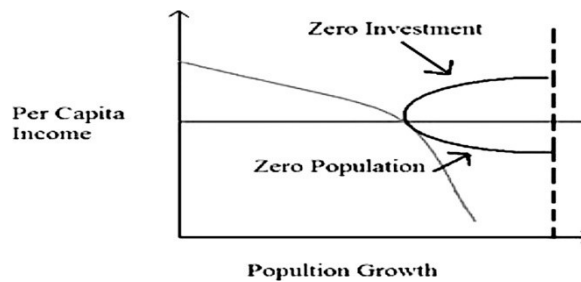
In the graph, it can be seen that with rise in population, the per capita income decreases. So as there is population growth the per capita income of the economy will decrease. The line drawn parallel to the X axis is the zero population growth line. When the per capita income is above this zero growth line then population growth will be positive, below it it will be negative.

**Per
Capita
Income**

Zero population
growth line

Figure 13.5

This shows that the increased per capita income leads to an increase in the population growth rate



and eventually the economy is brought back to the old level of low level equilibrium. Thus population acts as an income depressing factor.

Population Growth

Figure 13.6

In this figure, the initial equilibrium point is where the blue line intersects the horizontal line parallel to the X axis. Now if there is any displacement in the system in the form of let's say investments then the system will be brought back to this equilibrium point.

The zero-investment point is above the zero population point due to time lag. The population needs some time to increase. If it would have been the other way then the economy would never be able to come out of the trap.

13.4.2 EXPLANATION

Critical minimum effort theory is one of the balanced growth theories. It talks about how a minimum amount of push is required by an economy for it to be set on the path of development. This push can be in the form of investments. The “minimum” amount of effort that is required is “critical” for the economy to move towards development hence this theory is called critical minimum effort.

Because of the high population in underdeveloped countries the capital accumulation and labour supply are not sufficient to increase the per capita income.

So, it is necessary that the initial investment levels are sufficiently above a minimum magnitude. So, it is not necessary that all efforts to raise the per capita income are successful, some are just too small or below the minimum required level. Now, since this type of investment sometimes becomes difficult for underdeveloped nations. Leibenstein stresses on the fact that the investment

can be spread over a period of time and does not necessarily have to be made instantaneously.

The main idea of the theory is that the vicious circle needs to be broken and the per capita income should increase.

Harvey Leibenstein bases his theory on the following four main hypotheses:

1. A backward economy is an equilibrium system whose equilibrium state possesses a degree of quasi stability with respect to per capita income.
2. If the equilibrium of a backward economy is disturbed, forces that tend to raise per capita incomes set in motion, directly or indirectly, forces that have an effect of depressing per capita income.
3. In the disequilibrium state in the backward economy for at least the lower incomes above the equilibrium level, the effects of the income depressing forces are greater than the effects of the income raising forces.
4. During any period there is some absolute maximum to the effects of the income depressing forces, but the absolute maximum (if there is one) of the effects of per capita creating forces is greater than that.

From the above hypotheses, we can conclude that “in order to achieve the transition from the state of backwardness to the more developed state it is required (a necessary but not sufficient condition), the economy should receive a certain stimulus to growth and which should be greater than a certain critical minimum size.”

13.4.3 STIMULANTS AND SHOCKS

Leibenstein has used these 2 terms stimulants and shocks in his theory quite often. He defines stimulant as any event that changes the value of a variable away from its equilibrium value so that due to this event there is an initial increase in the per capita income.

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Shock on the other hand has been defined by Leibenstein as any event external to the system due to which per capita income is reduced initially.

Now in underdeveloped economies shocks are more powerful than stimulants so what should be done in such a scenario is that the levels of incomes should be risen

to such an extent that stimulants become stronger than shocks and the growth in incomes becomes self-sustaining.

13.6.4 FACTORS DETERMINING THE NEED FOR A MINIMUM EFFORT

Leibenstein in his theory discusses the factors that determine the need for the minimum effort required by the developing economies:

Internal Diseconomies: Because of presence of indivisibilities in the factors of production it is necessary for the economy to have investment of a certain minimum size.

External Economies Interdependencies and Balanced Growth: In a closed economy, industries are interdependent on one another. So industry 1 will require materials from industry 2, and so on. Therefore, for one to exist the other must also exist. So, this shows that the minimum investment required for all these industries to exist should be of considerable amount. This leads to a notion of balanced growth. Leibenstein says that if there were no technological indivisibilities then balanced growth could be easily achieved with any level of investment. But due to presence of indivisibilities balanced growth requires a substantial minimum amount of investment.

Overcoming Induced and Autonomous Depressants: The developing or underdeveloped economies have both autonomous and induced factors depressants. To overcome these factors investments above a certain minimum size is required.

Non-Economic Aspects and Growth Momentum: The underdeveloped countries have old and traditional attitudes and mindset, which has to be changed as these inhibit growth. Economic growth requires the promotion of the following type of attitudes:

- (i) a strong profit incentive
- (ii) willingness to accept entrepreneurial risk
- (iii) an eagerness to promote technical and scientific progress.

If a country wants to achieve balanced growth, then critical minimum effort is almost a pre-condition.

13.4.5 CRITICAL EVALUATION

The theory critical minimum effort is better than big push theory in the sense that it is more practical than the latter as critical minimum effort theory can be better timed and can be broken up into a series of smaller efforts.

Critical minimum effort theory as opposed to big push theory does not stress on the fact that a lump sum amount of investment has to be made instantaneously. So, it is more relevant for under developed nations.

- The theory is also consistent with the concept of decentralized democratic planning as practiced in India.
- It is wrongly said in the theory that increase in per capita income would lead to a decrease in population size due to a low birth rate. Instead, population depends upon a number of economic and non-economic factors.
- Critical minimum effort theory completely ignores the monetary and fiscal policies which are important factors in deciding the investment and income levels of an economy.
- It is true only for a closed economy. It does not take into consideration international trade, foreign capital, etc.
- But still Critical minimum effort theory is a very important balanced growth theory.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

1. What are the three indivisibilities in the Big Push Theory? Explain how they contribute to the necessity for large-scale investment in underdeveloped countries.
2. How does indivisibility in the production function impact economic development?
Provide examples of sectors where indivisibilities can lead to economies of scale.
3. Explain the concept of indivisibility (or complementarity) of demand in the context of the Big Push Theory. Why is it necessary for industries to be developed simultaneously?
4. Discuss the role of indivisibility in the supply of savings. How does this affect the rate of investment in underdeveloped economies?
5. How does the Big Push work in terms of increasing productivity and overcoming market failures? Illustrate this with an example of how simultaneous investments in different sectors lead to overall growth.
6. What is the significance of external economies in the Big Push Theory? How do they contribute to the success of large-scale investments in underdeveloped economies?

7. What is the role of the state in facilitating the Big Push strategy? Discuss how government intervention is crucial for overcoming the indivisibilities in production, demand, and savings.
8. What are the main criticisms of the Big Push Theory? Discuss the challenges in implementing large-scale investment projects in developing countries, as highlighted by critics.

13.5 THE LOW-LEVEL EQUILIBRIUM TRAP THEORY

The theory developed by Richard R. Nelson in his article; A Theory of the Low-Level Equilibrium Trap published in 1956. According to Nelson the malady of underdeveloped economies can be diagnosed as a stable equilibrium level of per capita income at or close to subsistence requirements. At this low stable equilibrium level, both the rate of investment and saving are low. If per capita income is increased above the minimum subsistence level, it encourages growth in population. The population growth, in turn pushes down per capita income again to subsistence level. Thus, the economy is caught in low level equilibrium trap. Getting out of the trap requires increasing the rate of growth of income to the levels higher than the rate of increase in population. In Nelson's opinion following four conditions are conducive to trapping:

1. A high correlation between the level of per-capita income and the rate of population growth
2. A low propensity to direct additional per-capita income to increasing per-capita investment
3. Scarcity of uncultivated arable land
4. Inefficient production methods

13.5.1 MODEL

Nelson uses a model with three equations. First, there is an income determination equation. Income depends on the stock of capital, the size of the population, and the level of technique. Second, net investment consists of saving-created capital plus additions to the amount of land under cultivation. Third, there is the population growth equation according to which in areas with low per-capita incomes short-run changes in the rate of population growth are caused by changes in the death rate, and changes in the death rate are caused by changes in the level of per-capita income. Yet once per capita income reaches a level well above subsistence requirements, further

increases in per-capita income have a negligible effect on death rate. With these three sets of relationships, it is easy to see that an underdeveloped economy is caught in a low-level trap.

13.5.2 INCOME DETERMINATION EQUATION

In first case the economy is at minimum subsistence level of per capita income. When per capita is less than that of the minimum subsistence level the population decreases. After a stationary point when per capita income increases then the subsistence level population increases until it reaches a physical limit. Population growth increases till it reaches its upper physical limit after which it declines. The decline occurs because at high per capita income levels, people become conscious about their living standards and try to adopt a small family norm.

13.5.3 NEW INVESTMENT IS EQUAL TO CAPITAL CREATED OUT OF SAVINGS

In this case, there is a certain level of income in the economy with no savings as all the income is spent on consumption. Also, the level of investment is zero. There is negative investment in the economy when savings are negative implying a situation where consumption is greater than income i.e. people live on past capital. However, when per capita income rises then savings also rises from zero level which leads to a rise in the investment level in the economy. As there is continuous increase in the per capita income there is a rising proportion of total income saved and invested.

13.5.4 POPULATION GROWTH EQUATION

Whenever the per capita income reaches a level above the subsistence level any further increase in it will have a negligible effect on death rates. Moreover, changes in death rate are due to changes in per capita income.

13.5.5 CRITICAL APPRAISAL

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The phrases 'low level equilibrium trap' and 'vicious circle of poverty' have become popular in economic literature and so have the perceptions of getting out of these states like Big Push, Critical Minimum effort etc. Most of the economists agree with Leibenstein that if the underdeveloped

countries have to get out of low-level equilibrium trap, they must undertake investment programmes of such magnitude that the growth of per capita income breaks the population barrier. However, H. Myint points out two sets of difficulties in applying this theory to underdeveloped countries:

First, it is not always possible to draw a rigid functional relation between the level of per capita and the rate of growth of population and rate of growth in total income. Main causes of growth in population in most of the underdeveloped countries in recent decades have been reduction in death rates due to improvements in public health and the control of epidemics and endemics, which were not closely related to prior rise in per capita income level. The functional level of per capita income and the level of growth in total income is still more complex and, according to Myint takes place in two steps. The relation between the level of per capita income and the rate of saving and investment is modified by number of factors such as pattern of distribution of income and effectiveness of financial institution in mobilizing savings. The relation between investment and the resultant output is also not given by stable capital-output ratio, but depends on how far the productive organization of the country can be improved and how far land- savings innovations can be adopted to overcome the tendency to diminishing returns on additional investment which will continue even after the population growth has levelled off at 3 percent per annum.

Second introduction of the time element creates some complications. Myint argues that it illustrates a set of timeless functional relationship rather than the time series of growth and population and income. The stable and the unstable equilibrium has been taken from the Trade Cycle Theory which deals with turning points in the level of short run economic activities in the developed countries. We, therefore, may question how far this type of analysis originally designed to illustrate the gear shifts in short run economic activity of a fully developed countries is useful for the study of the problem of long-term economic development of the underdeveloped countries which is concerned with the construction of the engine of growth itself.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the Low-Level Equilibrium Trap theory? Explain its significance in the context of economic development.

2. Describe the model of the Low-Level Equilibrium Trap. How does it illustrate the cyclical nature of poverty in underdeveloped economies?
3. How is income determined in the Low-Level Equilibrium Trap theory? Discuss the income determination equation and its role in sustaining the trap.
4. Explain the relationship between new investment and capital created out of savings in the context of the Low-Level Equilibrium Trap. How does this affect economic growth in developing countries?
5. What is the role of population growth in the Low-Level Equilibrium Trap? Discuss the population growth equation and its impact on economic development.

13.6 Let's Sum-up

- The Big Push Theory emphasizes the need for large, coordinated investments across multiple sectors to overcome barriers to economic development in underdeveloped countries.
- The three indivisibilities in the Big Push Theory—indivisibility in the production function, demand complementarity, and savings—highlight the need for simultaneous investments to create a ripple effect in the economy.
- Indivisibility in the production function refers to large-scale projects that require substantial investment before they can become productive, preventing small, piecemeal investments from being effective.
- Indivisibility of demand stresses that for industries to thrive, there must be a complementary increase in demand across sectors to support production.
- Indivisibility in the supply of savings underscores the need for a critical mass of savings to fund large-scale investments, which are often beyond the reach of individual or small-scale investors.
- The Critical Minimum Effort Theory³⁵⁸ suggests that a certain threshold of effort (investment) is necessary to trigger the economic momentum required for growth in developing economies.
- Both the Big Push and Critical Minimum Effort theories stress the importance of strategic, coordinated investments, while recognizing that overcoming poverty and underdevelopment requires substantial and targeted efforts.

13.7 Glossary

- **Big Push Theory:** A development strategy that advocates for large, coordinated investments across multiple sectors simultaneously to break the cycle of underdevelopment in poor economies.
- **Indivisibility:** A situation where investments or resources cannot be scaled down without losing their effectiveness. For example, large factories or industries require significant investment to operate efficiently.
- **Complementarity of Demand:** A concept in the Big Push theory where the development of one industry generates demand for other related industries, creating a cycle of growth across sectors.
- **Critical Minimum Effort:** The minimum level of investment needed to trigger sustainable economic growth, according to the Critical Minimum Effort Theory.
- **External Economies:** Benefits that firms or industries gain from external factors, such as technological spillovers, infrastructure development, or economies of scale that arise from industry clustering.
- **Savings Rate:** The proportion of income or national output that is saved rather than spent, which is crucial for funding investments in economic development.
- **State Intervention:** The role of government in directing and managing economic growth, particularly through investments, policy interventions, and the removal of barriers to development.

13.8 Suggested Readings

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13.9 Hints to Check Your Progress (CYP)

CYP-I

Q1: Refer to Section 13.3

Q2: Refer to Sub-section 13.3.1

Q3: Refer to Sub-section 13.3.2

Q4: Refer to Sub-section 13.3.3

Q5: Refer to Sub-section 13.3.4

Q6: Refer to Sub-section 13.3.5

Q7: Refer to Sub-section 13.3.6

Q8: Refer to Sub-section 13.3.7

CYP-II

Q1: Refer to Section 13.5

Q2: Refer to Sub-section 13.5.1

Q3: Refer to Sub-section 13.5.2

Q4: Refer to Sub-section 13.5.3

Q5: Refer to Sub-section 13.5.4

13.10 Self-Assessment Exercises

1. Explain the concept of the Low-Level Equilibrium Trap theory. How does it describe the cycle of poverty and the challenges faced by developing economies in achieving sustained growth?
2. Describe the three indivisibilities in the ³⁶⁰Big Push Theory. How do these indivisibilities justify the need for large-scale, coordinated investments in underdeveloped countries?
3. Compare and contrast the Big Push Theory and the Critical Minimum Effort Theory. Which of these theories offers a more flexible approach to economic development, and why?

4. How does population growth affect the Low-Level Equilibrium Trap? Discuss the role of the population growth equation in the context of economic development and its impact on the trap.
5. In the Big Push Theory, explain how indivisibility in the production function affects the ability of economies to achieve economies of scale. Provide examples of industries where this is particularly relevant.
6. Critically evaluate the criticisms of the Big Push Theory. What are the challenges associated with implementing large-scale investments in underdeveloped economies, and how can these challenges be mitigated?

THEORIES OF DUALISM AND DEPENDENCY

STRUCTURE

14.0 Objectives

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14.3 Elements or Characteristics of Dualism

14.3.1 Types of Dualism

14.4 The Theory of Social Dualism

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14.5.6 A Critical Appraisal

14.6 Theory of Financial Dualism

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14.7 Theory of Dependency

- 14.7.1 Meaning of Dependency
- 14.7.2 Approached to Dependency Theory
- 14.7.3 Capitalist Development of Underdevelopment
- 14.7.4 Other Approaches of Dependency Theory
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- 14.8 Lets Sum-up
- 14.9 Key words
- 14.10 Further Readings
- 14.11 Hints to Check Your Progress (CYP)
- 14.12 Self -Assessment Exercise

14.0 OBJECTIVES

After going through this lesson, the students should be able to:

- Learn about the types of dualism.
- understand the characteristics of dualistic economy
- describe the production function in industrial sector
- understand the criticism of financial dualism
- learn about the meaning of dependency
- various approaches that deal with the concept of dependency
- the criticism against the dependency theories

14.2 Learning Outcomes

After studying this lesson, students will be able to:

1. Explain various forms and characteristics of economic dualism, including social, technological, and financial dualism.
2. Understand the concept of dependency and its development through various theoretical perspectives.
3. Analyze the role of external forces such as multinational corporations, international trade, and financial institutions in shaping underdevelopment
4. Critically assess the strengths and limitations of dualism and dependency theories in explaining the economic conditions of underdeveloped countries.

14.2 Introduction

The underdeveloped countries of today are generally characterized by a dualistic economic structure—a modern economy existing side by side with a traditional or backward economy. As a matter of fact, almost all underdeveloped countries have a dualistic economy. Thus, dualistic economy is a co-existence of two opposite economies, i.e., modern economy and the backward economy. The modern economy enjoys all facilities and amenities of the modern life whereas the traditional economy remains devoid of all such things. The existence of these two different economies creates a problem known as the ‘problem of dualism’. It is a concept broadly discussed in the developed economies. This concept of dualism has been examined and discussed at considerable length including questions relating to nature, features and implication of dualism at different platforms.

The three main theories of dualism i.e. (I) The Theory of Social Dualism as propounded by Dr. J.H. Boeke, (II) The Theory of Technological Dualism, as propounded by Benjamin Higgins and (III) The Theory of Financial Dualism as propounded by Prof. H. Myint.

14.3 ELEMENTS OR CHARACTERISTICS OF DUALISM

According to Prof. H. W. Singer, there are four main elements or characteristics of dualism. They are as follows:

1. It possesses different set of conditions, out of which some are superior and others are inferior. There is co-existence of modern and traditional methods of production, the co-existence of wealthy, educated people with illiterate, poor people, the co-existence of wealthy industrialized nations with poor agricultural nations.
2. The co-existence is chronic. Any discrepancy between superior and inferior will not eliminate itself over time. The co-existence of international wealth and poverty is not a temporary phenomenon which would be removed with the passage of time. It is deep rooted.
3. The degree of difference between superiority and inferiority fails to show any mark of diminishing, rather it has an inherent tendency to increase. For instance, the difference of production techniques between the workers of developed and less developed countries seems to be broadened over time.
4. The interrelations between superior and inferior elements are such that the superior element does little or nothing to improve or pull up the inferior element. But the universal truth is that the superior element always tries to push down the inferior element.

14.3.1 TYPES OF DUALISM

- (1)The Theory of Social Dualism.** Dr. J.H Boeke, a Dutch economist, propound the theory of social dualism. This theory of social dualism is a general theory of economic and social development of underdeveloped economies based primarily on his studies of the Indonesian economy. In 1953, he showed the difference between superior and inferior elements of social and cultural conditions. He thinks that dualism creeps up due to the differences between the pre-capitalist traditional society and capitalist modern society.
- (2)The Theory of Technological Dualism.** Prof Benjamin Higgins propounded the theory technological dualism. It implies the use of different production functions in the advanced sector and the traditional sector. Dualism is a situation in which productive employment opportunities are limited, not because of lack of effective demand but because of resources and technological restraints in the two sectors.
- (3)The Theory of Ecological Dualism.** In 1963, Greetz had made different explanations for dualism. He was of the view that different ecological systems influence dualism. Climatic conditions and natural resources endowments of different regions create elements of superiority and inferiority.
- (4)The Theory of Enclave Dualism.** Prof. H. W Singer Frutado and H. Myint have explained enclave dualism. They argue that technological dualism proposes to describe a situation that arises when a capitalist wedge is introduced into the traditional economic structure. This wedge is in the form of productivity. The extractive industry like mines, oil wells and plantations etc. are capital intensive and so modern imparted technology is being used. In fact, this sector becomes an enclave for export. This sector coexists with low productivity and labour intensive technology.
- (5)The Theory of Financial Dualism.** Prof H. Myint has propounded the theory of financial dualism. Financial dualism refers to the coexistence of different interest rates between the organized and unorganized money markets in the underdeveloped countries. The rate of interest in the unorganized market in the traditional sector is much higher than the rate of interest in the organized money market in the modern sector.
- (6)The Theory of International Dualism.** Prof. H. Myint and G. Myrdal propound the theory of international dualism. Prof. M.P Todaro has further expanded this theory. International dualism has been explained as pockets of wealth within broad areas of poverty. It has also been described

as the persistence of increasing divergence between rich and poor nations of the world. International trade is responsible for international dualism.

14.4 THE THEORY OF SOCIAL DUALISM

Dr. J. H. Boeke, a Dutch economist, propounded the theory of social dualism. This theory is applicable only to underdeveloped countries. It is based on the social development of underdeveloped economies on his study of Indonesian economy. Today, the underdeveloped countries are characterized by dualistic economic structure.

14.4.1 MEANING OF SOCIAL DUALISM

According to Dr J.H. Boeke, there are three characteristics of a society in the economic sense. They are (i) social spirit, (ii) organisation forms, and (iii) the technique dominating it. Their interdependence and interrelation are called the social system or social style. It is not necessary that a society be exclusively dominated by one social system. If at least one social system prevails, the society may be called homogenous. But when two or more social systems prevail simultaneously, the society may be called a dual society. Boeke qualifies the term dual society to societies "showing a distinct cleavage of two synchronic and full grown social styles which in the normal historical evolution of homogenous societies are separated from each other by transitional forms as for instance, precapitalism and high capitalism by early capitalism, and which there do not coincide as contemporary dominating features." Without these qualifications, it would be impossible to distinguish between homogenous and dualistic society. If on the other hand, one social system is imported from abroad and this system fails to oust or assimilate the prevailing social system, a dual society obviously exists. The most frequent form of the social system imported from abroad in underdeveloped countries is western capitalism which has penetrated into precapitalistic agrarian community of these countries. The imported social system is under western influence and supervision and uses advanced techniques and where the average standard of living is high. On the contrary the native or prevailing social system is traditional with low level of techniques along with low standard of living of the average person. Boeke calls it a social dualism.

He believes that dualism arises from a clash between the social systems of east and west. To substantiate his view-point Boeke quotes Rudyard Kipling's famous phrase, "East is East and West is west, and never the twain shall meet." This phrase makes the point amply dear that the social system of East is radically different from the social system of West. It is due to the clash between

these two social systems that social dualism arises in the less developed countries, with the result that less developed economies are often called dualistic economies.

14.4.2 CHARACTERISTICS OF A DUALISTIC ECONOMY

The main characteristics of dualistic economy are as follows

- (1) Limited Needs.** The foremost characteristic of eastern or the pre-capitalist indigenous sector of the dualistic economy is the limited needs of the society in sharp contrast with the western society where the wants are unlimited. The reason for limited needs of the dualistic economy is simple habits and simple way of living of the people. The people of the eastern society (backward society) do not aspire for more and more, rather they feel satisfied when their immediate needs are duly met. In simple words, the people remain contented with their present lot. Because of limited human needs, economic motivation to produce either does not exist in the eastern society or is very weak. This, in turn, leads to low level of economic activity.
- (2) Overriding Importance of Social Needs.** Another main characteristic of dualistic economies as pointed out by Dr. Boeke is that they give greater importance to social needs as compared to western economies. According to Dr. Boeke, "Possessions in the shape of cattle, land, clothes and houses, the fulfillment of social duties in all circumstances of life, must be regarded as largely the satisfaction of social needs. It is not their economic usefulness nor the individual services they render, but their possession which determine the value of the goods. It is a matter of secondary importance whether the land produces reasonable profit in proportion to the money paid for it or not; whether the cattle can be made reasonably useful to their owner and own his business or not; whether the clothing cover protects, warms the wearer or affects him pleasantly any way. For it is not the use of these objects to the subject himself that gives them their worth in his eyes; it is what the community thinks of them that sets the standard".
- (3) Unorganised Labour.** Another important characteristic of dualistic economy is that labour is unorganized, passive, silent and casual. Labour is unskilled and immobile too. People hesitate to leave their huts and homes, as they are very much attached to these things. Because of the immobility, the labour remains unorganized and as such his bargaining power is weak. People are orthodox in their outlook and passive in action. They do not take initiative for any adventure. In contrast, the people in western economy are progressive, dynamic, and forward looking. They display their interest in every type of adventure.

- (4) Accent on Self-Sufficiency.** Another important characteristic of dualistic economy is that the eastern society considers family as an unit and the individual self-sufficiency is the dominant idea. People are not easily induced to organize production or to collect investment. Thus, the main object of production is not profit making but satisfying per needs.
- (5) Absence of Enterprising Spirit.** Another characteristic of the dualistic economy is that people are not adventurous and thus lack the requisite enterprising spirit. In contrast, the people of the western society are more adventurous, enterprising, forward looking and risk taking. There is complete absence of profit-seeking activities in the eastern society. People indulge in speculative activities and pay little attention to the profit-giving activities. They do not believe in capital investments attended by risks. They lack initiative.
- (6)** People of dualistic economy are fatalists and hesitate to use the modern technology.
- (7)** People lack in organizational skill and ability.
- (8)** There is absence of professional trading.
- (9)** Lack of elasticity of supply.
- (10)** Export is the main objective of foreign trade in eastern society as distinct from a western society where it is only the means which makes imports possible.
- (11)** People are immobile and thus are reluctant to leave the village community.
- (12)** Migration takes place within the country and immigration takes place through state intervention.
- (13)** Urban development takes place at the cost of rural life.
- (14)** Goods are evaluated according to their prestige value rather than value in use.

14.4.3 INAPPLICABILITY OF WESTERN ECONOMIC THEORY

These contrasting characteristics of a dual society make it unsuitable for the application of western economic theory. Eastern and Western economics are basically different, the former is pre-capitalist and the latter is capitalist. Therefore, Boeke advises that, “we shall do well not to try to transplant the tender, delicate, hot house plants of western theory to tropical soil, where an early death awaits them. Boeke does not spell out any scheme for economic development in such societies. He only says, industrialization or agricultural development must be a slow process, small-scale and suitable for dualistic framework along with democratic ways. He suggests that the required leadership must come from the people themselves, who should work with faith, charity and patience for economic prosperity of the country.

14.4.4 A CRITICAL APPRAISAL

Boeke theory of dualistic development has been severely criticized by Prof. Benjamin Higgins on the following grounds:

- (1) **Wants limited not true.** Higgins contends that Boeke's assertions that people in underdeveloped countries have limited wants or backward sloping curve of effort and risk taking are not true.
- (2) **Bleak Possibility of Technological Progress.** Boeke's pessimism in regard to bleak possibility of technological progress in underdeveloped countries cannot be shown on the basis of experience because in underdeveloped societies a large number of industries organized on western lines are functioning well.
- (3) **Trade Unions not Visualized.** Boeke's dualistic theory ignores the role of trade union because according to Prof. Boeke the workers are unorganized, passive, silent and casual in underdeveloped countries. In fact, trade union activities are becoming more and more streamlined all over the world. Even casual labourers are organized in tea coffee and rubber plantation industries where there are strong trade unions.
- (4) **Not peculiar to Underdeveloped Economies.** Prof. Boeke takes one-eyed view by saying that phenomenon of dualism is only confined to eastern economies and he also admits that social dualism exists in underdeveloped economies of Africa and Latin America. To some degree, it exists in almost every economy. According to Prof. Higgins "even in most advanced countries such as Italy, Canada and United States, there are areas in which techniques lag behind those of advanced sectors and in which standards of economic and social welfare are correspondingly low." It means, dualism to some extent is also found in developed countries.
- (5) **Casual Labour not Organized—not true.** Boeke's characterization of eastern casual labour as unorganized, passive, silent is not true. The fact is that trade union activities are becoming more and more organized and active even in underdeveloped countries like India, Indonesia and elsewhere. However, casual Labour may not be fully organized in agriculture but in tea, coffee and rubber plantations the trade union movement is the strongest one.
- (6) **Applicable to Western Societies.** Boeke is of the opinion that the western economic theory is not applicable to the problems of eastern economies. However, this viewpoint has been criticized by Higgins holds the view that tools of western economic theory pertaining to fiscal and monetary policies can be applied the minor modifications for the solution of the crucial problems like balance of payments, disequilibrium and unemployment etc. of eastern economies. Further, whenever chronic inflation exists or threatens western economies, people prefer

speculative profit to long-term investments. Western economists, according to Higgins, “have recently developed a whole field of analysis relating to ‘liquidity preference’ and safety preference’, to take account of the reluctance of investors the world over to accept risk or illiquidity and their strong preference for keeping their capital safe and in Liquid form.”

(7) Social Dualism is not a Theory. Social dualism has been criticized on the ground that it is not a theory, but a mere description of the nature of underdeveloped economies. There is a weight in this criticism because Boeke’s dualistic theory only explains the various traits of the eastern economies, but fails to furnish the social and economic theory of underdeveloped countries. A theory of underdeveloped is one which explains the various aspects of the problem, but dualistic theory fails on this account too.

(8) Eastern Labour not Immobile. It is not possible to accept the Boeke’s argument that people in eastern economies are reluctant to leave village community. Rapid urbanization in eastern economies is a specific proof of the migration of the village people to cities. In fact, the attraction of the urban life, such as cinemas, shops, cafes, sports events and employment opportunities have always led to migration from villages to cities.

14.5 THE THEORY OF TECHNOLOGICAL DUALISM

Prof Benjamin Higgins propounded the theory of technological dualism. It is an alternative to Boeke theory of social dualism which failed to solve the problem of unemployment which is the basic problem of underdeveloped countries like India.

14.5.1 MEANING OF TECHNOLOGICAL DUALISM

Technological dualism implies the use of different production functions in the advanced sector and the traditional sector of an underdeveloped economy. According to G.M, Meier, “Technological dualism is associated with the structural unemployment or technological unemployment — a situation in which productive employment opportunities are limited, not because of the lack of effective demand, but because of resource and technological restraints in two sectors.” As such the theory of technological dualism relates to the factor-proportion problem. This problem has been discussed by Dr. R.S Eckaus in his leading article entitled “The Factor Proportions problem in underdeveloped areas.” He is of the view that unemployment difficulties of underdeveloped areas are not basically due to lack of effective demand but due to the market imperfections, limited opportunities for technical substitution of factors and inappropriate factor endowments. According to C. P Kindleberger, the problem of unemployment in underdeveloped areas arises due to

structural disequilibrium at the factor level and this factor of structural disequilibrium has been explained by him in the following words:

“Disequilibrium at the factor level may arise either because a single factor receives different returns in different uses or because the price relationships among factors are not in line with factor availabilities. Disequilibrium in factor proportions, which is the cause of unemployment or under-employment in the underdeveloped areas, can be due to two factors (i) imperfect functioning of price system (ii) limitations in the existing technology or the structure of demand.”

14.5.2 CHARACTERISTICS OF TRADITIONAL RURAL SECTOR

The main characteristics of traditional rural sector are as follows:

- (i) Production techniques are relatively labour intensive.
- (ii) It is engaged in peasant agriculture and handicrafts or very small industries.
- (iii) It has a variable technical coefficient of production so that products can be produced with a wide range of techniques and alternative combinations of labour and capital.

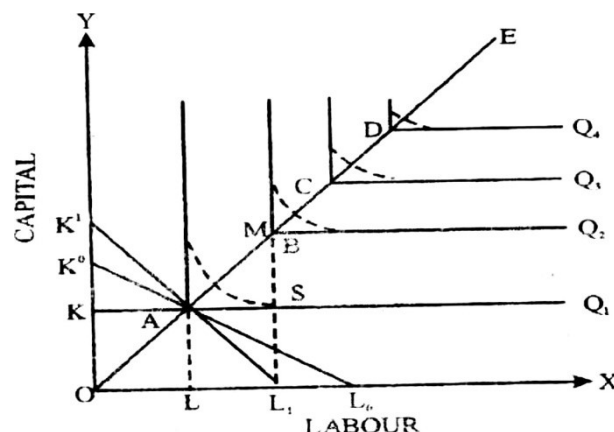
14.5.3 CHARACTERISTICS OF MODERN SECTOR

The main characteristics of modern sector are as follows:

- (i) Production processes are capital intensive.
- (ii) It is composed of plantations, mines, oil fields or large-scale industry.
- (iii) In this sector there is very limited degree of technical substitutability of factors so that production is characterized by fixed technical coefficients.

14.5.4 THE PRODUCTION FUNCTION IN INDUSTRIAL SECTOR OR MODERN SECTOR

In order to illustrate technical dualism, Prof. B. Higgins assumes two factors of production (labour



and capital) and two goods. Out of two sectors modern sector or industrial sector is composed of heavy industries, plantations, mines and oil fields etc. The production in this sector can be carried on with limited techniques because the technical coefficients are generally fixed. The production processes are relatively capital intensive in the sense that large amounts of capital are used with small amount of labour. The situation of industrial or modern sector can be explained by means of the diagram given below:

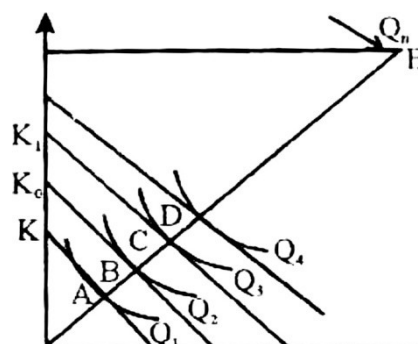
Figure 14.1

In the above diagram units of labour are measured on X-axis and units of capital are measured on Y-axis. Q_1 is an isoquant curve representing combination of OK units of capital and OL units of labour producing a certain level of output. The curves Q_2 , Q_3 and Q_4 represent high levels of output which are only possible by increasing the units of capital and labour in the same proportion. Thus points A, B, C, D indicate fixed combinations of capital and labour used to produce different levels of output. The line OE joining these points is the expansion path of the industrial sector and its slope represents constant proportions of the two factors. The line K_1L_1 shows that the production process is capital intensive, more capital is required to produce a given output relatively to labour. To produce Q_1 output OK unit of capital and OL units of labour are used. If however the actual factor endowment is at S instead of at A , it means that more labour units (OL_1) are available to produce the same Q_1 output, the units of available capital remaining the same (OK). Since there are fixed capital coefficients, the excess labour supply will not affect production techniques at all, LL_1 units of labour will remain unemployed. It is only when capital stock increases to SM that it is possible to absorb this excess labour supply in this sector, otherwise it will have to seek employment.

As a matter of fact, in actual working of the industrial sector, the technical coefficients are not rigidly fixed, rather they are flexible. The dotted portions of the isoquant curves in the above diagram indicate a situation in which there is actually some flexibility in factor proportions.

14.5.5 PRODUCTION FUNCTION IN AGRICULTURAL (TRADITIONAL) SECTOR

After discussing the production function in the industrial sector, Prof. B. Higgins further explains the production function in the agricultural sector where the technical coefficients are variable by means of the diagram given below:



CAPITAL

LABOUR

Figure 14.2

In the above diagram, units of labour are measured on the horizontal X axis and units of capital on the vertical Y-axis. Q_1 , Q_2 , Q_3 and Q_4 are the isoquant curves on the assumption that technical coefficients are variable and wide range of techniques and combination of labour and capital will give the same output. The combination of labour and capital will actually depend on the factor endowments and their relative prices. In this context capital includes the improved land. We begin with the production at Q_1 in each sector. The industrial sector expands with the inflow of capital from abroad and output increases along the expansion path OE. But industrialization of this sector generates a population explosion. In some countries the growth of population exceeds the growth of capital in the industrial sector. Thus, the increased population will have to seek employment and livelihood in the agricultural sector or “variable coefficient sector.” As a result the migration of labour from industrial to agricultural sector starts.

At the beginning of the expansion process of agricultural sector, no factor of production is relatively abundant or scarce. But as the migration of the population continues, it may be possible to bring more Land under cultivation, so as to keep the ratio of labour to land relatively constant. As land is the only form of capital available in the agricultural sector, so the amount of land that can be actually cultivated by one family in any case will be limited. Though for a short period the optimal combination of labour and capital (improved land) may be possible as output rises from Q_1 to Q_4 but eventually the land would be relatively scarce and labour a relatively abundant factor. Since technical coefficients are variable in this sector, production process would be more labour intensive. Finally a point would be reached when all available land would be cultivated by this highly labour intensive technique. Consequently marginal productivity of labour would fall to zero and disguised unemployment would begin to appear.

Thus the continuous growth of population, with the limited availability of capital (improved land) would cause surplus labour to rise, which in turn would aggravate the problem of disguised unemployment in the traditional rural sector. Under these circumstances, there would be no incentives for the farmers either to make more investment or to introduce labour saving innovations.

This problem of disguised unemployment is aggravated by technical progress in the long run. As the technical progress takes the form of capital intensive techniques involving the fixed proportions, it fails to ease the situation. Prof Higgins argues that during the last two centuries there has been little or no technical progress in the peasant agriculture or handicrafts, while in the industrial sector, (i.e., plantation, mining and petroleum etc.) rapid technological progress took place. On the basis of the above discussion, it can be concluded that the technological dualism accentuates the problem of unemployment in underdeveloped countries because of the fixed factor proportions in the industrial sector and growing population in the rural sector.

14.5.6 A CRITICAL APPRAISAL

Prof. Higgins tries to present an historical evolution of the modern and traditional leading to a steady rise in underemployment in the latter sector. Technological dualism appears to be superior to Boeke's social dualism. It is realistic for it takes into account how disguised unemployment gradually arises in the rural sector of the dualistic societies.

- (1) Coefficients not Fixed in Industrial Sector.** The theory assumes that production in the industrial sector is carried on with fixed proportions between labour and capital. However, this assumption is not valid as it is not supported by empirical data. Modern age is a dynamic age and to talk of fixed coefficients in this dynamic age appears to be quite unconvincing. Change is the rule of life and hence everything is likely to undergo a change in the dynamic world, nothing remains fixed or constant. Thus, the assumption of fixed coefficients is untenable.
- (2) Factor Prices do not Depend upon Factor Endowments.** This theory indicates why factor endowments and different production functions have led to the rise of disguised unemployment in the rural sector. This is vitally connected with the pattern of factor prices. But factor prices do not solely depend on factor endowments.
- (3) Neglect Institutional Factors.** Moreover, there are many institutional and psychological factors that also influence factor proportions which have been neglected by Higgins.
- (4) Use of Labour Absorbing Technique ignored.** This theory indicates that highly capital intensive techniques are used in industrial sector while such techniques are generally labour absorbing. In this way, it has totally ignored the use of other techniques which are also labour absorbing. Further, all imported techniques are not labour absorbing.
- (5) Concept of Disguised Unemployment is Ambiguous.** Higgins theory of technological dualism does not clarify the nature and extent of disguised unemployment in the rural sector.

Similarly, he fails to assess the extent of excess labour supply in industrial sector. In this way, the technological dualism seems to be quite ambiguous.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is the meaning of technological dualism?

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Q2 Explain the role of fixed technical coefficients in the industrial sector and how it contributes to unemployment.

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Q3 What is disguised unemployment, and how does it emerge in the agricultural sector according to Higgins?

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14.6 THEORY OF FINANCIAL DUALISM

14.6.1 MEANING OF FINANCIAL DUALISM

The theory of financial dualism was developed by L M. Myint. Financial dualism refers to the co-existence of different interest rates between the organized and unorganized money markets in underdeveloped countries. The rate of interest in the unorganized money market in traditional sector is relatively much higher as compared to the rate of interest in the organized money market in modern sector.

According to Prof. Myint, the unorganized money market consists of the non-institutional lenders like village money lenders, shopkeepers, traders and landlords etc. They charge very high rate of

interest on account of several factors.

The main factors are

- (i) There is acute shortage of money due to small savings.
- (ii) Substantial amount of money is hoarded in gold, silver and land.
- (iii) The risks and costs of lending money are quite high due to a large number of small borrowers.
- (iv) The village shopkeepers, traders, landlords and money lenders occupy key position in the village economy and have monopoly powers over the peasants.
- (v) The security offered against the loan is quite nominal. Usually, unsecured loans are given against personal security of the peasant.
- (vi) There is flexibility in loan transaction and blending of money lending with other type of activities such as selling of goods on credit at comparatively very high prices.

On the contrary, in the organized money market of the underdeveloped countries, the rates of interest are low and the credit facilities are available in abundance. The organized money market consists of commercial banks and other financial institutions which lend short-term as well as long-term credit at low rate of interest to modern business sector. Prof. Myint points out two differences between the old financial dualism which existed in the open economy of colonial period and new financial dualism which now exists in the closed economy of the underdeveloped countries following domestic industrialization policies.

As regards currency system, under the old colonial period it was automatic and ensured free convertibility at fixed exchange rates. Thus, there was no shortage of foreign exchange and no balance of payments problem. However, the present underdeveloped countries are faced with chronic inflation and balance of payments problems. Consequently, small business units like peasants, small traders, handicraft producers etc. in the traditional sector were required to face not only the problem of high interest rates but also of foreign exchange, balance of payments and imports etc. Under the colonial system, the organized money market of the underdeveloped countries consisted of the branches of the western commercial banks which were linked with international financial market.

The modern sector in the colonial system consisting of mines, plantations and foreign trading enterprises was in a position to borrow money at low rate of interest both from commercial banks and from the international capital markets. However, now the underdeveloped countries have attained the monetary freedom with the establishment of their own central banks. Further, they have introduced foreign exchange control measures and have restricted profit remittances as well

as transfer of funds by foreign commercial banks. As a result, the organized money market of the underdeveloped countries has been separated from the world capital market. Coupled with this, they have been following cheap money policy. This has led to a situation in which there is the scarcity of the requisite capital in the underdeveloped countries and the central banks are maintaining lower interest rates than prevailing in the capital market of the rich developed countries and thereby overvaluing their exchange rates. It has resulted in the repeated devaluation of their currencies leads to inflationary pressures.

Inflationary pressures reduce the foreign exchange reserves resulting in balance of payment crisis. Thus, there is great demand for foreign exchange even at overvalued exchange rates. In order to overcome this difficulty, they have concentrated on foreign exchange and import control measures as well as monetary fiscal measures and other direct measures.

According to Prof Myint, this had led to the aggravation of the economic dualism between traditional sector and modern sector. As a matter of fact, these fiscal and monetary measures have favoured the modern industrial sector as against the traditional sector. The cheap money policy by maintaining artificially low rates of interest has made credit available to large industrial concerns at favourable terms. The low rates of interest have discouraged the flow of capital funds from abroad and public savings in the country. It has resulted in heavy demand of loans. The bulk of domestic savings at low rates of interest has been diverted to the modern industrial sector. Thus, the supply of capital to the traditional agriculture sector and small industries has been reduced considerably with the result that they are forced to arrange the same even at higher rates of interest.

On the contrary, the agricultural traditional and small sectors suffer from the problem of foreign exchange and import controls on several grounds, such as,

- (i) They get imported consumer goods at relatively high prices
- (ii) They fail to obtain the foreign exchange and import permits easily,
- (iii) They also suffer because the government expenditure or public services favours the urban areas as against the rural areas.
- (iv) Public utility services like transport, communications and electric power are easily available at favourable terms to modern industrial sector than to the traditional sector.
- (v) They are easily victimized by the red-tapism and corruption prevailing in the society.

14.6.2 SHORTCOMINGS OR CRITICISM OF FINANCIAL DUALISM

According to Prof. H. M. Myint, the efforts made to control the activities of the small money lenders and to provide cheap and easy credit facilities in the 'traditional sector through commercial banks and cooperative credit societies have failed on account of the following reasons:

- High overhead costs and salaries of the officials of commercial banks and cooperative credit societies in rural areas.
- The red-tapism in dealing with small borrowers.'
- Lack of necessary coordination between head office and its branches.
- Gross favoritism in giving subsidies and loans.
- Rigid rules of assessing credit worthiness.
- Unsympathetic attitude of cooperative credit societies in granting loans.
- Non-availability of sufficient capital funds.
- The credit discrimination against trading activities.

14.6.3 SUGGESTIONS TO IMPROVE THE FINANCIAL DUALISM

Prof H. M Myint suggests the following three types of policies to reduce financial dualism in traditional economics:

- (1) Such countries should raise the official interest rates in their organized markets.
- (2) In order to create a more integrated domestic capital market free access on equal terms to capital funds should be provided both to the modern and traditional sectors.
- (3) The interest rates in the traditional sector should be reduced by providing unlimited access to credit funds on equal terms both to the cooperatives and moneylenders so that they may compete to lower the interest rates for the small borrowers.

14.7 THEORY OF DEPENDENCY

14.7.1 MEANING OF DEPENDENCY

Dependency may be defined as the state of one who receives charity or relief from the community, any of those goods and services which other members of that community receive in return for their labour or property or by virtue of their favoured position in the establishment order. In the similar way, the concept of dependency can be explained in terms of economic relations among nations — particularly between the western and the third world countries. A Brazilian social scientist, Dos Santos (1970), affirmed that:

By dependence we mean a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected. The relation of inter-dependence between two or more economies, and between these or world trade, assumes the form of dependence when some countries (the dominant ones) can do this only as a reflection of that expansion, which can have either a positive or a negative effect on their immediate developments.

Dependency theory, as such is a school of thought which attempts to explain the causes of economic development. All the dependency theorists share a common view that the force of international capitalism setting up a global division of labour has been the chief force responsible for shaping the history of the South. Capitalism—originally as mercantilism, then as free trade, later as finance capital, and finally under the auspices of the MNC—has created a world economic system binding together the globe. Dependency literature therefore, can be viewed as a subset of the so-called world system with profound changes it has witnessed. The distinguishing feature of all the dependency writers is that they treat the social and economic development of underdeveloped countries as being conditioned by external forces: namely, the domination of these countries by other, more powerful countries. They posit that under-development can be explained in terms of relations of domination in exchange, almost to the exclusion of an analysis of the forces and relations of production. However, there are varied approaches to deal with the concept of dependency.

14.7.2 APPROACHED TO DEPENDENCY THEORY

All the major approaches to a theory of dependency assume an anti-imperialist stance. These approaches are distinguishable through Non-Marxist and Marxist categories. For centuries, dominant nations have intervened in the internal affairs of other nations. The establishment of international financial institutions helped to ensure the hegemony of dominant nations over dependent ones. Even the establishment of aid programmes such as the Alliance for Progress designed as a device to serve U.S. Capitalism. All these approaches arrived at one point that the problems of the Third World arise from the pattern of growth pursued by the First World—“Underdevelopment is the product of developments”.

Most popular and significant among these approaches is “Capitalist development of underdevelopment as propounded by A.G Frank and Rodney.

APPROACHES TO DEPENDENCY

14.7.3 CAPITALIST DEVELOPMENT OF UNDERDEVELOPMENT

Andre (Junder Frank (1966) was among the first advocates of dependency theory and perhaps the most widely known dependency theorist. Frank used Brazil and Chile as case studies to backup his theory. He distinguished centre and periphery by referring to 'metropole' (for western world) and Satellite' (for third world). The most emphasized aspect of his theory is 'surplus extraction'. He argues that a 'surplus' is extracted from underdeveloped countries by advanced capitalist countries. The underdeveloped country is impoverished and fails to grow because it loses access to its surplus. Correspondingly, this surplus is appropriated by and invested in the advanced capitalist countries where it is one of the primary causes of rapid economic development. The extraction/appropriation dichotomy both causes and perpetuates the inequalities among countries. One can deduce from this analysis that in the colonial period it primarily took the form of the direct appropriation of products (looting and plundering), while in the modern period it takes the form of the repatriation of profits.

Frank set forth a number of premises to frame his theory in *his* work Capitalism and Underdevelopment in Latin America.

First, underdevelopment is not original or traditional. The new developed countries may once have been undeveloped, but they were never underdeveloped. Contemporary underdevelopment (dependency) is due to the relationship between the now developed metropolitan countries and the underdeveloped satellite countries, which reflects the development

of an exploitative capitalist system on a world scale.

Second, the view of dual societies (as given by Raul Prebisch) — one modern, capitalist, and developed and the other isolated, feudal or pre-capitalist, and underdeveloped is false because the underdevelopment of backward areas, is a product of the same historical process of capitalist development that shaped the development of the progressive areas.

Third, metropole-satellite relations (the western world and third world countries) are found at the international level as well as in the economic, political and social lives of the colonies and neo-colonial countries.

Fourth, In the times of war and depression allowed some kind of autonomous capitalist development in the satellite but within the present capitalist system such development is destined to result in underdevelopment.

Fifth, the most underdeveloped and dependent regions are those that in the past had the closest ties to the metropole. They were the greatest exporters of primary products and a major source for capital, but they were abandoned once business declined.

Thus, the theory of a capitalist development of underdevelopment linked the development of the western countries to the underdevelopment of the third world countries. Frank perceived underdevelopment to be related to exploitation. The underdeveloped countries are the products of capitalist, imperialist, and colonialist exploitation; they are underdeveloped, not developing, because they are not escaping from their backward conditions. Like Frank, Rodney too, examined metropolises and satellites and the dependent relationship between them.

Frank emphasized commercial monopoly rather than feudalism and precapitalist forms, as the economic means whereby national and regional metropolises exploit and appropriate surplus from the economic satellites. The different means through which western world or metropolises perpetuate the dependence of the satellites are:

- Role of MNCs (multinational corporations) in controlling the world trade.
- Capturing of world market by western capitalist classes owing MNCs.
- Use of military intervention for influencing the third world regimes.
- Use of aid and assistance to pressurise as well as influence the policies of the third world.
- Use of International Monetary Institutions.
- Cultural Imperialism.

All the exchange and trade relations are heavily in favour of the western countries. 'Thus, capitalism on a worldwide scale promotes developing metropolises at the expense of underdeveloping and dependent satellites. Frank's theory, as such, transcends a structural functional position and thus gives a dynamic rather than a static character to his argument.

14.7.4 OTHER APPROACHES OF DEPENDENCY THEORY

While analysing the concept of dependency, it also becomes necessary to be acquainted with the views of other writers and their approaches.

Desarrollista (development), Structuralism and Nationalist autonomous development.

The UN sponsored ECLA (Economic Commission for Latin America) under the aegis of Paul Prebisch (of Argentina), held the view that the developing nations are structured into dual societies — one advanced and modern, and the other backward and feudal. The basic argument is that, as capitalist penetration has occurred successfully in Latin America, Asia, and Africa under the impetus of western imperialism, one part of the local economy of each region has developed into a modern enclave. The basis of modern sector is to export trade. Here capital accumulates, skills are learned, and class interests are formed whose hidden- needs make them tied with foreign concerns.

Alongside the modern economy, exists traditional sector. As its name implies, the traditional sector has a technology, culture and social institutions inherited from its part. The modern economy works to disintegrate traditional society. Cheap manufactured goods destroy traditional artisanship, the expansion of plantation agriculture displaces large numbers of peasants, forcing them into poorer land. In short, the modern sector of the dual economy acts like a leech on the body of its very exploitation consolidating its own power.

The ECLA approach was anti-imperialist in the sense that it linked Latin American underdevelopment to the international economic system. Furtado examined the inequalities in Brazil throughout historical periods, tracing the shift of major economic activity and production from the north-east to the centre-south region. He argued that the state was to serve the masses by preventing a concentration of income in the privileged sectors, by widening the market to all segments of the population, and by influencing technological change. Sunkel in support of this argument stated that this transformation of the existing structures was necessary for autonomous growth; he believed that participation of the masses, including the marginal population, was essential.

Internal Colonialism

The theory of internal colonialism was proposed by the Mexican sociologist Casanova, to which Sunkel also alluded. Casanova argued that the same conditions of traditional colonialism are found internally in nations today. The conditions of monopoly and dependence in the sense that the metropolis or core areas dominate the isolated communities or the peripheral areas; relations of production are central in terms of exploitation and discrimination of the peripheral sector by the core. This led to the marginalisation of the people, low levels of education, unemployment and underdevelopment, and lack of nourishment such experience is similar to that of colonised people. Thus, resistance can be mounted against monopoly capitalism turned inward and capitalist exploitation.

Poles of Development

This theory, as elaborated by the Brazilian geographer Andrade, assumes that under developed economies are characterised by a lack of infrastructure in transportation and communication; by a dual economy, with advanced areas existing alongside subsistence ones; and by dependence upon external decisions even pertaining to the production of primary products. These conditions may be overcome by diffusing capital and technology to underdeveloped centres. Through careful planning a balance in the economy can be achieved resulting in autonomous development.

Dependent Capitalist Development

Cardoso, another dependency theorist, put forth the concept of 'Dependent capitalist development'. He contended with the idea that capitalism promotes underdevelopment. He argued that capitalist development can occur in dependent situations. Dependent capitalist development had become a new form of monopolistic expansion in the third world. This development has benefited all classes associated with international capital, including the local agrarian, commercial, financial, and industrial-bourgeoisie and even the working class employed in the international sector, but it undermines national interests that are not linked to the multinational corporations, such as local entrepreneurs. The result is the fragmentation of interests between those associated with the multinationals and those marginalised by them. Under such conditions, the bourgeoisie often becomes unstable, prompting military intervention and rule.

Monopoly Capitalism

The major contemporary line of thinking on this subject was set forth by Paul Baran and Paul

Sweezy. They argued that it is imperialism which constitutes a monopolystage of capitalism composed of large scale enterprises. Baran and Sweezy like Frank, emphasized that the surplus extraction from the third world underdeveloped countries by the developed countries is the main factor of the division of the world into rich and poor countries. Historically, the looting and plundering of the colonies by the 'metropolitan' countries was the main cause of the latter's growth and of the stagnation of the colonies; and this same dynamic explains the persistence of underdevelopment today.

Sub imperialism

Ruy Mauro Marini, a Brazilian Economist in Theory of Sub imperialism and Super Exploitation has argued that the underdevelopment of capitalism is limited by the size of the capitalist market. In the underdeveloped capitalist countries, the role of the working class is that of producers and the product of its labour is exported. Since the product is exported, there is no need for this working class to serve as consumers and its wages can be forced down without limit. Thus the workers are super exploited in the "dependent country" and there is no mechanism for their wages to rise since they are not needed for realization. Since wages do not rise, the internal market does not expand, accumulation in the dependent country is retarded or 'deformed'. The commodities exported from the underdeveloped country are realized by the consumption of the working class in the developed capitalist countries. In essence, Marini is arguing that the 'surplus value' is produced in the periphery and appropriated at the center. Under-consumption merely provides the mechanism by which this appropriation occurs. Thus, the economy becomes highly dependent over the western countries.

New Dependency

Dos Santos took exception to Frank's emphasis on 'surplus-extraction' as the principal cause of underdevelopment. Dos Santos outlined the concept of 'new dependency' which emerged after the Second World War, based on the investments by MNCs. The theory of new dependency attempts to demonstrate that the relationship of dependent countries can not be altered without a change in internal structure and external relations. Further, the structure of the dependency deepens, leads dependent countries to underdevelopment, and aggravates the problems of the people, as those countries conform to an international and internal structure strongly influenced by the role of MNCs as well as by the capital markets.

Arghiri Emmanuel (1972) in "Unequal Exchange" and Samir Amin (1976) in "Unequal

Development” too, like Frank and Baran, see underdevelopment as conditioned by external forces and the cause of underdevelopment as located in exchange relations. For both of them, the extraction and subsequent appropriation of surplus value is accomplished through unequal exchange between the underdeveloped and the advanced capitalist countries. They argue that as a consequence of the equalization of the rate of profit in the international market, advanced countries appropriate more labour time in exchange than they generate in production, resulting in the backward to the advanced capitalist countries. Because of their control over the world market, the western countries are appropriating more surplus. In his book “Delinking”, Amin argued in favour of sub-sufficient development as well as socialist transformation of the economy of the third world countries and to delink the economic relations between the third world and the western countries.

In recent years, within the dependency theorists, ‘mode of production schools’ have emerged. Adan Foster and Meilla Ssoux have argued that in the third world both the capitalist mode of production as well as pre-capitalist mode of production exists. Because of this articulation between the capitalist and feudal mode of production, the exploitation of the third world labour classes becomes much more evident. The feudal relations of production often help the local as well as western capitalist classes in exploiting the labour classes thereby the underdevelopment of the third world countries become much more evident.

However, there are many theoretical problems with this analysis of dependency theorists. Critics generally, accused dependency writers of lack of a unified dependency approach. So, it is useful to turn towards a critique of dependency paradigm.

14.7.5 A CRITICAL ASSESSMENT

In setting forth its centre-periphery thesis, ECLA (Economic Commission for Latin America) correctly linked underdevelopment to the international system and thus affirmed it as an underlying assumption of dependency theory. But the thesis neglects a close examination of the policies and specific needs of the nations of the centre, and it mistakenly attributes backwardness to traditional or feudal oligarchies. Again, it is wrong to assume that development would be promoted by a progressive national bourgeoisie, and suggested import substitution as a solution to consumptive dependence on the outside world. Although, the development of underdevelopment thesis of Frank has influenced many theorists, yet it has suffered from substantial criticism as well. The underdevelopment must be analysed in terms of classes, but the descriptions of class

structure offered in dependency theory are overly schematic. Another criticism sees dependency as an external phenomenon imposed upon the periphery rather than as an integral element. Another view holds that theory statically describes forms of dependency and fails to show changes. It is also believed that the term lacks specific content. Critics also blamed that Frank's theory departs from the rigor of Marxism.

Baran and Frank emphasized that 'surplus extraction' as the cause of the division of the world into rich and poor and extraction is an aspect of the relationship among countries. No reference was given to classes, whereas in fact, the production and subsequent appropriation of a surplus product is an aspect of the relationship between classes.

Again, Frank's theory does not deal with how the surplus product is produced and initially appropriated, but considers only how it is exchanged. The analysis makes little reference to the forces and the relations of production or the 'mode of production' as elements in the analysis of development and underdevelopment. What in essence it suggested is that capitalism does not develop primarily on the basis of the 'exploitation of the proletariat', but upon the basis of the exploitation of countries.

Furthermore, the idea of repatriation of profits as one mechanism for the extraction of the surplus product lacks internal consistency. If as dependency theorists assume, 'capital' is invested in the underdeveloped countries because the rate of profit there is higher than in the advanced capitalist countries, it would appear contradictory for there to be a general tendency for profits to be repatriated, appropriated and invested in the developed countries. One would logically assume that profits would be reinvested in the underdeveloped country to take advantage of the higher rate of profit. Agustin Cueva believed that Frank failed to root his discussion of capitalism in an analysis of the prevailing modes of production. He even went on to accuse Dos Santos of confusing the worldwide expansion of capitalism with economic growth in the periphery.

Similarly, Sunkel elaborated on the need for national development but departed from the mainstream of ECLA thinking. Sunkel referred to mechanism of dependency (like agricultural stagnation, commodity concentration of exports, foreign ownership of industry, and foreign public debt) and incorporated them into a global view of an external dependence. His policy suggestions focused on changes in the structure of internal production and in the structure of institutions, namely the multinationals, reinforce the mechanism of dependency.

Although these writers rejected old developmental formulas, they also set into motion a new orthodoxy. Their search for a national and autonomous development was offset by the challenge of other theorists, who believed that independent capitalist development was not feasible and instead,

socialism must be introduced along with a planned political economy and an intensive utilization of natural resources.

The internal colonial model of Casanova stresses national rather than external conditions. The emphasis on internal forms or conditions of colonialism may be misleading. The belief that autonomous development under capitalism may resolve the contradictions of dependency in backward nations overlooks the force of international capital, technology, and markets. Therefore, the concept suffers from weak conceptualization. Cardoso's theory of dependent development has been the subject of criticism in the sense that, rather than utilizing class as a central concept, he focused on the structural relations of various groups and he overlooked the role of class struggle.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is meant by the term "dependency" in the context of international economics?

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Q2. What is meant by "capitalist development of underdevelopment" as per A.G. Frank?

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Q3. Describe the ECLA approach to dependency.

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14.8 Lets Sum-up

Dr. Boeke fails to provide a distinctive economic and social theory for underdeveloped economies. The dualistic theory undoubtedly explains the various traits of eastern economies but

fails to furnish an integral approach to the social and economic theory of such countries. On this ground, dualistic theory failed bitterly. Similarly, Boeke's use of the tender, delicate, hot plants of western theory seem to have in mind only flea-classical theory. But this economic theory is inapplicable in many ways even to the western world. In this way, it can be concluded that this theory does not provide answer to problems of underdevelopment. In the end, there are no special economic theories or methods of analysis fashioned uniquely for the study of underdeveloped world.

Despite the above criticism, we may conclude that Higgins' theory of technological dualism is superior as compared to Boeke's theory of social dualism. It appears to be more convincing in saying that technological dualism is the real cause of structural and technological unemployment in the dualistic economies.

Though the dependency theories are criticized for the lack of conceptual clarity in their interpretations, still, there is no sufficient evidence to reject the dependency hypothesis fully. Many thinkers like Tyler and Wogard (1973) have affirmed the thesis of Baran, Frank and other dependency theorists that less developed peripheral nations are exploited and kept relatively backward by their dependence on advanced capitalist nations, Szymanski noted that within the dependent countries, the greater the dependence, the more rapid the economic growth.

14.9 Glossary

- Dualism: The coexistence of two contrasting economic systems (modern vs traditional) within the same economy.
- Social Dualism: Boeke's concept of conflicting eastern (traditional) and western (capitalist) societal systems.
- Technological Dualism: Higgins' theory explaining dual production functions leading to unemployment in underdeveloped countries.
- Financial Dualism: Myint's concept of dual financial markets with different interest rates and access to credit.
- Dependency: A condition where the development of some countries is constrained by their reliance on and exploitation by others.
- Surplus Extraction: The process by which developed countries appropriate economic surplus from underdeveloped ones.

- Internal Colonialism: A condition where certain regions or classes within a country dominate and exploit others.
- Disguised Unemployment: A situation where surplus labour exists with zero or negligible marginal productivity, especially in agriculture.

14.10 FURTHER READINGS

Agarwal R.C : Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L : The Economics of Development and Planning

Jhingan M.L : Advanced Economic Theory

14.11 Hints to Check your Progress (CYP)

CYP-I

Q1 Refer to **Section 14.7.1**

Q2 Refer to **Section 14.7.3**

Q3 Refer to **Section 14.7.4**

CYP-II

Q1 Refer to **Section 14.5.1**

Q2 Refer to **Section 14.5.4**

Q3 Refer to **Section 14.5.5**

14.12 SELF ASSESSMENT EXERCISE

Q1. Critically examine Boeke's theory of social dualism?

Q2. State and explain Myint's theory of financial dualism?

Q3. What is meant by dualism? Give its main elements?

Q4. What is dualism? Explain its main types?

Q5. State and explain the meaning of technological dualism?

Q6. How do you define the concept of Dependency?

Q7. "Underdevelopment is the product of developments". How do you understand this?

Q8. The most emphasized aspect of A.G Frank theory is “Surplus extraction”. Explain?

Q9. Frank set forth four premises to frame his theory. What are they?

Q10. How do you understand the ECLA approach of Dependency?

Agriculture: Role, Transformation and Rural Development

STRUCTURE

15.0 Objectives

15.1 Learning Outcomes

15.2 Introduction

15.3 Role of Agriculture in Economic Development

15.4 Transformation of Agriculture

15.5 Strategy towards Rural Development

15.6 Let us sum up

15.7 Glossary

15.8 References/ Suggested Readings

15.9 Hints to Check Your Progress

15.10 Examination Oriented Questions

15.0 Objectives

After going through the lesson, the student should:

- i) Understand the role of agriculture in economic development.
- ii) Be able to understand the economic aspect of transformation of agriculture sector.
- iii) Be able to understand the essential conditions required for rural development.

15.1 Learning Outcomes

After completing this lesson, students will be able to:

1. Understand the multiple roles played by agriculture in economic development including product, factor, market, and foreign exchange contributions.
2. Explain the transformation stages of agriculture from subsistence to specialized farming.

3. Analyze strategies required for effective rural development, including technology, land reforms, and credit systems.
4. Evaluate the challenges faced by small and marginal farmers and suggest policy interventions for inclusive agricultural growth.

15.2 Introduction

Traditionally, the role of agriculture in economic development has been viewed as passive and supportive. However, based on historical experience of western countries, economic development was seen as requiring a rapid structural transformation of the economy from one predominantly focused on agricultural activities to a more complex modern industrial and service society. Today, development economists have realized that agriculture sector must play an indispensable part in overall strategy of economic development, especially for low income developing countries. For the economic development to take place in agriculture, the sector also passes through certain phases which are a pre-requisite for rural development to take place.

15.3 Role of Agriculture in Economic Development

Thirlwall explains four major contributions of agriculture to the process of economic development: product contribution, a factor contribution a market contribution and a foreign exchange contribution.

1) Product Contribution

One of the major contributions of agriculture sector is to provide marketable surplus. Marketable surplus is the difference between total agriculture output and subsistence needs. The product contribution of agriculture refers to the fact that agriculture must supply food above subsistence needs in order to feed labour working in alternative occupations. Economic progress in the early stages requires an increase in marketable surplus. If marketable surplus does not rise according to the demand, the price of food will tend to rise. This will turn the terms of trade against industry, higher wages will have to be paid to workers in industry which will lead towards less profit and less capital accumulation and less industrial growth.

2) Factor Contribution

The factor contribution refers to the fact that agriculture must supply labour as well as capital to industry and other activities at least in the early stages of economic development. Labour contribution of agriculture is realized from the concept of surplus labour as explained in famous Lewis model of economic development with unlimited supplies of labour. If surplus labour is

released from agriculture to industry, this would lower the cost of industrial labour which means fast industrial expansion. Secondly, agriculture not only supplies cheap labour to industry but also supplies saving and capital accumulation. Historical experiences show that industrial revolution in Britain was partly financed by voluntary saving done by rich landlords and further investing it. This part of the material is heavily dependent on Thirlwall 2006. In industrial activities. Not only this even peasant farmers investing small savings in rural banks can become the part of capital accumulation.

3) Market Contribution

This is well documented in the historical experience of development countries that in the early stages of development the agriculture sector is likely to provide the largest market for industrial goods. Even in World Bank's 1979 World Development Report remarked that a stagnant rural economy with low purchasing power holds back industrial growth in many developing countries. Therefore, low farm prices can be considered good for industry from supply side. But on other side, low farm prices are bad for industry from demand side. As it implies low purchasing power of farmer which further leads to low demands for industrial goods. And low demand means low industrial growth. Therefore, there needs to be an equilibrium terms of trade between the two sectors to achieve balanced growth.

4) Foreign Exchange Contribution

In the initial stages of economic development, the only source of foreign exchange earning comes from the export of primary sector commodities. For economic development to take place, capital goods are the pre-condition for necessary development process. Since developing countries lack these types of goods, foreign exchange earnings from exports of agricultural goods provides an access to import of capital goods thus expanding the industrial growth.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What are the four major contributions of agriculture to economic development as identified by Thirlwall?

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Q2. What is meant by marketable surplus and how does it impact industrial growth?

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Q3. How does the agriculture sector contribute labour and capital to industry during early development stages?

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Q4. Why must terms of trade between agriculture and industry remain balanced for sustainable growth?

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15.4 Transformation of Agriculture

For a mixed market developing economies modernization of agriculture may be described as gradual and sustained transition from subsistence to diversified and specialized production. This transformation involves much more than reorganizing the structure of the farm economy and applying new agriculture technologies to transform traditional agriculture the entire social, political and institutional structure of rural societies needs to be changed which further required profound steps. According to Wertz, the evolution of agricultural production from a pre-dominantly subsistence level and small-scale peasant orientation to specialized agriculture, there are different broad stages which evolve over time and leads towards agricultural and rural

development.

1. Subsistence Farming: Risk Aversion, Uncertainty and Survival:

Subsistence farming is one of the most primitive forms of farming wherein the goods are produced only for self-consumption. For the farmers agriculture is the means of subsistence. Only few staple food crops are grown which includes wheat, barley, rice or corn. And that too with the help of family labour only.

Simple traditional methods and tools are used. Therefore, output and productivity and capital investment are very low. In this type of farming farmers' fear for their survival as their family is at stake. Due to fragmented markets and lack of communication between rural and urban areas, the farmer is reluctant to produce more. He usually cultivates only as much land as his family can manage without the need for hired labour. There are technological limitations and even the environment is static because of rigid social institutions. For most of the year the labour is underemployed because of seasonal nature of agriculture. Failures of rain, dependence on moneylenders are the hindrances on the farmer's existence and cause him to fear for his survival. One another feature of subsistence farming is that there operates law of diminishing returns as more labour is applied to shrinking parcels of land. One of the common features in most of the developing countries is that their agriculture is still in its subsistence form. Since these peasants live in a static environment, there is always a fear of uncertainty that surrounds them while some arguments are given that these peasants are irrational and that they will not be ready to adopt new technology. On the other hand, the justifications that are given is that these subsistence farmers are more rational when confronted with alternative opportunities. But is it only due to fear of survival and uncertainty that they do not want to take any sort of risk in the form of adopting a new technology. There is always a sense of insecurity that surrounds them because human life is at stake with limited access to institutional credit and insurance if a farmer is asked to shift from traditional technology that he has known from last many years to a new modern technology in the form of use of hybrid seeds which is given him more production or yield but many have greater risk of crop failure. In such circumstances, the farmer will be reluctant to adopt this new technology. A risk averse peasant farmer will always prefer a technology of food production that may result into low production but probability of getting this production is high that is risk attached to crop failure is low than to that new technology where though production is high but risk of crop failure is also high. Therefore, for developing countries if they actually want to raise agriculture productivity among small farmers or subsistence farmers besides coming up with new technology, government should provide the farmers

adequate credit and insurance against the risk of crop failure. For the transformation of agriculture from subsistence to diversified farming will only take place only when government assure them risk cover as well as provide them guaranteed price as well as complementary expects like fertilizers, irrigation etc. so that risk attached to new technology could be minimize. Then, one can expect that these peasant farmers will actually now behave rationally and shall response to economic incentives and opportunities and would result into agriculture transformation.

2. Mixed and Diversified Farming

It is not desirable to instantly think of transforming a traditional agrarian system that has been there for many generations into a highly specialized commercial farming system. Therefore, from subsistence to specialized production should be adopted. This is the stage of diversified or mixed farming. In this stage, new cash crops such as fruits, vegetables, coffee and tea are established along with new economic activities like animal husbandry and can be taken because of disguised unemployment and due to seasonality work of farms. So that advantage land and family labour can be taken up. Some labour-saving devices are also introduced during the peak season when labour is in short supply. With the use of new and better seeds, fertilizers and simple irrigation techniques the yield of staple crops like wheat, maize and rice would increase and can free part of the land for cash crops cultivation while ensuring an adequate supply of the staple food. This would result into marketable surplus which the farmer can sell in the market and earn income. Thereby farmers' living standard and also his farm investments would increase.

If a farmer is given a reasonable and reliable access to credit, fertilizer, water, crop information and marketing facilities, transformation of traditional agriculture can become possible with better social, commercial and institutional condition, farmers ability and skills can be enhanced which may result into increase in productivity. Evidences suggest that under proper conditions farmers actually response opportunities and ready to bring about radical changes on their farms.

3. Specialized Farming

Specialized farming is the most advanced stage of agriculture. This type of farming is most prevalent in advanced industrial nations. The emergence of this specialized phase of agriculture evolved in response to and parallel with development areas of the national economy. It is the general use in living standards, biological and technical progress and the expansion of

national and international markets that has provided a stimulus to its growth.

In this type of farming, production for self consumption is no longer the goal rather profit is the only motive synthetic (irrigation, fertilizer, pesticides hybrid seed etc) and natural resources. It is the capital formation, technological progress, scientific research and development play major role in stimulating higher levels of output and productivity.

The size of farm and function varies in specialized farm. They range from intensively cultivated fruits and vegetable farms to the vast wheat and corn fields of North America.

Thousands of hectares of land is cultivated with the use of sophisticated labour saving mechanical equipment ranging from huge tractors and combine harvesters to air borne spraying techniques.

In specialized farm more emphasis is on cultivation of one particular crop and that too with the help of capital intensive techniques and stress is on achieving economies of scale i.e. to reduce cost and maximize profits. This type of farming is no different from large industrial enterprises and in most of the developed nation, largest specialized farming operations are owned and managed by large agro- business multinational corporate enterprises.

Thus these three types of farms co-exist in almost all LDCs at any given time and for the majority of LDCs subsistence farming is the dominant one.

15.5 Strategy towards Rural Development

It has long been accepted that a majority of the world's poor people live in rural areas. And these poor people pass through series of problems which affect their survival and quality of life. Therefore, one of the objectives of developing nations is to bring about agricultural and rural development. And this very objective can be achieved through increase in small-farm incomes, output and productivity and also some basic conditions essential to achieve objective of rural development are required to be fulfilled.

A policy analysis of rural development in developing countries should focus on three key areas:

- a) Technological change and innovation.
- b) Appropriate government economic policies.
- c) Supportive social institutions.

1) Technology and Innovation

New agricultural technologies and innovations in farm practices are pre-conditions for sustained improvement in the level of output and productivity. The main source of technological innovation that can increase farm productivity is mechanized way of farming, introduction of HYV seeds, provision of irrigation and fertilizer, pesticides and insecticides. As far as mechanized way of farming is concerned no doubt it would help to increase output and efficiency of agriculture. Especially where land is extensively cultivated and labour is scarce. But one of the associated problems with adopting this technology is that in most of the developing countries, land is small in size and fragmented on one side and on other side labour is in abundance supply so the introduction of heavily mechanized techniques may not suit the physical environment and can also lead towards rural unemployment. On the other hand, there are also arguments that introduction of machines shall result into increasing labour and land productivity which would rather improve the agriculture sector. Secondly, introduction of hybrid seeds, irrigation, fertilizers, pesticides and insecticides are considered to be land augmenting technologies and help to improve the quality of existing land. As explained by Todaro, these measures are technologically scale neutral; theoretically, they can be applied equally effectively on large and small farms and are well suited for tropical and sub-tropical regions.

2) Institutional and Pricing Policies

Institutional and pricing policies are one of the most important sources that can have a greater impact on lives of rural people and thereby increase small scale agriculture. Unfortunately, the government policies with respect to technological innovation are often biased. It is the big land lords those who gain more as has happened in case of India. Many evidences suggested that green revolution has benefited big land lords more than the small and marginal farmers which have further impoverished the masses of rural peasants. Big land lords often with more income level can have an access to all the technologies and support services and are able to gain a competitive advantage over small holders. While large farmers obtain access to credit at low interest from institutional sources and on the other hand small farmer still resort to local money lenders because of comfort level and easy accessibility. This results in widening gap between rich and poor and thereby few progressive farmers are net gainers. Therefore, the role of active government policies and social institutions can go a long way to evolve the agrarian structure and benefit the small and marginal farmers. Not only this, even utmost care had to be given while framing the pricing policies for agricultural commodities especially food grains and other staple food produced for local market since policy makers of developing countries in order to promote rapid industrialization process have deliberately kept the food

grain prices at a low level, resulted into low income of farmers and low output. With no incentive to expand output leads toward fall in the supply of food grains in relation to demand. Thereby, it is been suggested for developing countries that for progressive small-scale agriculture not only technological policies but also appropriate institutional and credit policies should be framed.

Conditions required for Rural Development

There are certain necessary conditions that are required for proper rural development.

1) Implementation of Land Reforms

For rural development to take place, it is essential for government to take up those policies which benefit not only large farmers but also small farmers. Since a small farmer is more attached to his farm, a provision of secure tenure rights to the individual farmer shall go a long way to improve his standard of living but if he is driven off his land and is gradually impoverished through accumulated debts, not only his material well being is damaged but also his self respect and his desire to work more is badly affected. For more efficiency and equity objectives, land reforms are a necessary condition. It usually leads towards a redistribution of the rights of ownership or use of land away from large land owners and in favour of cultivators or land less labourers. Economist like Myrdal stresses that land reforms holds the key to agricultural development in Asia. A report by FAO, argued that land reform is the need of the hour because of growing income inequality and unemployment. And even the benefits of technological advancements cannot be fully exploited without institutional change through land reforms takes place in developing countries.

2) Provision of Credit and Marketing Facilities

For proper rural development to take place and to achieve small scale agricultural development, provision of credit through setting up of rural bank and imbursement of loan at a lower or no rate of interest by taking special needs of small and marginal farmers. Other support services like removing marketing inefficiencies can be the other step. For proper distribution network, marketing system can be improved by providing storage transport facilities not only this other supportive policies like removing factor price distortions can also go a long way to improve rural economy. Even where land reforms are not required but productivity and income is low, this broad network of external support services, along with appropriate government pricing policies related to both farm inputs and outputs, is an essential condition for rural development.

3) Integrated Development Objectives

Majority of population found in rural areas of developing countries are illiterate and lack skills required for human and as well as rural development. Schultz says that transformation of agriculture sector cannot take place until government investment in education does not take place. The third condition for rural development encompasses increased provision of education health and nutrition along with increased industrialization would help to bring more equality among rural and urban areas and also leads towards capacity of rural sector to sustain and accelerate the pace of improvement over time.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What are the three core areas that rural development strategies in developing countries should focus on?

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Q2. Why have technological policies like the Green Revolution largely benefitted large farmers?

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Q3. How do land reforms support agricultural and rural development?

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Q4. What support services are essential to improve rural marketing and credit access?

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15.6 Let Us Sum UP

Thus, agriculture and rural development is today seen as pre-requisite for economic development of a country. There is a need to transform the agriculture with proper policies of the government focusing on providing all sort of securities to the farmers in the form of provision of adequate credit, insurance against crop failure, providing irrigation and seeds along with proper implementation of land reforms.

15.7 Key words

- **Marketable Surplus:** The portion of agricultural production that exceeds the subsistence needs of the farmer and is available for sale.
- **Product Contribution:** Agriculture's role in providing food and raw materials necessary for other sectors.
- **Factor Contribution:** The supply of labour and capital from agriculture to other sectors like industry.
- **Subsistence Farming:** A traditional form of agriculture where farmers produce primarily for self-consumption using simple tools and methods.
- **Diversified Farming:** A stage of transformation where farmers grow multiple crops and engage in allied activities to increase income.
- **Specialized Farming:** Advanced stage of farming focused on a single cash crop using capital-intensive and modern techniques.
- **Risk Aversion:** The reluctance of farmers, especially small ones, to adopt new technologies due to uncertainty and fear of crop failure.
- **Green Revolution:** A period of technological advancement in agriculture involving HYV seeds, fertilizers, and irrigation—mostly benefitting large landholders.
- **Land Reforms:** Policy measures aimed at redistributing land to the landless and small farmers to improve equity and productivity.
- **Rural Development:** A comprehensive approach to improve the economic and social well-being of people living in rural areas through agriculture, infrastructure, education, and health.

15.8 References/ Suggested Readings

1. Dewett, K.K. and Satish Wadhawan (1985), *Economics of Growth and Development*, S. Chand and Company, New Delhi.
2. Johnston, B.F. and J. Mellor (1961), “*The Role of Agriculture in Economic Development*”, American Economic Review, September.
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4. Thirlwall A.P. (2006), *Growth and Development*, Palgrave, New York.
5. Todaro, M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.

15.9 Hints to Check your Progress (CYP)

CYP-I

Refer to Section 15.3

CYP-II

Refer to Section 15.5

15.10 Examination Oriented Questions

1. What is the role of agriculture in economic development?
2. What strategies are required for rural development to take place?
3. How the transformation of agriculture sector can take place in developing countries?
4. What is meant by marketable surplus?
5. Explain how marketable surplus leads towards industrial growth?
6. Explain how low farm prices can prove bad to industrial growth from the demand side

**Industry: Rational, Pattern and its Complementarity with
Agriculture**

STRUCTURE

- 16.0 Objectives
- 16.1 Learning Outcomes
- 16.2 Introduction
- 16.3 Rationale of Industrialization
- 16.4 Pattern of Industrialization
- 16.5 Complementarity between agriculture and industry
- 16.6 Let us sum up
- 16.7 Key words
- 16.8 References/ Suggested Readings
- 16.9 Hints to Check Your Progress
- 16.10 Examination Oriented Questions

16.0 OBJECTIVES

After going through the lesson, the student should:

- i) Understand the rationale of industrialization in economic development.
- ii) Be able to understand the economic aspect of pattern of industrialization.

- iii) Be able to understand the complementarity between agriculture and industry.

16.1 Learning Outcomes

After completing this lesson, students will be able to:

1. Explain the rationale for industrialization in developing countries and its role in economic development.
2. Understand Chenery's pattern of industrialization and the phases of industrial sector growth.
3. Analyze the concept of complementarity between agriculture and industry in a dual-sector economy.
4. Evaluate the role of terms of trade in balancing industrial and agricultural growth.

16.2 INTRODUCTION

The process of industrialization is regarded as a panacea for many economic and non-economic ills by developing countries. The hope of poorer countries lies in the prospects of greater returns accruing from manufacturing industry. Even agriculture cannot be modernized if industrial development cannot take place. Rather both these sectors complement each other in the process of industrial development.

16.3 RATIONALE OF INDUSTRIALIZATION

Over the past many decades, most developing countries have mounted sustained efforts to build up modern manufacturing industries. Technological dynamism that is presented in industrial sector has made even resource poor countries to invest their scarce resources effectively and have made them capable of entering export markets and diversify their industrial structure. Empirical evidences suggest that process of industrialization can go a long way to achieve the level of economic growth and development. According to Szirmai, virtually all cases of high, rapid and sustained economic growth in modern economic development have been associated with industrialization. Following points deal with rationale behind industrialization i.e. why do countries opt for industrialization during their development process.

1. Increase in Per-Capita Income:

There are strong empirical evidences that suggest there is a high degree of correlation between industrialization and per capita income of developing countries. With the process of industrialization optimal utilization of the scarce resources becomes possible.

2. Change the structure of the economy:

Recent research work also suggest that economic development requires structural change from low to high productivity activities and that the industrial sector is a key engine of growth that can bring about structural transformation. Virtually all cases of high, rapid, and sustained economic growth in modern economic development have been associated with industrialisation, particularly growth in manufacturing production (Szirmai, 2009).

3. Capital Accumulation:

Industrialization helps to enhance the income as well as savings of the economy. As compared to agriculture, industry offers special opportunities for capital accumulation. By focusing on industrialization not only income but also capital accumulation would take place.

4. Opportunities for Scale Economies:

Historically, it is the industrial sector that has the potential to achieve economies of scale. This is partly due to the nature of technologies which are most productivity applied in large scale production.

5. Linkage and Spill over Effects:

According to Szirmai, linkage and spill over effects are stronger in manufacturing than in agriculture. Linkage effects create positive externalities to investment in given sectors. Spill over effects create externalities of investment in knowledge and technology. Spillover effects between manufacturing and other sectors are also very powerful. According to a study by UNCTAD, the manufacturing sector is one of the primary sources of technological advance in the economy as a whole. It is here that most product and process technologies are developed. One of the important spillover effects in modern economies is that from the industrial sector to other sectors, such as the service sector. Thus, advances in ICT hardware

technologies produced in the manufacturing sector (silicon chips, glass fibre cables) fuel technological change in the software producing and software using service sectors

6. Labour Absorption:

In over populated LDCs, large number of labourers are either under employed or in the form of disguised unemployment whose marginal product is zero or negligible. According to Lewis, this surplus labour can be transferred from agriculture to industry with little or no loss to agricultural output. This would enhance agricultural productivity. Thus it is industry which has the capacity to absorb surplus labour from agriculture.

7. Overcoming deterioration in the terms of trade:

LDC are generally agricultural dominated and export only primary commodities and since prices of these commodities are more prone to fluctuation and it is generally seen that over past many decades prices of manufactured commodities are increasing while primary commodities are falling, this has led to deterioration of terms of trade. Therefore it is the process of industrialization that goes a long way to free these LDC from the adverse impacts of terms of trade.

8. Product Market for Agriculture:

It is through industrialization that agricultural demand for various products can be met. It is the industry that provides various industrial products like tractors, tools and implements, fertilizer, pesticides, storage to agriculture without these products even agriculture growth and development cannot take place.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. Why is industrialization considered essential for increasing per capita income in developing countries?

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Q2. How does industrialization support structural transformation of the economy?

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Q3. What are linkage and spillover effects in industrialization, and why are they important?

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Q4. How can industrialization help overcome deterioration in the terms of trade for primary commodity exporters?

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16.4 Pattern of Industrialization

There are few attempts that are made to study the systematic pattern of industrial growth. Amongst these Chenery's work is quite illuminating. In his thesis by using regression equations, he has tried to analyze the behaviour of the particular groups of industries during the growth process. His study is based on behaviour of output of individual industries and also for groups of industries.

By classifying the industries into three categories i.e. 'early', 'middle' and 'late' industries,

Chenery has tried to explain the pattern of industrial growth that countries tend to adopt as their growth process proceeds.

In the category of 'early' industries, he includes the products of those entrepreneurs as those engaged in food processing, leather goods and textiles. According to Chenery, these industries have low income elasticity. So that a considerably low level of income commensurate with the maximum output of this industry. However, in case of small primary-oriented countries the exports being concentrated in this very group of industries their output curve tends to have a sleeper and longer continuing upward trend.

In the category of 'middle' and 'late' industries, he includes those industries which make the maximum contribution to industrial output when the economy is respectively in the 'middle' and 'higher' ranges of its per-capita income. However, the behaviour of these industries is governed by the nature of the country in which they operate. In case of small primary-oriented countries both the resources and the scale effects tend to retard the growth of such industries. As such the contribution of such industries towards the GNP is likely to be very small at lower levels of income. But it would increase at an increasingly rapid rate as the income rises.

As against this in case of industry oriented small countries, the resource and the scale effects happen to pull each other in the opposite directions and therefore, to some extent cancel each other. But in case of large countries the output of the middle industries though it may be growing rapidly to start with, would tend to level off asymptotically at medium levels of income. However, in the higher ranges of income level the continued growth of the industrial sector would exclusively depend upon the still rising demand for the late industries.

Thus Chenery's analysis is based to the fact that industrial sector does not grow smoothly and simultaneously across the entire front.

16.5 Complementarity between Agriculture and Industry

Traditionally, agriculture sector role in the economic development was viewed as passive and supportive. However, based on the historical experiences of western countries, today economic

development is seen as requiring a rapid structural transformation of the economy from agriculture sector to a more complex modern industrial and service sector. It is now realized that this transformation of societies cannot take place until and unless agriculture sector is developed and it is the agriculture which is playing an indispensable part in any overall strategy of economic progress without agricultural growth would not be succeeded. Rather ignorance of agriculture would create severe internal imbalance in the economy.

Today Agriculture and industry are considered to be interdependent to each other. The development of one sector depends on the development of the other sector. It is the rising productivity that supports and sustains industrial development. While agriculture meets the food requirements of industry and industry in turn supplies widerange of consumption goods. It is now seen that agriculture sector has the potential to provide a scope of capital accumulation in industry through marketable surplus. The higher the surplus, the cheaper industry can obtain food and more is the scope of saving and capital accumulation taking place in industry. This phenomenon is called as supply side. Therefore it implies lesser the food price more is the saving on the part of industry. On the other hand there is a demand side phenomenon also. Agriculture sector is also a market for industrial goods. Higher the food prices, the greater would be income of the agriculturist or higher would be the purchasing power of farmer. Thus there arises a conflict between low food prices being good for industrial supply and high food prices being good for industrial demand. Johnston and Mellor (1961) remarked there is clearly a conflict between emphasis on agriculture's essential contribution to the capital requirement for overall development, and emphasis on increased farm purchasing power as a stimulus to industrialization. Therefore complementarity between the two sectors is recognized from the outset and there must be an equilibrium terms of trade that balances supply and demand in both sectors. The basis of the model originally comes from Kaldor, 1979 (Thirwall, A.P).

This complementarity model brings together both agriculture and industry in an equilibrium framework where terms of trade between agriculture and industry provides the equilibrating mechanism ensuring that supply and demand grow at the same rate in each sector.

To start with, let take model on growth in agriculture sector in relation to the terms of trade, then industrial sector growth model and then bring the two models and sectors together.

Industrial
Terms of
Trade

Agricultural Growth Rate

Figure 16.1 : Industrial terms of trade and agricultural growth rate

Growth rate of agriculture will be a function of how much it invests relative to output and of the productivity of investment. In other words how much of the investment goods it can obtain from industry in exchange for food that it saves depends on what is the price of industrial goods relative to food i.e. on terms of trade between industry and agriculture. The higher the price of investment goods, the lower amount of food and the lower the growth of supply capacity.

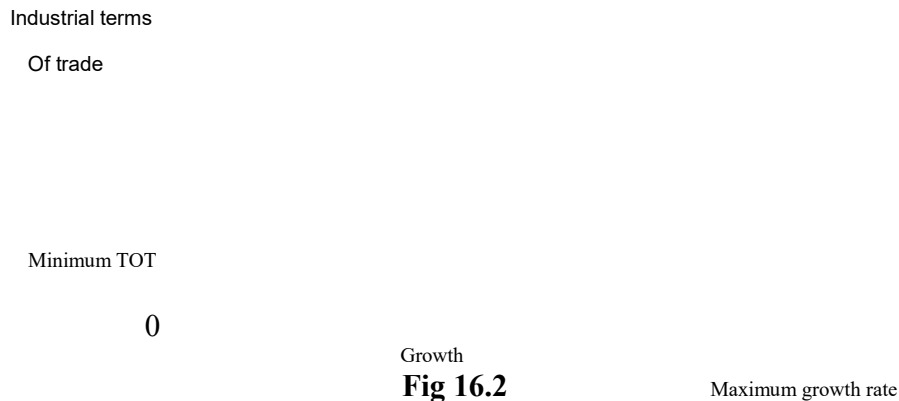
That there exists an inverse relation between the industrial terms of trade and the agriculture growth (G_A) rate and this is depicted in figure 16.1.

The growth rate in industry shall also be a function of its investment ratio and the productivity of investment. However, there is a limit to it i.e. beyond a certain minimum terms of trade below which industry would not be able to invest anything since all output would be required to be paid to workers for wage goods i.e. for food. If all the wages are consumed, the cost of food input per unit of output in industry will depend on the real

wage rate in industry divided by the productivity of labour that is $\frac{(W)}{(O/L)} = \left| \frac{(W)}{(O/L)} \right|$. Where

W is the real wage and W is the wage bill. Industrial prices must cover W/O and this sets the lower limit to industrial prices relative to food prices. At the other extreme, industrial growth cannot exceed a certain maximum where the price of food is so low relative to industrial goods that all industrial

goods are not sold but are retained for investment in industry. This positive relationship between industrial terms of trade and the industrial growth is depicted in figure 16.2.



Now let us assume that income elasticity of demand for agricultural and industrial goods is unity, then at a given terms of trade the rate of growth of agricultural output represents the rate of growth of demand for industrial goods and the rate of growth of industrial output represents the rate of growth of demand for agricultural output and where G_A and G_I cross there will be a balanced growth of agriculture and industry (G^*) at equilibrium terms of trade (P^*) as shown in figure 3.

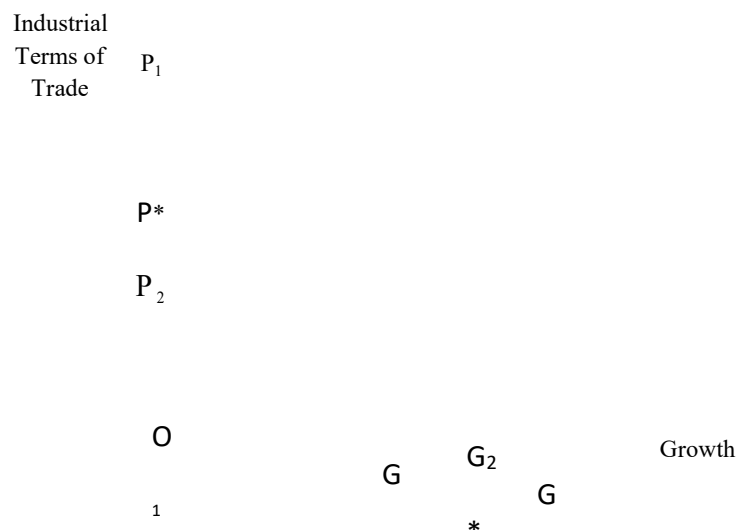


Figure 16.3 : Growth equilibrium and disequilibrium

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Implications

If terms of trade are not in equilibrium i.e. if the price of food is too low or too high in relation of industrial goods then industrial growth is either demand constrained or supply constrained. For example see figure 16.3, if the terms of trade is at P_1 prices i.e. prices of food are too low, which

means purchasing power in agriculture is low. This would lead towards demand constrained industrial growth i.e. G_1 . Industry will not be able to sell its goods. On the other hand if a term of trade is below equilibrium at P_2 , industrial growth would be supply constrained to G_2 . Because prices of food are too high this would result into high demand for wages and that further would impair capital accumulation. Since industry would not be able to supply. So it is only at G^* where growth is maximized at P^* terms of trade.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is meant by complementarity between agriculture and industry?

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Q2. How does agriculture support industrial development on both the supply and demand side?

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Q3. What is the significance of equilibrium in terms of trade between the two sectors?

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16.6 Let us sum up

Hence one can conclude that though industrialization process is most important for the economic development of developing countries. Even the development cannot go a long way until and unless both agriculture and industry complement each other.

16.7 Key words

- Industrialization: The process of building and expanding a country's manufacturing sector to stimulate economic growth.
- Per Capita Income: Average income earned per person in a given area during a specific time.
- Structural Transformation: The shift from a primarily agrarian economy to one dominated by industry and services.
- Capital Accumulation: The growth in assets and wealth through savings and investment, crucial for economic development.
- Economies of Scale: Cost advantages gained by increasing the scale of production, reducing per-unit costs.
- Linkage Effects: Economic benefits in related sectors resulting from investment in a particular industry.
- Spillover Effects: The indirect positive impacts on other sectors due to advancements in a specific industry (e.g., tech transfer).
- Complementarity: Mutual dependence between agriculture and industry where growth in one supports growth in the other.

16.8 References/Suggested Readings

1. Dewett, K.K. and Satish Wadhawan (1985), *Economics of Growth and Development*, S. Chand and Company, New Delhi.
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7. Todaro, M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.

16.9 Hints to Check your Progress (CYP)

CYP-I

Refer to Section 16.3

CYP-II

Refer to Section 16.5

16.10 Examination Oriented Questions

1. What is the rationale and pattern of industrial development in developing countries?
2. Explain rationale of industrialization process in developing economics?
3. Explain how marketable surplus is important for industrial growth?
4. In what ways do the agricultural and industrial sectors of an economy complement one another?

**Choice of Techniques and Appropriate Technology & Labour
Markets and Developing Countries**

STRUCTURE

17.0 Objectives

17.1 Learning Outcomes

17.2 Introduction

17.3 Choice of Techniques and appropriate technology

17.3.1 Choice of Techniques: Price Intensive Model

17.3.2 Capital Intensive Techniques in Developing Countries: Factor Price Distortions

17.3.3 Factor Price Distortions and Appropriate Technologies

17.4 Labour markets and developing countries

17.4.1 Characteristics of Labour markets in developing countries

17.4.2 Structure of Labour markets in developing countries

17.5 Let us sum up

17.6 Glossary

17.7 Examination Oriented Questions

17.8 Hints to Check Your Progress (CYP)

17.9 References / Additional readings

17.0 Objectives

After going through the lesson the student should:

- 1) Understand the different types of techniques that are available.
- 2) Describe the nature of techniques used in developing countries.
- 3) Understand the factor price distortions and appropriate technology for developing countries.
- 4) Be able to understand the characteristics of labour markets in developing countries.
- 5) Understand the structure of labour markets in developing countries.

17.2 Learning Outcomes

After studying this lesson, the student will be able to:

1. Understand the different types of production techniques available.
2. Describe the nature of techniques used in developing countries.
3. Analyze factor price distortions and identify appropriate technology for developing countries.
4. Understand the characteristics of labour markets in developing countries.
5. Examine the structure of labour markets in developing countries.

17.2 INTRODUCTION

Generally, technology has been defined as ‘the knowledge being applied by human beings to improve production or marketing process. The rapid progress of modern economic societies has become possible due to changes caused by technological and scientific progress. There are different types of techniques that are available and can influence the composition of production function relative to cost price structure, demand pattern use of resources, so on and so forth. In principle, we often talk about techniques of production labour intensive techniques of production and capital-intensive techniques of production. One of the problem before developing countries is how best to utilize the available resources in order to achieve higher growth. And often they come across the problem of choice of techniques

17.3 Choice of Techniques and Appropriate Technology

17.3.1 Choice of Technique: Price Intensive Model

Choice of techniques refers to the type of combinations for any particular project. The conventional economics of technical choice on the bases of price incentive model is explained in figure 17.1. Assuming that there are two types of techniques, one is labour intensive and other is capital intensive and following the principle of economics, producers are assumed to face a given set of relative factor prices and to use the combination of capital and labours that minimizes the cost of producing a desired level of output.

Labour intensive technique thus implies the use of more labour in comparison to capital and this depends on prices of factors of production. Assuming the same production function in the two sets of countries labelled P and holding everything as constant, the lower the relative price of labour in the developing countries, given by the price line PP_1 , gives a more labour intensive choice of technique than in the developed country, where the relative price of labour is given by the steeper line PP_1 as shown in figure 17.1 below. For economists like Nurske holds the view that developing countries should adopt labour intensive techniques of production in the early stages of industrial development. The main argument usually advanced in favour of it that this would lead towards increasing employment opportunities and since capital is expensive and scarce the use of labour intensive techniques would be more appropriate. Not only this, these techniques are indispensable for counteracting inflationary pressures in a developing country as the use of this techniques increases the supply of consumable goods. While on the other hand, the other alternative commonly suggested is the capital intensive techniques. Capital intensive technique implies the use of more capital in relation to labour as shown in figure 17.1. In developed countries where capital is cheap and labour is expensive and choice of technique preferable would be capital intensive as shown in figure 1 below, the relative price of labour is given by PP_2 and the capital labour ratio is given by the ray from origin DC and in less developed countries, the capital labour ratio is given by the ray LDC; both rays pass through the point of tangency between the

prices line and production function (A) and (B) respectively. There is another school of thought given by Galenson and Lerner which opine that for successful economic development it is desirable for developing countries to opt for capital intensive techniques since the growth rate is much faster under this type of technology than with labour intensive technology. Since capital intensive techniques are more profitable than labour-intensive techniques because of high productivity of capital in relation to cost and also the use of capital intensive techniques would lead to the production of quality products and lowering of costs.

Choice of Technique : Price Incentive Model

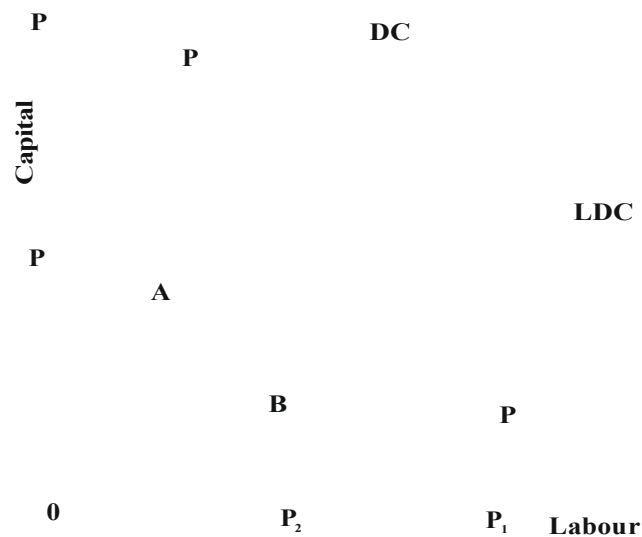


Figure 17.1 : Choice of technique LDC: Price Incentive Model

Thus, according to price incentive model, optimum capital – labour combinations (efficient or appropriate technologies) are determined by relative factor prices. If capital is cheap relative to labour, production should be capital intensive and if labour is cheap, production should be labour intensive, then only optimum production will occur. It also follows that for any techniques of

production currently in use, a fall in the relative prices of labour, all other things being equal, will lead to a substitution of labour for capital in an optimal production strategies.

17.3.2 Capital Intensive techniques in developing countries: Factor price distortions

As explained in Thirlwall (2010), in practice, however, it is often the case that for the same outputs produced, the capital intensity of techniques is not very different between the two sets of countries, and that the capital labour ratio differs between developed and developing countries in the aggregate only to the extent that the composition of output differs; that is, because there are large sectors in developing countries where very little capital is employed at all, as in subsistence farming. In the modern sectors of developing countries, however, techniques are much more capital intensive than would be predicted on the basis of knowledge of factor endowments. Given the supply of labour available and given the rate of investment, the more capital-intensive the techniques, the less employment and the more unemployment there will be. Unemployment and under employment are major preoccupation in developing countries and one reason why the prevailing techniques of production might be regarded as inappropriate: There are number of reasons why technological choices sometimes appears to be little different in developing countries than in technologically advanced countries.

1. First reason is that the market prices of factors of production frequently do not reflect relative abundance or scarcity. This tendency is often exacerbated by developing countries themselves, which give generous subsidies to scarce capital and encourage high wages in the modern manufacturing sector by the government paying high wages to its own employees. Since policy makers they believe that using capital intensive techniques would increase the level of output and savings so it is justified using capital intensive techniques.
2. Second reason could be that although labour may be abundant and the money wage may be lower than in developed countries, it is not necessarily cheaper or less costly to employ, because its productivity may be lower. In other words, the so-called efficiency wage or wage costs per unit of output may differ very little between the developing and developed countries. This would mean that the production function for the developing country in figure 17.1 will lie outside the production function for the developed country in such a way that even if the relative money wage of labour is lower in the developing country, it is profitable to choose a relatively capital intensive techniques.

3. Thirdly, in certain instances capital intensity is explained by skill constraint. In contrast to capital intensive, labour intensive techniques require a great deal of skilled labour, while in capital intensive techniques require a semi-skilled labour to undertake routine task. Since in developing countries there is a shortage of skilled workers, capital may substitute for skills and constitutes a rational response.
4. Another factor that accounts for relative capital intensity of the modern sector of developing countries is the fact that many, if not most of the techniques of production are imported from abroad with a heavy bias in the labour saving direction – The techniques may either be employed by indigenous firms or as increasingly seems to be the case, by large foreign owned MNCs which invest in the country and bring their technology with them. In this case the technology may be inappropriate not because the technology available is circumscribed by the global profit maximizing motives but because since labour is scarce and expensive it is profitable for developed nation to produce techniques which are labour saving by nature. And since capital is scarce in developing countries. One can expect them to manufacture techniques which are capital saving but typically the capital good sector that manufactures capital goods is non-existent in developing countries.

17.3.3 Factor Price Distortion and Appropriate Technology

Thus the net result of these factor price distortions and other factors is the encouragement of inappropriate capital-intensive methods of production in both agriculture and manufacturing. Note that from the private-cost minimizing view point of individual firms and farms, the choice of a capital intensive technique is correct. It is their rational response to the existing structure of price signals in the market for factors of production. However, from the view point of society as a whole, the social cost of underutilized capital and especially labour can be very substantial. Government policies designed to get the prices right that is to remove factor price distortions – would contribute not only to more employment but also to a better overutilization of scarce capital

resources through the adoption of more appropriate technologies of production.

Therefore, according to Meier, more appropriate technology may be roughly defined as technology whose resource use is more in keeping with LDC resource availability and whose products are more suited to low income consumers. This means that more appropriate technology will be more labour – intensive, less skill intensive, smaller scale, use more local materials and produces simpler low income products than most of the developed nations technology currently being transferred to low income countries. Technology may be more appropriate in one respect, and no more so in other; or more in some respect, less in others. More appropriate technology may be less efficient, either in the economic sense that it is less profitable or in the stricter sense that it uses more of all resources to produce the same output. If it is socially or technically efficient as compared with the inappropriate alternative, then the economy would suffer from some output loss in adopting it. In such a situation it would only be worth while adopting if it were believed that learning effects would be such as to outweigh initial inefficiency or that income or that income distribution and similar effects are such as to outweigh the loss in output. If we assume that these effects may be incorporated into the measure of social efficiency, then an economy should not adopt more appropriate techniques if they can be shown to be socially efficient.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words

Q1 What is meant by the 'Price Incentive Model' in the context of the choice of techniques? How does it affect production decisions?

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Q2. Why are capital-intensive techniques often used in developing countries despite their labour surplus?

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Q3 Explain the concept of ‘Appropriate Technology’. What characteristics should such technology have in developing countries?

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17.4 Labour Market and Developing Countries

In any economic activity labour employed can be interpreted both as a cost and a benefit. If it has an alternative use then it is a cost and can be a benefit to the economy, if in some situations because of market imperfection, it may be possible to augment production by organizing the labour in a better way and secondly, with the increased employment of poor people in industry at low wages results into increase in the capital formation and further into industrial growth of developing countries. Like product market, labour services are also bought and sold in a market called labour market. Unlike developed countries, there exists structural complexity of LDC labour markets and is different from developed country's labour market.

17.4.1 Characteristics of Labour Markets in developing countries

1. Dominance of agriculture: The important characteristics of labour market in developing countries are that most of the people are engaged in agriculture and other primary industries. This pattern is quite pronounced in the poorest countries and changes with the change in the level

of development. The historical experience of today's developed countries suggests that with the increase in the per-capita income, the share of agricultural workers tends to fall while the share of both industrial and service workers rise.

2. **Low Wages:** Another feature of LDC labour is that labours are paid low wages. It is because that they are available in abundance relative to other resources like capital which is scarce. This is from supply demand analysis perspective labour is generally paid less in comparison to other complementary resources. Another reason that is put forwarded is that these labourers are not only in abundance but they also lack education and skills which results into low productivity and low wages. Not only this LDC workers lack even the capacity to do physical labour because of their poor health and nutritional status, thus making them less productive and that result into low wages.
3. **Wages Differentials among different skills and education:** One of the other features of labour in LDC is that there exist differences among the wages received by different skills and education level. These wage differentials in LDCs are much wider than the developed countries because of segmented labour markets.
4. **Underutilization of Labour:** Another characteristic of labour in LDC is that large numbers of them remain underutilized. It is not just because of high unemployment rate that exists in developing countries but also due to the phenomenon of disguised unemployment. A labour is said to be disguised unemployed if his contribution to output is less than what he can produce by working for normal hours per day. His marginal productivity is negligible and by withdrawing such labourers, from output can be increased. Another notable feature of LDC labour is that due to the seasonal nature of farm operations, most of the time in a year these farm labourers they remain in a state of unemployment. This is called as seasonal unemployment. These two types of unemployment are the common feature of agriculture sector of LDCs which depicts the underutilization of labour force.
5. **Rapid Growth of Labour Supply:** The LDC contains a huge reservoir of surplus labour. The rate of population growth has increased with more than 1.5 percent to 2 percent per annum and

as a consequence rate of labour forces has also increased in LDCs. Social factors have also affected the labour supply in most of the LDCs. Like in India since independence, education among women has changed their attitude towards employment. Many of them have now entered the labour market and are competing with men.

Thus low wages and productivity, large wage differentials and rapid growth of labour supply combined with underutilization of the existing supply are the common features developing countries.

17.4.2 Structure of Labour Markets in Developing Countries

Labour market is the market wherein labour services are being bought and sold just like other goods and services. In LDCs these labour markets are generally imperfect. The following section shall explain the pattern and structure of labour markets in LDC which may help to describe wage and employment determination therein.

A typical LDC is represented by a 3-tiered employment structure i.e. urban formal sector, an urban informal sector and rural employment.

1. Urban Formal Sector

It is a kind of market that exists in urban area where almost everyone would like to work if given an opportunity. It is made up of the government and the large scale enterprises, such as banks, insurance companies, factories and trading houses. In some of the developing countries where private sector plays a minimum role, the public sector makes up almost the entire urban formal sector. The main attraction of formal sector employer is that they are paid higher wages and offer steadier employment. The main cause of higher wages is that labour is well educated. Wages (W_F) are held above the market clearing levels by the legislation, custom and other factor as shown in figure 17.2. At this wage rate there is always a large supply of labour that wanted to go for work and are waiting for job. In figure 17.2 $E_F - L_F$ is the supply of labour ready to work and is waiting for the opportunity. A single announcement of job opening

would attract hundreds or even thousand to apply for job.

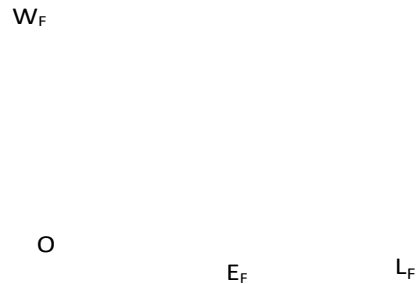


Figure 17.2 : A Formal Market

2. Urban Informal Sector

Urban informal sector, there exists small enterprises producing a wide range of goods and services, sometimes these shops and curb side establishments even compete with large enterprises and even produce those goods which formal sectors firms do not find it profitable to enter. This is also the market which provides job to rural migrated labour. They are also the one who seek an opportunity to work at urban formal sector but are unable to get it and end up at urban informal sector. However, these migrated labourers often in the long run turn out to be the residents and veterans at their particular lines of work. One reason for these rural migrants to enter this informal urban sector is that it is very easy to find a work here. Since they are not that educated rather uneducated they enter the informal sector by setting oneself as street hawker or in dozens of other lines of work with a small amount of capital and those who lack capital they are able to find a job at a wage rate lower than urban formal sector. The urban informal sector can provide incredible amount of low wage employment.

S

W_i

O

E_i

Figure 17.3: Urban Informal Sector

Since it is easy to enter this urban informal sector, the market tends to be in equilibrium. As shown in figure 17.3 urban informal sector is in equilibrium at W_i wage rate with E_i amount of labour. The urban informal wage rate is less than the urban formal wage rate.

3. Rural Market

In a typical rural sector, it is the family labour that commonly works in rural farm. They are working not for wages but for a share in the output of a family. Still there is always a market for hired labour. Agricultural labourers are those small farmers who have very small holdings and are compelled to work on other farms to earn their livelihood. The other category of labour is the landless farmers who work on leased land. These agricultural labourers typically make up the very lowest income stratum in a poor country and are ready to work at lowest wages paid in cash or even in kind. The agricultural labours are basically unskilled and consequently their bargaining power is low. Thus supply of labour is highly elastic. Figure 17.4 shows the typical rural market that exists in LDCs. The wages W_r is lower than the wages given in urban informal sector. And hence agriculture labourer are the most exploited and unorganized class in the rural population of LDCs. As assumed by dual economy models of development in rural areas of low income countries employment commonly means work by family members, not for wages but for a share in the output of a family enterprise. Still there is always a market for hired labour, at least on a seasonal basis.

W_R

O

E_R

Figure 17.4: Rural Market

Depending on the amount of population pressure and prevailing pattern of land tenure, there will be a large or small number of people who must depend on wage employment because they have no land for farming purpose or have nothing else to support their family. These agricultural labourers typically make up the very lowest income stratum in a poor country.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words

Q1. List any three key characteristics of labour markets in developing countries.

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Q2 What is disguised unemployment? How is it different from seasonal unemployment?

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Q3. Describe the structure of a typical labour market in a developing country.

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17.5 Let us sum up

Thus low wages and productivity, large wage differentials and rapid growth of labour supply combined with underutilization of the existing supply are the common features labour markets in developing countries. Not only this, structure of labour market in atypical LDC represented by a 3-tiered employment structure i.e. urban formal sector, an urban informal sector and rural employment are imperfect, which leads towards different wages and productivity.

17.6 Glossary

- Technology – Knowledge applied by humans to improve production or marketing processes.
- Labour-Intensive Technique – A method of production that uses a higher proportion of labour relative to capital.
- Capital-Intensive Technique – A production method that uses more capital than labour, often seen in advanced economies.
- Price Incentive Model – A model suggesting that the choice between capital and labour depends on their relative prices in the market.
- Factor Price Distortion – A situation where the market prices of labour and capital do not reflect their true scarcity or abundance due to subsidies, wage policies, etc.
- Appropriate Technology – Technology that is suitable for the resource conditions of developing countries—typically more labour-intensive, smaller in scale, and using local materials.

17.7 References / Additional readings

- 1) Thirlwall (A.P), (2006), *Growth and Development with special reference to Developing countries* 8th Edition, Palgrave Macmillan, New York.
- 2) Meir, G.M (1995), *Leading issues in Economic Development*, Oxford New Delhi.
- 3) Eckaus, R.S, *Appropriate technologies for developing countries*, National Academics.

17.8 Hints to Check your Progress (CYP)

CYP-I

- Q1 Refer to Sub-section: 17.3.1
- Q2. Refer to Sub-section: 17.3.2
- Q3. Refer to Sub-section: 17.3.3

CYP-II

- Q1 Refer to Sub-section: 17.4.1
- Q2. Refer to Sub-section: 17.4.2
- Q3. Refer to Sub-section: 17.4.3
- Q4. Refer to Sub-section: 17.4.4

17.9 Examination Oriented Questions

- Q1. What are the different types of techniques that are available?
- Q2. What do you understand by the efficiency wage of labour, and how does this concept help to explain the relative capital intensity of production and good traded?
- Q3. Explain factors that are responsible for high degree of capital intensity of production in the manufacturing sector of developing countries?
- Q4. What should be the appropriate technology suitable for labour surplus countries like India?
- Q5. What are the characteristics of labour markets in developing countries?
- Q6. What is the structure of labour markets in developing countries?

International trade as an Engine of Growth

STRUCTURE

18.0 Objectives

18.1 Learning Outcomes

18.2 Introduction

18.3 Trade as an Engine of Growth

18.3.1 Vent for Surplus Theory

18.4 Gains from Trade

18.4.1 Static gains from trade

18.4.2 Dynamic gains from trade

18.5 Free Trade versus Protection

18.6 Prebisch- Singer Hypotheses

18.8 Lets Sum Up

18.9 Glossary

18.10 References/ Suggested Readings

18.11 Hints to Check Your Progress (CYP)

18.12 Examination Oriented Questions

18.0 Objectives

After going through the lesson, the student should :

- i) Understand why trade is an engine of growth.
- ii) Be able to understand the static and dynamic gains from trade.
- iii) Be able to know the popular arguments on free trade verses protection
- iv) Be able to understand the different trade strategies followed in the process of economic development.

18.1 Learning Outcomes

After completing this lesson, the student will be able to:

1. Understand why trade is considered an engine of growth.
2. Distinguish between static and dynamic gains from trade.
3. Analyze arguments surrounding free trade versus protectionism.
4. Evaluate the role of trade in fostering technological transfer and innovation.
5. Identify the impacts of trade on economic welfare and resource allocation.
6. Understand the challenges faced by developing countries in international trade.
7. Examine the impact of trade policies on social and economic development.
8. Assess the relationship between trade and global economic integration.

18.2 Introduction

International trade has long been recognized as a fundamental mechanism driving economic growth and development, particularly in the context of less developed or developing countries. These nations, characterized by low per capita income, a high dependency on agriculture, limited industrialization, and systemic socio-economic challenges such as high illiteracy, low life expectancy, and rapid population growth, often face substantial barriers to achieving sustained economic progress. However, it is widely accepted among economists that international trade can play a pivotal role in overcoming these challenges, acting as a powerful engine of growth and fostering the economic transformation of developing countries.

The significance of international trade lies in its ability to promote the efficient utilization of a country's resources. By engaging in trade, countries can specialize in the production of goods in which they hold a comparative advantage, thereby enhancing their productive efficiency and output. This specialization not only increases the availability of goods and services for consumers but also leads to the optimization of factor endowments, such as labor and capital, across different regions. In this manner, trade facilitates the flow of capital goods, machinery, and raw materials, all of which are crucial for economic development, especially in resource-scarce nations.

Trade also provides developing countries with access to foreign technologies, expertise, and managerial skills that are essential for industrialization and modernization. Furthermore, it encourages competition, which can drive improvements in productivity, lower production costs,

and stimulate innovation. As a result, trade enables countries to achieve economies of scale, increase the diversity of available products, and enhance consumer welfare. Moreover, the income generated from international trade, through mechanisms such as the foreign trade multiplier, can contribute to overall economic expansion by stimulating investment, employment, and economic diversification.

Despite these advantages, the relationship between trade and development is not without its controversies. Critics, such as Raul Prebisch and Hans Singer, have argued that the benefits of trade are often unevenly distributed, with developed nations reaping disproportionately larger gains while developing countries remain at a structural disadvantage. This view highlights the potential for trade to exacerbate inequalities, particularly in the terms of trade, where developing nations often face deteriorating prices for their primary exports in exchange for higher-priced manufactured goods from advanced economies. As such, the debate surrounding the role of trade in development continues, with economists divided on the extent to which trade alone can foster sustainable growth in less developed regions.

This chapter aims to critically examine the role of international trade as an engine of growth, exploring both the static and dynamic gains from trade. By analyzing the theoretical frameworks put forth by classical economists such as Adam Smith, David Ricardo, and J.S. Mill, as well as the more contemporary perspectives of scholars like Gunnar Myrdal, the chapter will provide an in-depth understanding of how trade contributes to the economic development of developing countries. Additionally, it will address the challenges and potential pitfalls associated with trade, particularly in the context of global inequality, and explore strategies that can help mitigate these issues while promoting inclusive economic growth.

18.3 Trade as an Engine of Growth

The relationship between trade and economic development has been a subject of extensive debate, especially concerning developing nations. While many economists emphasize the positive role of trade as an engine of growth, others highlight its potential harmful effects, particularly for less developed countries (LDCs). Trade, according to economists like Gottfried Haberler and Cairncross, has been seen as an essential catalyst for growth, particularly in

facilitating the efficient allocation of resources and fostering industrialization. On the other hand, critics such as Gunnar Myrdal, Raúl Prebisch, and Hans Singer argue that international trade has historically favored developed nations, often impeding the industrial progress of developing countries and exacerbating global inequalities.

Trade and Economic Growth: A Source of Efficiency and Welfare

Trade is widely regarded as a powerful tool for economic growth, particularly because it promotes the efficient utilization of factor endowments. Through international exchange, countries are able to specialize in producing goods that align with their comparative advantages, leading to higher overall efficiency and increased output. Trade enables nations to access goods that may not be producible domestically due to resource constraints, technological limitations, or climatic conditions. In doing so, trade expands the variety of goods available to consumers, enhances their choices, and often leads to lower prices, thereby improving welfare across economies.

The benefits of trade are also reinforced by the foreign trade multiplier effect, where income generated from trade activities circulates within the economy, spurring further economic expansion. In this context, trade serves as both a direct and indirect means of boosting national wealth. This view aligns with Adam Smith's foundational arguments about the role of trade in promoting specialization and increasing national wealth. Smith's seminal work on the division of labor and specialization laid the groundwork for understanding how trade contributes to productivity and efficiency on both micro and macroeconomic scales. Similarly, J.S. Mill recognized the dynamic effects of trade, which not only increase the productive capacity of nations but also stimulate broader economic activity through enhanced trade relations.

Comparative Advantage and the Global Economy

David Ricardo's theory of comparative advantage further underscores the positive role of trade in global growth. According to Ricardo, if each nation specializes in producing goods for which it has a relative efficiency advantage, total world output will increase. As a result, each participating nation can benefit from trade by gaining access to goods at lower opportunity costs. The theory suggests that international trade is not a zero-sum game, but a win-win situation for all countries involved, allowing each to share in the collective gains from increased global production and specialization.

Haberler's perspective on the international division of labor builds on this foundation by explaining how trade allows countries to specialize in what they can produce most efficiently and exchange those goods for what other nations produce at lower costs. This specialization and exchange, according to Haberler, has been a fundamental driver of economic well-being, enabling countries to increase their national income and prosperity. In modern contexts, this specialization process has expanded across global supply chains, further enhancing the interconnectedness of national economies.

Case Studies on Trade and Development

A key case illustrating the benefits of trade for developing countries is the experience of East Asian economies in the late 20th century. Countries such as South Korea, Taiwan, and Singapore adopted export-oriented growth strategies that emphasized integrating their economies into the global market. By focusing on manufacturing goods for export, these nations experienced rapid industrialization, increased foreign direct investment (FDI), and significant improvements in living standards. In particular, South Korea's focus on export-led growth, supported by government policies fostering infrastructure development and technological innovation, transformed it from an impoverished nation into one of the world's most developed economies in a few decades.

Conversely, there are examples where trade has not resulted in equitable development. Prebisch and Singer's theories on the deterioration of terms of trade highlight how developing countries, particularly those reliant on exporting primary commodities, often face declining terms of trade. Over time, the prices of primary goods have tended to fall relative to the prices of manufactured goods from developed nations, perpetuating a dependency on commodity exports while hindering industrial development. Countries like many in Sub-Saharan Africa, which remain heavily dependent on exports of raw materials such as oil, cocoa, and coffee, have struggled to experience the same level of economic development despite trade participation. This scenario exemplifies how trade can sometimes exacerbate inequalities, particularly when global value chains disproportionately benefit wealthier countries.

D.H. Robertson's View: Trade as an Engine of Growth

D.H. Robertson's famous assertion that trade is an "engine of growth" has found relevance in both historical and contemporary contexts. In the 19th century, this observation was linked to

the era's significant shifts in global trade patterns, marked by increased international exchanges of goods, services, and capital. Today, this view remains valid, particularly as trade continues to be a critical factor in accelerating economic development, especially in emerging markets. The experience of China in the last four decades provides a modern-day example of Robertson's view. China's strategic embrace of global trade, paired with its manufacturing-driven export policies, has enabled it to transition from an agrarian economy to an industrial powerhouse.

The Debate on Free Trade and Protectionism

While many economists, including Haberler, assert that free trade is a vital component of development, there is a growing acknowledgment of the need for some regulation and oversight in international trade. Free trade policies are seen as fostering faster economic growth and greater prosperity by allowing countries to maximize their comparative advantages. However, some economists argue that excessive reliance on free trade may disadvantage developing countries, especially those with weaker institutions, less bargaining power, and vulnerabilities to external economic shocks. Therefore, while free trade has proven to be an engine of growth, its success is contingent upon the effective management of trade policies and national interests.

In conclusion, trade plays an undeniably important role in economic development, particularly in developing countries. While its potential to drive growth and prosperity is well-documented, the complexities of global trade necessitate nuanced approaches that take into account both the benefits and the challenges it presents. By understanding the theoretical underpinnings of trade theories, examining historical case studies, and addressing the concerns of critics, we can better appreciate the multifaceted role trade plays in shaping the development trajectories of nations.

Importance of International Trade

Gottfried Haberler, a leading proponent of international trade, emphasized its foundational role in stimulating economic development, particularly for less developed countries (LDCs). The following points, along with enhanced additions, collectively highlight the multidimensional importance of trade in fostering growth, innovation, and global economic integration:

1. **Facilitates Access to Critical Inputs for Development:** International trade ensures the steady flow of essential capital goods, machinery, raw materials, and semi-finished

goods that are indispensable for industrialization and infrastructure development in emerging economies.

2. **Enables Cross-Border Capital Mobility:** Trade acts as a bridge for foreign direct investment (FDI) and international capital flows, allowing developing countries to access financial resources, reduce investment gaps, and boost domestic production capabilities.
3. **Accelerates Technological Diffusion and Skill Transfer:** Through trade partnerships, developing nations benefit from the cross-border exchange of cutting-edge technology, managerial expertise, and entrepreneurial competencies, fostering innovation and capacity building.
4. **Promotes Competition and Prevents Market Monopolies:** Free trade acts as a natural check against monopolistic practices by exposing domestic industries to international competitors, which in turn drives efficiency, product quality, and innovation.
5. **Optimizes Resource Utilization:** By providing access to broader markets, trade encourages the use of idle or underemployed resources, thereby raising employment levels and stimulating productive efficiency across sectors.
6. **Expands Markets and Enables Economies of Scale:** As trade enlarges the market base beyond domestic boundaries, it allows firms to scale up production, reduce per-unit costs, and specialize, leading to greater competitiveness in the global market.
7. **Enhances Economic Resilience and Diversification:** Diversified trade reduces over-reliance on a single sector or market, helping countries buffer against domestic economic shocks and global demand fluctuations. For example, Vietnam's diversification from agricultural exports to electronics and textiles strengthened its economic base.
8. **Strengthens Institutional and Policy Reforms:** Engagement in international trade often incentivizes countries to undertake structural reforms, improve regulatory environments, and enhance transparency to attract investment and meet global standards.
9. **Generates Employment and Stimulates Innovation:** The expansion of export industries creates jobs across multiple sectors, especially in labor-intensive industries.

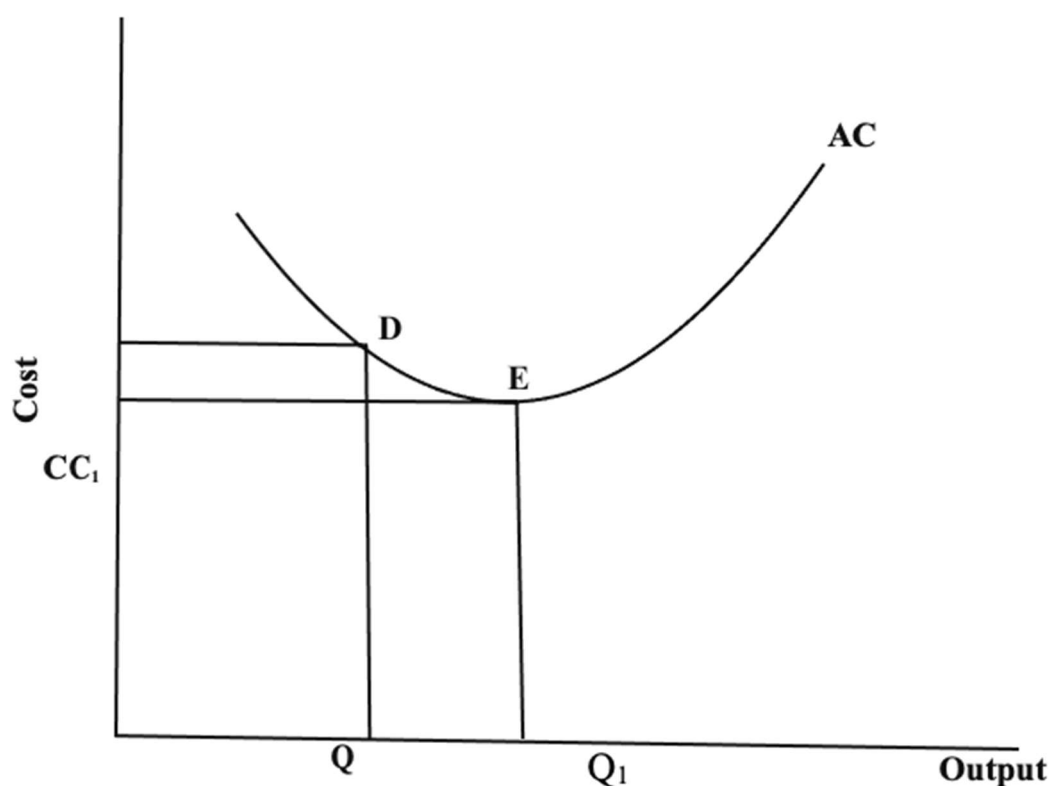
Trade-linked sectors also invest more in R&D, leading to continuous innovation, as seen in South Korea's transformation through export-led industrialization.

10. **Deepens Global Interdependence and Peaceful Cooperation:** Trade fosters interdependence among nations, which can contribute to diplomatic stability and peaceful relations. Economic integration often aligns national interests and supports global cooperation in areas like climate change, labor rights, and public health.

The importance of trade is highlighted in the vent for surplus theory:

18.3.1 Vent for surplus theory

Trade by providing a vent for surplus enables the domestic as well as nations firms to achieve optimum utilization of productive capacity. According to this theory, When a firm is not able to realize optimum capacity utilization because of domestic market constraints, international trade can help to increase capacity utilization and the profitability of the domestic business. It is shown in the figure 18.1



In the figure 18.1, AC is the Average cost curve. The Optimum utilization of the firm is at point Q_1 i.e., the point where its average cost of production per unit will be the cost lowest. But due to

domestic market or demand constraint, the firm's output level is Q and the corresponding average cost is C . It means average cost is higher and the output is lower than optimum output. Now if the company can export QQ_1 output, it can operate at optimum capacity and also reduce the average cost from OC to OC_1 , i.e., by CC_1 . Even if the firm exports on no profit and no loss basis, it will increase the profitability of the firm. The profit of the firm was in terms of the fall in the average cost of producing the output OQ . Therefore the profit of the firm was increased by CC_1 and the total profit of the firm from domestic business will increase by CC_1ED . Therefore in this case, trade increases the profit from domestic business without any increase in price or domestic sales.

The doctrine of vent for surplus embodied in Adam Smith's Theory of international trade highlights the role of trade in respect of a country where the resources are underutilized. There are leading ideas in the Adam Smith's Vent for Surplus Theory. International trade overcomes the narrowness of the home market and provides an outlet to the surplus production over domestic requirements.

1) By expanding the market. International trade also improves the division of labor and raises the general level of productivity within the country.

The vent for surplus theory advocates that trade would help a country to achieve better utilization of its resources and move to a higher level of consumption and welfare.

18.4 Gains from Trade

The concept of "gains from trade" has evolved significantly over time, reflecting changes in the structure and dynamics of international markets. Historically, the benefits of trade were primarily measured by the increase in output value and real income derived from domestic resources that trade allowed a country to access. However, in the modern economic context, the gains from trade are often assessed in terms of the broader impacts on a country's balance of payments, economic growth, and welfare. The gains from trade are calculated as the difference between what a country gains through trade—whether in the form of goods, services, technology, or capital—and what it gives up in exchange.

In essence, through trade, a nation is able to access goods, services, and resources more efficiently than it would by relying solely on its domestic production, enabling it to obtain more than it gives up. This process is heavily influenced by the international division of labor, wherein countries specialize in producing goods for which they have a comparative advantage, leading to mutual benefits for all participating economies.

The gains from trade can broadly be classified into two categories: static gains and dynamic gains, each representing different facets of how trade enhances economic outcomes.

1) Static Gains

Static gains from trade arise from the immediate benefits of international trade, specifically those linked to specialization according to the doctrine of comparative advantage. This theory, introduced by David Ricardo, argues that when countries specialize in the production of goods in which they have a relative efficiency advantage, total world output increases. By engaging in trade, each country can exchange what it produces efficiently for goods that other countries can produce more efficiently. This results in more efficient resource allocation globally, higher levels of specialization, and improved productivity.

The static gains are often seen as immediate and quantifiable improvements in output and consumption. For example, a country that specializes in agricultural products may trade its surplus with a nation that specializes in manufacturing. Through this exchange, both countries gain access to a wider array of goods at lower costs than if they attempted to produce everything domestically. Consequently, static gains manifest as lower prices for consumers, greater product variety, and enhanced overall efficiency in resource allocation.

A classical example of static gains is seen in the trade agreements within the European Union, where countries like Germany and France specialize in different sectors but benefit from a seamless exchange of goods, thus enhancing overall productivity and consumption levels within the union.

2) Dynamic Gains

In contrast, dynamic gains refer to the long-term benefits of trade, which occur as a result of the impact of trade on a country's production capabilities and its economic structure over time. These gains are less immediate but often have more profound and lasting effects on economic development. Dynamic gains arise from the expansion of market opportunities, the accumulation of capital, and the diffusion of technology and knowledge.

A key example of dynamic gains includes economies of scale, which occur when increased production leads to a reduction in the per-unit cost of production. By trading with larger markets, firms are able to produce at larger scales, lowering costs and improving their competitive position in global markets. This is particularly relevant in industries such as electronics, where large-scale production facilities can take advantage of mass production techniques to reduce costs. Countries

that participate in international trade can benefit from a larger consumer base, allowing firms to expand and lower production costs, which leads to increased efficiency and competitiveness.

International investment is another source of dynamic gains. Trade attracts foreign direct investment (FDI), which brings not only capital but also technology, managerial expertise, and innovation. Countries that engage in trade are more likely to receive investment from multinational corporations, which bring with them advanced technologies and processes that would otherwise be unavailable to the domestic market. Over time, this knowledge transfer can help build local industries, create jobs, and stimulate further economic growth.

Another important dynamic gain is the transmission of technical knowledge. Through exposure to global markets and trade, countries can access new ideas, methodologies, and technological innovations. For instance, the rise of China's technological industry has been driven significantly by international trade, which allowed the country to import advanced machinery and technological knowledge from other nations, subsequently improving the domestic manufacturing sector and enabling China to become a global leader in technology.

Furthermore, trade provides a vent for surplus—this concept highlights how trade helps a country utilize its underemployed resources. When domestic production exceeds domestic consumption, trade provides an outlet for surplus goods. This is particularly beneficial for countries with industries that are underutilized or facing limited domestic demand. By exporting surplus goods, these countries can achieve optimal capacity utilization, reducing inefficiencies in production and expanding their economies.

A case study of dynamic gains can be seen in India's software industry. Initially a small and resource-constrained sector, India's software exports surged in the 1990s as the country embraced globalization. By leveraging its comparative advantage in labor-intensive services, India not only expanded its market access but also benefited from the influx of technological know-how and management practices through foreign partnerships and global market exposure. This dynamic growth led to India becoming one of the world's largest and most successful outsourcing hubs, significantly enhancing its economic development.

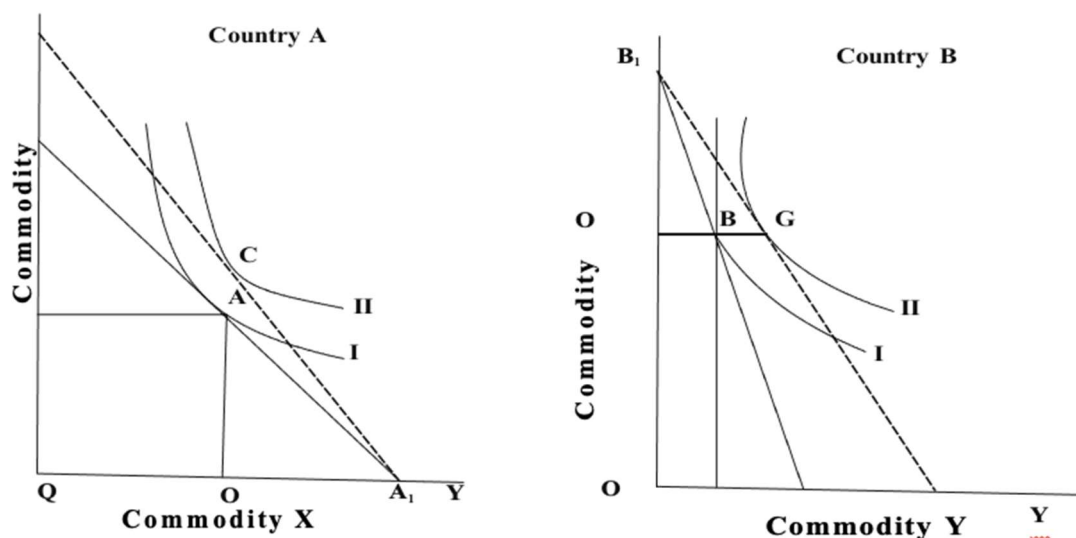
The gains from trade are multifaceted, encompassing both immediate improvements in efficiency and longer-term benefits that enhance a country's industrial capacity, technological prowess, and global competitiveness. While static gains improve the efficiency and consumption patterns of nations, dynamic gains enable countries to evolve economically, adopt new technologies, and

expand their global influence. As countries continue to engage in global trade, they increasingly reap the rewards of these dual types of gains, which contribute significantly to sustained growth and development.

18.4.1 Static Gains from Trade

The Static Gains from trade are based on the law of comparative advantage. For e.g., consider two countries A and B, both the countries have the ability to produce both the commodities X and Y. But according to comparative advantage model, Country A has comparative advantage in the production of commodity X and country B has a comparative advantage in the production of Y. Therefore, it will be profitable for country A to specialize in the production of commodity X and for country B to specialize in production of Y. The surplus production of X and Y in excess of domestic needs need to be traded provided that the international rate of exchange should be between the domestic rates of exchange.

Comparative advantage is based on opportunity cost concept measured by the marginal rate of transformation between two commodities, as given by the slope of production possibility curve. The domestic price ratios between two commodities will equal their marginal rate of transformation given perfect competition. Now we will explain the static gains from trade with the help of a figure 18.2



Due to international division of labour, world production increases and also world welfare. Specialization enables a country to produce maximum from a given set of factor resources.

It enables a country to obtain foreign products cheaply.

The consumption of both commodities in both countries rises or falls depends on the international rate of exchange. The static gains from trade are the same gains as from trade creation that accrues with the establishment of custom union that is when high cost suppliers are replaced by lower cost suppliers as tariffs are reduced. It is the doctrine of comparative costs that provides the rationale for the formation of custom unions or regional trading agreements between countries. There is nothing in the comparative cost doctrine that ensures equality in the distribution of gains from trade creation.

18.4.2 Dynamic Gains from Trade

The dynamic gains from trade refer to the long-term, transformative benefits that extend beyond immediate efficiency improvements. One of the primary dynamic benefits is the expansion of markets, particularly through the growth of export opportunities for domestic producers. When countries engage in international trade, the size of their potential market expands dramatically, allowing producers to increase their output beyond the constraints of the domestic market. This market expansion fosters economies of scale, which in turn facilitates a more efficient allocation of resources and boosts productivity.

Dynamic gains surpass static gains when increasing returns to scale are present. This occurs when the cost per unit of output decreases as production increases. In countries with large, accessible markets, such as China and India, producers benefit from the ability to scale their operations and spread fixed costs over larger quantities of output. This is especially true for industries that require significant investment in advanced capital equipment. The larger the market, the more attractive it becomes for firms to invest in capital-intensive industries, as there is a guaranteed demand for their products.

In contrast, smaller countries with limited domestic markets face challenges in achieving economies of scale. For example, nations like Mauritius and Sri Lanka may find it difficult to produce certain goods economically unless they receive substantial protection or trade support. In these cases, the potential for large-scale investment in industries such as heavy manufacturing or technology is restricted by the small size of the market. However, through international trade, even smaller economies can tap into larger global markets, stimulating industrialization and capital accumulation.

The accumulation of capital is a key driver of dynamic gains. The possibility of accessing foreign markets through trade encourages foreign direct investment (FDI), which brings not only capital but also advanced technologies, managerial expertise, and innovations that domestic industries can adopt. This influx of capital and expertise allows countries to develop more competitive industries, adopt modern production techniques, and increase productivity.

Trade also stimulates competition, which plays a crucial role in fostering innovation and driving improvements in product quality. When countries engage in global trade, they expose their domestic industries to international competitors, forcing local firms to become more efficient and innovative to remain competitive. This increased competition fosters the dissemination of new knowledge and technology transfer across borders, benefiting both industries and consumers. As companies adapt to global market demands, they often adopt new production methods, improve their management practices, and increase specialization.

Additionally, trade encourages the division of labor, a process that allows countries and firms to focus on what they do best, leading to greater specialization and efficiency in production. This further enhances the dynamics of trade by enabling countries to allocate resources more effectively, foster innovation, and improve overall production capacities.

The cumulative effect of these dynamic benefits is a shift outward of the production possibility curve for the trading countries. This shift represents an increase in the potential output of goods and services, leading to a higher level of community welfare. The enhanced productivity, coupled with increased access to capital and technological knowledge, enables countries to achieve higher living standards, improved economic growth, and greater global competitiveness.

In summary, the dynamic gains from trade are not merely about increased efficiency in resource allocation; they are about the transformative effects that trade can have on a nation's capacity to innovate, accumulate capital, and compete in the global market. These long-term benefits are crucial for the sustainable economic development of nations, particularly those that engage strategically in international trade.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

1. How does international trade act as an engine of growth for developing countries?

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2. What is the Vent for Surplus theory? How does it support the role of trade in economic development?

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3. Differentiate between static and dynamic gains from trade with examples.

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4. How does trade contribute to improved efficiency and welfare in an economy?

18.5 Free Trade versus Protection

Free trade refers to the trade that is free from all artificial barriers to trade. The artificial barriers are tariff, quota or quantitative restriction, exchange controls etc. Under the situation of free trade, there is only one market i.e. world market where there is free movement of goods and factors like labour, capital. One economy can sell their products in the other economy and consumers have a large choice of goods.

Protection, on the other hand, refers to the government policy of giving protection to the domestic industries from foreign competition. Government imposes tariffs and physical quotas (in parts) for a variety of reasons. First, with the imposition of tariff and quotas, it gives protection to its domestic industries and secondly, it raises the revenue of the government. Tariffs are also used to restrict the importation of unnecessary products. It can improve the balance of payments problem.

There are a number of arguments for and against both free trade and protection.

Arguments for Free Trade: -

- 1) Under free trade, each country specializes in the production of those goods in which it has comparative advantage and imports those goods from other countries in which it has comparative disadvantage. Therefore, free trade leads to the most economic utilization of the productive resources of the world.
- 2) Free trade puts pressure on all the firms for increased efficiencies product improvement and technical change, therefore raising factor productivity and lowering the cost of production.
- 3) Under free trade, division and labour occurs on an international scale leading to greater specialization, efficiency and economy in production.
- 4) Free trade benefits the consumers in different ways. It enables them to obtain goods from the cheapest source. Free trade makes available large varieties of goods to the consumers.
- 5) Under free trade, there is not much scope for corruption which is common under protection.
- 6) It generates the much-needed foreign exchange that can be used to import food if the agricultural sector lags behind or suffers droughts or other natural calamities.
- 7) It accelerates overall economic growth, which raises profits and promotes greater saving and investment and thus furthers growth.
- 8) It attracts foreign capital and expertise, which are very scarce in supply in LDCs.
- 9) It eliminates costly economic distortions caused by government interventions in both the export of foreign exchange markets of substitutes, market attraction for the corruption and rent seeking activities that usually result from overactive government sector.
- 10) It promotes more equal access to scarce resources which improves overall resources allocation
- 11) It enables LDCs to take full advantage of reforms under the WTO.

Arguments against free trade

Trade has beneficial effects to nations of the world as a whole. It can also have harmful effects on some countries and the world as a whole. The International trading system is biased in favour of developed nations as against developing nations particularly the poor nations because these countries have poor bargaining power, the participation

gap, their dependence on the developed countries for various needs etc. The following points will highlight the harmful effects of trade:-

- 1) Trade may lead to indiscriminate exploitation of natural resources, particularly the LDCs. It has been resulting in the drain of resources from developing countries to developed nations.
- 2) Trade also causes environmental problems due to indiscriminate exploitation of resources and location of polluting and hazardous industries in the developing world for the benefit of developed world.
- 3) The deterioration of the terms of trade of the developing countries causes large income transfers from the developing to the developed nations.
- 4) International trade may give rise to demonstration effect in the developing countries. Demonstration effect is a term associated with Nurske refers to the tendency of poor people to initiate the life styles of the rich. It is the tendency of the people of the developing countries to follow the consumption habits of the people of the advanced countries by importing. This could have harmful social and economic effects. It could also have some favorable effect if it can encourage the development of the domestic industries of the developing countries.
- 5) Another harmful effect of trade is backwash effect. Some of the domestic industries of the developed countries particularly small-scale units, which are not able to compete with the developed industries of the advanced countries, could be destroyed or damaged by unregulated imports.

Arguments for protection

Free trade has benefits but in reality, government Resorts to some manner of protective measures to safeguard the national interest. It is important to note that 45 countries which was earlier a free trader has now become a protectionist because its industries are threatened by increasing global competition. Below mentioned are some arguments in favour of protection.

- 1) **Infant Industry:** This argument advanced by Akoander Hamilton, Frederick list and others asserts that a new industry having a potential comparative advantage may not get started in a country unless it was given protection against foreign competition. An established industry is stronger than an infant, and then there would be unequal competition.

- 2) **Diversification:** It is very essential for an economy to have a diversified industrial structure if it has to be strong and self-reliant. An economy that depends on a very limited number of industries is subject to many risks. A depression or recession in these industries will seriously affect the economy. Hence, a diversified industrial structure is necessary and protection should be given accordingly.
- 3) **Improving Balance of payments:** A LDC can improve its balance of payments position by restricting import. The developing countries may have the problem of limited foreign exchange. Therefore, it becomes imperative to control imports that the limited exchange will be available for importing the necessary items.
- 4) **Anti-Dumping:** - Protection is an anti-dumping measure. Dumping provides temporary relief to the consumers but can do harm to the domestic industry. The foreign firms will obtain the monopoly powers after ruining the domestic industry by dumping and export the home market. Dumping represents a transmission of the recession from abroad to the home country. All these points, out the need to protect domestic industries against dumping.
- 5) **Bargaining:** A country which already has a tariff can use it or a means of bargaining to obtain lower duties from other countries on its exports.
- 6) **Employment:** Protection will restrict imports and import competing industries will grow and because of its spread effects, it will also help the growth of other industries. It is a measure to stimulate the domestic economy and expand employment opportunities.
- 7) **National Defence:** Our dependence on foreign countries for our defense requirements is our stupidity. Certain industries like defence industries should be developed in the home country. Protection should be provided to these industries if it is necessary for their growth and survival.
- 8) **Key Industry:** It is argued that a country should develop its own key industries because it facilitates the development of other industries and the economy. If we do not have our own source of supply of key inputs, we have to depend on foreign suppliers. The key industries should be given protection if it is necessary for its growth.
- 9) **Strategic Trade Policy:** It advocates protection and government cooperation to certain high-tech industries in the developed countries is similar to the infant industry argument of developing countries. According to this argument government

support should be given to gain comparative advantage in the high technology industries which are crucial to the future of the nation, such as semiconductors, computers and telecommunication etc. It is also essential to prevent market monopolization. The examples of industries developed with the support of the strategic trade policy include the steel industry in Japan in the 1950s, semiconductors in the 1970s and 1980s of the development of the supersonic aircraft, Concorde in Europe in the 1970s of the development of the Airbus aircraft in the 1980s.

Arguments against protection:

The following are the main defects with protection: -

- 1) Free trade provides a variety and choice to consumers but protection is against the interest of the consumers as it increases price and reduces variety of choice.
- 2) Protection given to the domestic firms given them a chance to have monopoly power over the market.
- 3) The firms which are inefficient feel secure under protection and it discourages innovation.
- 4) Free trade is against the corruption but protection opens the arena to corruption.
- 5) Protection reduces the total volume of trade as only domestically produced goods are available in small numbers as foreign goods are available in large number.
- 6) Protection leads to the under utilization of world's resources as these protected industries feel secure under protection and have not to compete with foreign industries.

18.6 Prebisch – Singer Thesis (Secular Deterioration Thesis)

Economists like Gunnar Myrdal, Paul Prebisch and Hans Singer argued that primary products exporting countries, particularly those of the third world have been experiencing secular or long-term deterioration in their terms of trade. According to the argument of Prebisch – Singer thesis, the least developed countries had to export increasing amounts of their primary products in exchange for the imports of manufactured goods from the most advanced countries. The secular deterioration in the terms of trade of the LDCs was the important cause for these countries' economic

backwardness.

This secular deterioration in the terms of trade of the LDCs means a large transfer of income from Less Developed nations to the developed nations. It has been claimed in the support of the secular deterioration that between the latter part of the 19th century and 1939, there was a fall in the prices of primary products in relation to the prices of manufactured goods. On average, a given bundle of primary products reduced, in exchange to 60 percent of the quantity of manufactured that could be secured earlier. It can be concluded from this, that there must have been a comparable worsening of the terms of trade of the LDCs. Some studies have indicated that the terms of trade, of the developing countries have deteriorated in the recent decades also.

Causes of Secular Deterioration:

Prebisch-Singer thesis highlights three causes for the deterioration of the terms of trade of the primary exporters.

- 1) Differences in the Elasticity of demand:** - The demand for primary products is income – inelastic i.e. as income increases, the demand for primary products increases less than in proportion to the increase in income. On the other hand, the demand for manufactured goods is income elastic i.e. as income increases the demand for manufactured goods increases more than in proportion to the increase in income. Such a demand bias causes the terms of trade of primary product exporters to deteriorate over time.
- 2) Technological Change:** - Raw material saving innovations have tended to reduce the demand for primary products. For example, the development of low-cost synthetic substitutes. Synthetic rubber can substitute natural rubber. Fall in the demand for primary products due to such innovations naturally cause a fall in their prices.
- 3) Monopoly Power:** - The higher degree of monopoly power that exists in industry than in agriculture makes it possible to charge a higher price for the manufactured products as compared to the agricultural products.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. Explain two arguments in favor of free trade and two against it.

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Q2. What is the Prebisch-Singer Hypothesis? How does it relate to trade and development?

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18.8 Let us sum up

Thus, one can conclude that it is not a developing country's inward or outward looking stance vis-à-vis the rest of the world that will determine whether or not it develops. Inward looking protectionist policies such as tariffs, quotas and exchange rate adjustments do not necessarily guarantee more jobs, higher incomes that are more equitably distributed, adequate nutrition and health, clean water or relevant education any more than outward looking non-interventionist policies do. Policies of export promotion appear to have contributed more to GNP growth than import substitution did during 1960s and 1970s. Similar results were not forthcoming in the slow growth 1980s. Moreover, the success of export promotion in the 1990s varied widely from region to region and country to country. In short, the current consensus leans towards an eclectic view that attempts to fit the relevant arguments of both the free trade and protectionist models to the specific economic, institutional and political realities of diverse nations at different stages of development. What works for one may not work for another.

18.9 Glossary

- **International Trade** – Exchange of goods and services across national borders, often seen as a driver of economic growth.
- **Engine of Growth** – A term suggesting that trade contributes significantly to economic development.
- **Vent for Surplus Theory** – Theory explaining how trade allows countries to use underutilized resources more efficiently.

- **Static Gains from Trade** – Immediate benefits from specializing in goods with comparative advantage.
- **Dynamic Gains from Trade** – Long-term benefits like economies of scale, innovation, and capital accumulation.
- **Comparative Advantage** – The ability of a country to produce a good at a lower opportunity cost than others.
- **Free Trade** – International trade left to its natural course without tariffs, quotas, or other restrictions.
- **Protectionism** – Government policies that restrict international trade to protect domestic industries.
- **Prebisch-Singer Hypothesis** – Theory stating that terms of trade for primary goods exporters tend to deteriorate over time.

18.10 References/ Suggested Readings

1. Francis Cherunilam(2006), *International Economic*.
2. Meier, G.M(1995), *Leading issues in Economic Development*, Oxford Printing Press, Mumbai
3. Misra and Puri (2011), *Indian Economy*, Himalaya Publishing House, New Delhi.
4. Thirlwall A.P. (2006), *Growth and Development*, Palgrave, New York.
5. Todaro, M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.

2.11 Hints to Check your Progress (CYP)

CYP-I

- Q1 Refer to section 18.3
- Q2 Refer to Sub-section 18.3.1
- Q3 Refer to Sub-section 18.4.1 and 18.4.2
- Q4 Refer to Sub-section 18.3 and 18.4

CYP-II

- Q1 Refer to section 18.5
- Q2 Refer to Sub-section 18.6

18.12 Examination Oriented Questions

1. Describe how trade acts as an Engine of Growth?
2. What are the static and dynamic gains from trade?

3. Outline the various arguments for protection.
4. Describe the advantages of free trade in economic development.
5. Describe in detail Prebisch –Singer hypothesis.

Trade Strategies of Development : Import Substitution versus Export Promotion

STRUCTURE

19.0 Objectives

19.1 Learning Outcomes

19.2 Introduction

19.3 Import Substitution versus Export Promotion Strategy

19.3.1 Import Substitution Strategy

19.3.2 Export Promotion Strategy

19.4 The Distinction and Overlap Between IS and EP Strategies

19.5 Case Studies

19.6 Evaluating the Impact of Trade Barriers and Protectionism

19.7 Advantages and Disadvantages of Import Substitution and Export Promotion

19.7.1 Advantages of Import Substitution

19.7.2 Disadvantages of Import Substitution

19.7.3 Advantages of Export Promotion

19.7.4 Disadvantages of Export Promotion

19.8 Conclusion

19.9 References / Suggested Readings

19.10 Hints to Check Your Progress (CYP)

19.11 Examination Oriented Questions

19.0 Objectives

After going through the lesson, the student should :

1. Understand the core principles of Import Substitution and Export Promotion strategies.
2. Analyze the historical context and evolution of these trade strategies in developing countries.
3. Compare the advantages and disadvantages of Import Substitution and Export Promotion strategies.
4. Identify the key factors influencing the success or failure of these strategies in various regions.
5. Evaluate the role of government policies in facilitating or hindering industrialization through these strategies.
6. Examine the impact of international trade barriers and protectionism on the effectiveness of each strategy.
7. Understand the relationship between market size, economies of scale, and industrialization in trade strategies.
8. Explore the lessons learned from case studies of countries that have employed either or both strategies.

19.1 Learning Outcomes

After completing this lesson, the student will be able to:

1. Define and differentiate between Import Substitution and Export Promotion strategies.
2. Identify the main goals of industrialization and trade diversification under these strategies.
3. Assess the economic impact of Import Substitution on domestic industries and balance of payments.
4. Evaluate the effectiveness of Export Promotion in fostering economic growth and global market integration.
5. Critically analyze the balance between protectionism and free trade in the context of development strategies.
6. Develop a comparative framework for analyzing trade policy outcomes in developing nations.
7. Apply theoretical concepts of trade, such as comparative advantage, to real-world economic development scenarios.

8. Recognize the role of external factors, such as global trade policies and international partnerships, in shaping trade strategies.

19.2 Introduction

The development strategies of less developed countries (LDCs) have long been a subject of intense debate among economists, policymakers, and development practitioners. Among the most prominent strategies discussed are import substitution industrialization (ISI) and export promotion (EP). These two approaches represent contrasting schools of thought regarding how developing nations can achieve economic growth, industrialization, and self-sufficiency. Both strategies have been pursued at different times by various countries, often with varying levels of success. The purpose of this chapter is to explore and critically analyze these two development strategies, examining their theoretical foundations, practical applications, and outcomes for LDCs.

In the mid-20th century, many developing countries, particularly in Latin America, adopted import substitution as their primary industrialization strategy. The ISI approach was driven by the desire to reduce dependence on foreign goods, encourage domestic manufacturing, and protect emerging industries from international competition. Countries pursuing this strategy typically imposed high tariffs and quotas on imports, fostering the development of local industries behind protective barriers. The belief was that by producing goods domestically that were previously imported, these nations could stimulate economic growth, create jobs, and achieve economic independence. However, while ISI initially seemed successful, it led to inefficiencies, lack of competitiveness, and an over-reliance on government protection, often hindering long-term sustainable growth.

On the other hand, export promotion emerged as a counter-strategy, particularly in the late 1970s and 1980s. This outward-looking approach emphasized the expansion of trade, the opening of markets, and the promotion of exports, both primary and manufactured goods. Proponents of EP argued that developing countries could achieve greater efficiency and growth by integrating into the global economy, capitalizing on their comparative advantage, and accessing larger, more competitive markets. The success stories of East Asian economies like South Korea, Taiwan, Singapore, and Hong Kong, which adopted export-oriented industrialization, showcased the potential benefits of this strategy. These countries experienced rapid industrialization, technological advancement, and economic growth, largely through fostering competitive export sectors.

However, the reality of trade and development is far more complex. Most developing nations have found it difficult to solely rely on one strategy, often employing a combination of ISI and

EP at different stages of their development. For example, while some countries began with a focus on import substitution to build industrial capacity, they later shifted toward export promotion to tap into global markets. The dynamics between these two strategies have evolved over time, influenced by changes in global trade policies, market demands, and political shifts. This chapter will explore these two trade strategies in greater detail, examining their historical context, theoretical underpinnings, and real-world applications. We will analyze how each strategy has shaped the economies of developing nations, discussing both the successes and challenges they faced, and the lessons that can be drawn for future development. Ultimately, we seek to understand the broader implications of these strategies for global economic integration, industrialization, and sustainable growth in the context of the evolving international trade landscape.

19.3 Import Substitution versus Export Promotion

During the 1950s, 1960s and 1970s, most developing nations made a deliberate attempt to industrialize rather than continuing to specialize in the production of primary commodities for export. Industrialization can be expected to provide (1) Faster technological progress (2) the creation of jobs to solve the problem of unemployment and underemployment problems (3) higher multipliers and accelerators through greater backward and forward linkage in production process. Rising terms of trade and more stable export prices and earnings and solution to the BOPs problems. The desire of developing nations to industrialize is considered natural because all rich nations are industrial while most poor nations are primarily agricultural.

Having decided to industrialize, developing nations had to choose between industrialization through import substitution or export promotion industrialization. Within these two broad approaches to development, a lively debate has been carried on in the development literature since the 1950s. It is the debates between free traders who advocate outward looking export promotion strategies of industrialization and the protectionists who are the advocates of inward looking import substitution strategies. The import substitutes were predominating in the 1950s and 1960s and the export promoters gaining the upper hand in the late 1970s and particularly among Western and World Bank's economist in the 1980s and 1990s.

The advocates of import Substitution (IS) believes that LDCs should initially substitute domestic production of previously imported simple consumer goods (1st Stage IS) and then substitute through domestic production for a wider range of manufactured items (2nd Stage IS) - behind the protection of high tariffs and quotas on these imports. In contrast, the advocates of Export Promotion (EP) of both primary and manufactured goods put forward the efficiency and growth benefits of free trade and competition, the importance of substituting large world markets for narrow domestic markets, the distorting price and cost effects of protection and the successes of the East Asian export-oriented economies of South Korea, Taiwan, Singapore and Hong Kong. The firms in these economies and in China have learned a great deal from the firms in the United States, Japan and other economies.

But in practice, the distinction between IS and EP strategies is much less pronounced. Most of the LDCs have employed both strategies with different degree of emphasis at one time or another. In the 1950s and 1960s, the inward-looking industrialization strategies of the larger Latin American and Asian countries were heavily IS oriented by the end of the 1960s, some of the key Sub-Saharan African countries began to pursue IS strategies and some smaller Latin American and Asian countries also joined in since the mid 1970s, the EP strategy has been increasingly adopted by a growing number of countries.

We are now in a position to examine the issue of outward looking export promotion versus inward looking import substitution in more detail under the four categories: Primary inward-looking policies i.e. mainly agricultural self-sufficiency. Secondary inward-looking policies i.e. manufactured commodity self-sufficiency through import substitution. Primary outward looking policies i.e. encouragement of agricultural and raw material exports. Secondary outward looking policies i.e. promotion of manufactured exports.

19.3.1 Import Substitution Strategy

During the period of 1950s and 1960s developing countries experienced a decline in world markets for their primary products and also face the problem of growing balance of payments deficits on their current account. A general belief in the magic of industrialization as well as the terms of trade arguments of the Prebisch Singer hypothesis, they turned to an import substitution strategy of urban industrial development.

Some countries still follow this strategy for both economic and political reasons, although pressure from the IMF and World Bank impose high opportunity cost. Import substitution is an attempt to replace commodities that are being imported i.e. manufactured consumer goods with domestic source of production and supply. The common strategy is first to erect tariff barriers or quotas on certain imported commodities then to try to set up a local industry to produce these goods. It involves joint ventures with foreign companies which are encouraged to set up their plants behind the wall of tariff protection and given all kinds of tax and investment incentives. Though the initial cost of production may be higher than former import prices but the argument is that the industry will eventually be able to reap the benefits of large-scale production and lower costs or the Balance of Payments will be improved as fewer consumer goods are imported. Eventually the infant industry will grow up and be able to compete with world markets and then it will be able to generate net foreign-exchange earnings and also it has lowered its average costs of production. Let us see how the theory of protection can be used to demonstrate this process.

Theory of Protection and Tariffs

Import substitution strategy involves the imposition of tariff on imports or quotas behind which import substitution industries are permitted to operate. Tariff protection against the imported commodity is needed because it allows the now higher-priced domestic producers enough time to learn better and to achieve the economies of scale in production and the external economies of learning by doing that are necessary for lower unit's costs of price. With this time and protection, the infant will eventually grow up and are able to directly compete with developed country producers and therefore no longer need protection ultimately. These protected IS industries will be able to produce not only for the domestic market with a tariff or government subsidies but also to export their now lower cost manufactured goods to the rest of the world. For many LDC industries on IS strategy becomes the prerequisite for an EP strategy. It is for this reason that IS has been appealing to so many LDC governments. The theory of protection is explained in the figure 19.3. The upper portion of the figure shows standard domestic supply and demand curves for industry (i.e. for leather product) when there is no international trade that is in closed economy. The equilibrium home price is P_1 and quantity would be Q_1 if the LDC were to open to economy to world trade. Its small size in relation to the world market

would mean that it would face a horizontal perfectly elastic demand curve. It could sell (or buy) all it wanted at a lower world price P_2 . Domestic consumers would benefit from the lower price of imports and greater quantity is purchased. Domestic producers and their employees would suffer as their business is lost to lower-cost foreign suppliers. Thus, at the lower world price P_2 , quantity demanded rises from Q_1 to Q_3 , whereas the quantity supplied by domestic producers falls from Q_1 to Q_2 . The difference between what domestic producers are willing to supply at lower world price P_2 and what consumers want to buy at lower price P_2 is shown by the amount AB which is imported.

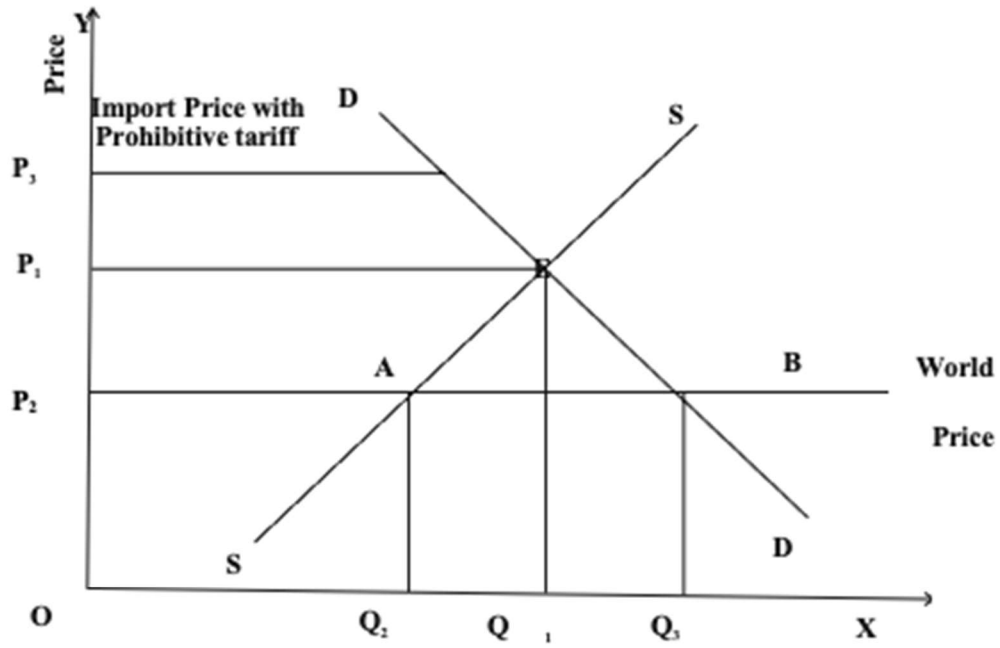
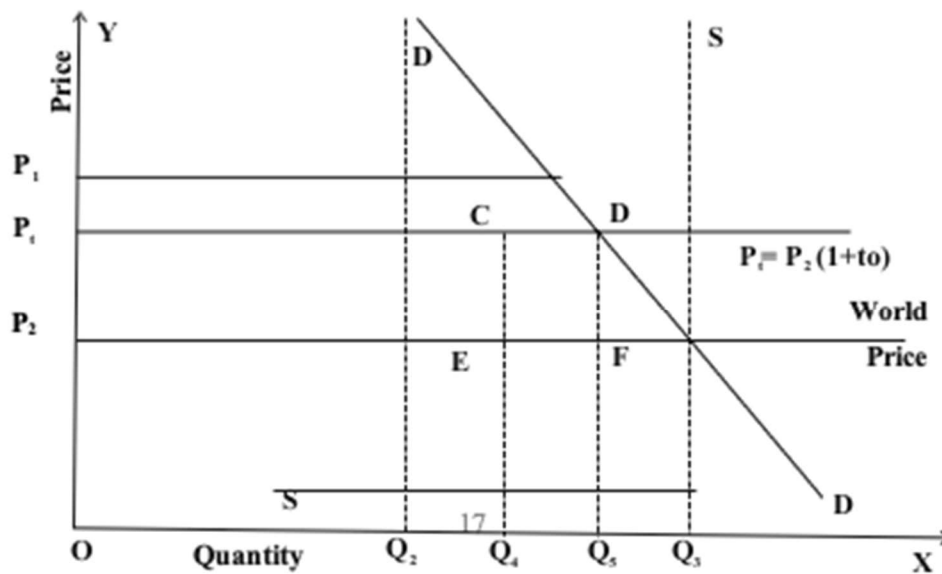


Figure 12.3



The LDC local producers face the potential loss of domestic production and jobs as a result of free trade and desire to obtain infant industry protection by having tariff relief from the government. The effects of tariff are shown in the lower portion of the figure. The tariff causes domestic prices of leather to rise from P_2 to P_t i.e. $P_t = P_2 (1 + t_o)$. Local consumers now have to pay higher prices for the products and will reduce their quantity demanded from Q_3 to Q_5 . Domestic

producers can now expand production up to quantity Q_4 from Q_2 . The rectangular area CDFE is the amount of tariff revenue collected by the government on imported leather.

The higher the tariff, the closer to the domestic price will be the sum of the world price plus the import tax. In the classic-infant industry IS scenario, the tariff may be so high that it raises the price of the imported produce above P_1 to P_3 in the upper portion of the diagram that its parts are effectively prohibited and the local industries are allowed to operate behind a fully protective tariff wall once again selling Q_1 output at P_1 price. The impact of such a tariff is on the consumers because such a tariff is in effect of subsidizing domestic producers and their employees through higher prices and lower the consumption of consumers. A tariff redistributes income from consumers to producers. But the advocates of IS protection for LDC infant industries argue that everyone will benefit as domestic and other manufactures reap the benefits of economies of scale and learning by doing as the domestic price falls below P_2 . Production will then take place for both the domestic and the world market, domestic consumers as well as domestic producers and their employees will benefit; protective tariffs can be removed and the Government will be able to replace any lost tariff revenue with taxes on the now very much higher incomes of domestic manufactures.

19.3.2 Export Promotion: Looking Outward and Seeing Trade Barriers

The major ingredient in the long run development strategy of a LDC is the encouragement of primary or secondary exports. The classical examples of primary outward looking regions were the colonial territories of Africa and Asia with their foreign owned mines and plantations. The newly independent states as well as the older LDCs which were under the subordination of colonial rulers put great emphasis on the production of manufactured goods initially for the home market and then for export. Let us look briefly at the scope and limitation of LDCs export expansion first with respect to primary products and then with respect to manufactured exports.

Primary Commodity Export Expansion

Many Low income LDCs still rely on primary products for their export earnings. With the exception of petroleum exports and a few needed minerals primary products exports and a few needed minerals primary products exports have grown more slowly than total world trade. The share of exports of LDCs has been falling over the past few decades. Since food, non-food agricultural products and raw materials covers almost 40% of all LDC exports and it is the major source of their foreign exchange earnings so we need to examine the factor affecting the demand for and the supply of primary product exports.

On the demand side, there are at least five factors working against the rapid expansion of LDC primary product and agricultural exports to the developed nations.

The income elasticities of demand for agricultural food stuffs and raw materials are relatively low as compared with those for fuels, certain minerals and manufactures. For e.g. the income elasticities of demand for products like sugar, tea, coffee, cacao and bananas have been estimated at less than 1, mostly in the range of 0.3 - 0.6. It contributes to the problem of instability in export earnings and it also means that only a high rate of per capita income growth in the developed countries can lead to modest export expansion of these particular items from the LDCs.

Secondly, the population growth rates in the developed countries are now at or near the replacement level so little expansion can be expected from this source.

The price elasticity of demand for most of the primary commodities or products is relatively low. Low price elasticity means less total revenue for the exporting nations. For e.g. between June 1980 and June 1982 i.e. between two years, the price of sugar fell by 78%, rubber by 37% and copper by 35% between 1989 and 1991, commodity prices fell by about 20% and prices were so low that it was no longer profitable. Such a decline especially in the 1980s and 1990s when prices fell by over 35% has hurt the LDCs the most. A device that is used to attempt to modify the tendency for primary product price to decline in relation to other traded goods is that of establishing international commodity agreements. These agreements are intended to set over all output levels, to stabilize world prices and to assign quota shares to various producing nations. These agreements attempt to guarantee participating nations a relatively fixed share of world export earnings and more stable world price for their commodity. But in actual or practice such agreements cannot be effective for perishable commodities like fruits and vegetables.

The fourth factor which has a negative impact on the long run expansion of LDC primary product export earnings is the development of synthetic substitutes. Synthetic substitutes for commodities like cotton, rubber, sisal, jute, hides, skins and recently copper act both as a source of competition in world export markets and as an obstacle against higher commodity prices. The share of natural products has fallen whereas the share of synthetic substitute in the world market export earnings has steadily risen over time.

Last but not the least factor which works against the expansion of LDC primary-products export earnings is the growth of agricultural protection in the developed countries. Agricultural protection takes the form of tariffs, quotas and non-tariff barriers such as sanitary laws regulating food and fiber imports, the effects have a havoc effect on the LDC export earnings. For e.g. the common agricultural policy of the European Union is much more discriminatory against LDC food exports than the policies that had prevailed in the individual member nations.

On the supply side a number of factors also put a constrained on the rapid expansion of primary product export earnings.

The first and the most important is the structural rigidity of many rural production systems in the developing countries such as limited resources poor climate, bad soils, old and traditional rural institutional, social and economic structures and non-productive patterns of land tenure. There would be little export expansion when rural economic and social structures combined with risk averse peasant farmer instead of positive supply responses. Most of the developing countries are dualistic in nature in which large corporate capital-intensive farms exist side by side with thousands of fragmented, low productivity peasant holdings. In such a situation any growth in export earnings is likely to be distributed very unevenly among the rural population.

In most of the developing countries, marketing boards act as a middleman between the farms and export markets which creates problems for small farmers. These marketing boards often constrain export expansion by forcing cultivators to sell their goods at fixed price which is below the world market price. Lower price means no incentive for the farmers to increase output.

Finally, the harmful effects of developed country trade policies and the foreign aid policies that depress agricultural prices in LDCs and discourage production. For e.g. the European Union's policy of selling subsidized beef to the nations of West Africa in the hope of foreign assistance has devastated cattle prices in those countries.

To conclude, we can say that for the successful promotion of primary product exports, there should be reorganization of rural social and economic structures to raise total agricultural productivity and distribute the benefits more widely. The primary objective of any LDC rural development strategy must be to provide sufficient food to feed local people first and only then be concerned about export expansion. If LDCs are able to accomplish this most difficult task, LDCs may be able to realize the potential benefits of their comparative advantage in world primary commodity markets only if they can cooperate with one another. Being helped by the developed nations in formulating and carrying out workable international commodity agreements, and secure greater access to developed country markets.

But given the framework of world demands for primary products, the threat of local food shortages and thus the desire for agricultural self-sufficiency the development of synthetic substitutes and the unlikelihood of the lower levels of agricultural protection among developed nations, the real scope for primary products export expansion in individual LDCs seem limited.

Expanding Exports of Manufactured Goods:

The expansion of manufactured exports of LDCs has received a great stimulus by the spectacular export performances of countries like South Korea, Hong Kong, China, Brazil, Singapore,

Taiwan and Mexico over the past four decades. For e.g. Taiwan's total exports grew at an annual rate of over 20% and exports from South Korea grew even faster. In both the countries, export growth was contributed by manufactured goods, which contributed over 80% of both nations foreign exchange earnings. If we talk about developing countries as a whole, manufactured exports grew from 6% of total merchandise exports in 1950 to almost 64% by 2000. But the share of LDCs to total world trade in manufactures has remained small though it did grow from 7% in 1965 to 22% in 1999 and the fact is that much of which was exported by a few East Asian economies.

The export successes of recent decades among the Four Asian Tigers have provided the primary impetus for arguments by market fundamentalists at the World Bank and the IMF that the LDCs economic growth is best served by allowing market forces, free enterprise and open economies to prevail with minimum government intervention. But the reality of East Asian cases does not support this view. In South Korea, Taiwan and Singapore the production and composition of exports was not left to the market but was the result of careful and planned intervention by the government. The demand problems for LDC export expansion of manufactured goods different from those for primary products. The income and price elasticities of international demand for manufactured goods in the aggregate are higher than for primary commodities which provide a little scope for developing countries to expand their exports for a number of years there was widespread protection in developed nations against the manufactured exports of LDCs. Industrial nation trade barriers have been pervasive. For e.g. during the 1980s 20 out of 24 industrial countries increased their protection against LDC manufactured or processed products. The rates of protection were higher against LDC exports as compared with other industrial nations. Along with this, there are non tariff barriers which now form the main protection against LDC manufactured exports.

As against the case of agriculture and other primary products there is a scope of expansion of manufactured products to serve local LDC markets. There is great scope for mutually beneficial trade in manufactures among developing countries themselves. Too much emphasis has been placed on the analysis of trade prospects of individual LDCs with the developed nations and not much on the prospects for mutually beneficial trade with one another. Such trade in minerals and agriculture has been rising much more quickly than trade in manufactures. There is much scope for expansion.

19.4 The Distinction and Overlap Between IS and EP Strategies

Most of the observers agree that the import-substituting strategy of industrialization has been largely unsuccessful. There have been five undesirable outcomes:

Domestic industries can grow accustomed to protection and free any type of competition and therefore have no incentive to become efficient and are costly to operate.

The main beneficiaries of the import substitution process have been the foreign firms that were able to locate behind tariff walls and take advantage of liberal tax and investment incentives. After making deductions of interest, profits and royalty and management fees, most of which goes abroad, the little that may be left over usually accrues to the wealthy local industrialists who are small in number with whom foreign manufacturers cooperate and who provide their political and economic cover.

The most import substitution has been made possible by the heavy and often government subsidized importation of capital goods and intermediate products by foreign and domestic companies. In the case of foreign companies, much of this is purchased from parent and sister companies abroad. It has two results. Firstly, capital intensive industries are set up dealing to the consumption habits of the rich while having minimal employment effect. Secondly, it does not improve the LDC's Balance of payments situation and the debt problem, indiscriminate import substitution often worsens the situation by increasing the need for imported capital goods and intermediate products. A large part of the profits is remitted abroad in the form of private transfer payments.

Fourthly, the detrimental effect of many import substitution strategies is its effect on traditional primary – product exports. The LDCs have often been artificially overvalued exchange rates in order to encourage local manufacturing through the importation of cheap capital and intermediate goods. The effect of this is that it raises the prices of exports and lowers the prices of imports in terms of local currency. By means of an overvalued exchange rate, LDC governments have effectively lowered the domestic currency price of their imports and at the same time their export prices have increased. The important aim or objectives of over valuing exchange rates in terms of import substitution is to encourage capital intensive production methods and to penalize the traditional primary product export sector by artificially raising the price of exports in terms of foreign currencies. Overvaluation thus makes the local farmers to be less competitive in the world markets. Its result is to penalize small farmers and the self-employed while it improves the profits of the owners of capital, both foreign and domestic. Protection to industries has the effect of taxing agricultural goods in the domestic market and also discouraging agricultural exports. Import substitution policies have the effect on rural sector of lower income groups by discriminating it and favouring the urban sector and higher income groups.

Lastly, the main objective of import substitution is to help the infant industry in their growth and self-sustained industrialization by creating 'forward' and backward linkages with the rest of the economy. But it has not been successful in this objective rather it inhibited the industrialization. Many infants never grow up and hide behind protective tariffs and government is trying to make them more competitive by constantly lowering the tariff. LDCs government often operates protected industries as state-owned. Moreover, by increasing the costs of inputs to potentially forward linkage industries i.e. those industries that purchase the output of the protected form as inputs or intermediate products in their production process and by purchasing their own inputs from overseas sources of supply rather than from domestic suppliers of backward linkages, the inefficient import-substitution firm in fact close the hope for process of self-reliant integrated industrialization.

Advantages of ISI strategy:-

The risks that are involved in setting up an industry to replace imports are reduced because the market for the industrial product already exists as evidenced by imports of the commodity.

It is easier for the developing nations to protect their domestic industries against foreign competition than to force the developed nations to lower trade barriers against manufactured exports.

Foreign firms are induced to establish so called tariff factories to overcome the tariff wall of developing nations.

To conclude, we can say that it is not easy, for a country to find any rationale for the pattern of import substituting industrialization which has actually been promoted. In most of the LDCs, undue emphasis has been given to consumer goods and insufficient attention was given to long run potential comparative advantage i.e. resource endowment and learning possibilities. Moreover, it has employed unsuitable capital-intensive technologies to an extra ordinary & unnecessary degree. The consequence of this is the creation of an inefficient industrial sector operating far below capacity. Creating low employment, very low foreign exchange earnings and very little scope for further productivity growth. The domestic manufacture industries of intermediate and capital goods are encouraged at the expense of importable consumer goods of obviously there would be the development of manufacture for exports.

19.5 Case Studies

Case studies provide valuable insights into the practical application of trade strategies, allowing us to better understand how Import Substitution Industrialization (ISI) and Export Promotion (EP) strategies have played out in various developing nations. These case studies offer real-world examples that illustrate the successes, challenges, and trade-offs inherent in each

strategy. In this section, we will examine the experiences of Latin American countries, East Asian economies, and Sub-Saharan African nations, shedding light on the different pathways taken by these regions in their quest for economic development.

1. Case Study: Latin America - Import Substitution Industrialization (ISI)

During the mid-20th century, many Latin American countries, including Argentina, Brazil, and Mexico, adopted the Import Substitution Industrialization (ISI) strategy as a means to achieve economic self-sufficiency and reduce dependency on foreign powers. The ISI model emphasized replacing imported goods with locally produced ones, particularly in consumer goods, to build up domestic industries. This strategy was particularly attractive to countries that were struggling with underdeveloped industrial sectors, low income, and high dependency on the export of primary commodities.

Implementation:

To implement ISI, Latin American governments imposed high tariffs on imports, provided subsidies to local industries, and created state-owned enterprises to promote domestic industrial growth. Countries like Brazil focused heavily on developing industries such as steel, textiles, and automobile manufacturing. Import substitution was expected to stimulate local production, create jobs, and reduce trade imbalances by lowering the import bill.

Outcomes:

While the initial phase of ISI led to some industrial growth, the long-term effects were less positive. By the 1960s and 1970s, several issues became apparent:

- **Inefficiency and High Costs:** Domestic industries protected by tariffs became complacent, failing to improve productivity or innovate. As a result, they became inefficient, producing goods at higher costs than international competitors.
- **Overdependence on Foreign Capital:** Many ISI industries relied heavily on foreign technology, equipment, and expertise. While protectionist policies initially attracted foreign direct investment (FDI), this led to a continued dependency on foreign capital and technology, undermining the long-term sustainability of these industries.
- **Balance of Payments Problems:** The focus on industrialization led to an increased demand for capital goods and intermediate goods, most of which were imported. Despite the rise in domestic production, the heavy importation of machinery and raw materials for

local industries did not improve the balance of payments situation as expected.

- **Limited Employment Generation:** While some industries did generate employment, the benefits were not broadly spread across the population. Often, new industrial jobs were concentrated in urban centers, leaving rural areas with little to no benefit from the industrialization process.

By the 1980s, many Latin American countries began to abandon ISI in favor of Export Promotion strategies due to the inefficiencies that had emerged under protectionist regimes.

2. Case Study: East Asia - Export Promotion (EP) Strategy

In stark contrast to Latin America, East Asian economies such as South Korea, Taiwan, Hong Kong, and Singapore adopted an outward-looking Export Promotion (EP) strategy, which focused on increasing exports, particularly in manufactured goods. This strategy was based on the belief that global competition, rather than protectionism, would help stimulate efficiency and growth. These nations sought to integrate themselves into the global market by encouraging exports, attracting foreign direct investment (FDI), and adopting market-driven policies that facilitated industrialization.

Implementation:

The success of the East Asian economies was largely driven by a combination of strategic government intervention and market reforms:

- **Government-Led Industrial Policy:** Governments in these countries played an active role in guiding industrial development, providing incentives for export-oriented industries, and directing investment into key sectors such as electronics, textiles, and automobiles. For instance, South Korea's government supported the development of large conglomerates (chaebols), which became the backbone of the country's industrialization.
- **Export Credit and Incentives:** Countries like Taiwan and Singapore established export credit schemes, tax incentives, and favorable exchange rates to stimulate production for export markets. This helped manufacturers gain a competitive edge in global markets by lowering costs and boosting export profitability.
- **Trade Liberalization:** These countries gradually liberalized their economies, reducing trade barriers and opening up their markets to international competition. The push for global market integration helped stimulate innovation, improved productivity, and

exposed domestic firms to international standards.

Outcomes:

The Export Promotion strategy in East Asia led to remarkable economic success, particularly in the late 20th century:

- **Rapid Industrialization:** The transition from agriculture to industry in these countries was swift, with industrial output increasing significantly as export-oriented manufacturing grew. South Korea's heavy industry sector, including shipbuilding and electronics, became globally competitive within a few decades.
- **Technological Advancement and Knowledge Transfer:** EP fostered significant technological advancements. These countries were able to adopt and adapt foreign technologies, improving their domestic industries. South Korea, for example, became a leader in semiconductor manufacturing by learning from established players in Japan and the U.S.
- **Job Creation and Poverty Reduction:** Unlike ISI, EP strategies generated employment not only in urban areas but also in rural areas where agriculture was supplemented with new export-oriented industries. The creation of millions of jobs helped reduce poverty and uplift the living standards of a large portion of the population.
- **Increased Global Competitiveness:** Through sustained export growth, these economies became central players in the global market. By the 1990s, countries like South Korea and Taiwan had transitioned from being low-income, agrarian economies to highly industrialized, export-driven nations with strong global economic influence.

3. Case Study: Sub-Saharan Africa - Mixed Strategies

In contrast to the experiences of Latin America and East Asia, many Sub-Saharan African countries pursued a mixed approach that involved both Import Substitution (ISI) and Export Promotion (EP) strategies at different points in time. The choice of strategy in Sub-Saharan Africa was shaped by a range of factors, including colonial legacies, political instability, and the pressure to industrialize.

Implementation:

Several countries in the region, including Nigeria, Kenya, and Tanzania, initially focused on ISI, seeking to replace imports with domestic production of consumer goods and basic industrial products. Over time, however, these countries began to shift towards export promotion as part of their adjustment to global market trends and the pressures of the global

economy.

- **Import Substitution Phase:** In the 1960s and 1970s, many Sub-Saharan African nations, following a similar path to Latin America, adopted ISI policies by implementing high tariffs and subsidies for local industries. These industries were often state-owned and dependent on external capital for technology and machinery.
- **Export Promotion Phase:** In the 1980s and 1990s, as the inefficiencies of ISI became evident, some countries began to adopt export-led growth strategies. For example, Kenya and Ghana shifted to export promotion by focusing on agriculture and primary commodity exports, such as coffee and cocoa, as well as encouraging foreign investment and industrial export diversification.

Outcomes:

The mixed approach in Sub-Saharan Africa has had varied success:

- **Economic Stagnation:** Despite adopting ISI, many African countries failed to build competitive industries. Over-reliance on state-owned enterprises and limited integration into the global market left economies vulnerable to external shocks, such as commodity price volatility.
- **Economic Diversification Challenges:** While some countries successfully transitioned to export promotion, such as through agricultural exports, the lack of diversified manufacturing sectors has continued to impede sustainable growth. The export success of primary commodities, such as oil in Nigeria and cocoa in Ghana, has not always translated into broad-based economic development or reduced poverty.
- **Debt and Structural Adjustment:** The shift towards export promotion in Sub-Saharan Africa was often accompanied by structural adjustment programs (SAPs) imposed by the IMF and World Bank, which focused on market liberalization, trade liberalization, and fiscal austerity. These policies had mixed results, with some countries experiencing short-term economic improvement, while others faced increased inequality, social unrest, and growing public debt.

The case studies of Latin America, East Asia, and Sub-Saharan Africa illustrate the diverse experiences of developing countries with trade strategies. Latin American nations, while initially successful with ISI, ultimately faced inefficiencies and dependency on foreign capital, leading many to shift towards export promotion. East Asia's success with export promotion demonstrates the potential benefits of engaging in global markets through competitive

industries and government intervention. Sub-Saharan Africa's mixed strategies highlight the challenges of transitioning between ISI and EP, often hindered by external factors such as global price fluctuations and limited access to international markets.

These case studies underscore that trade strategies must be context-specific, taking into account the unique economic, political, and social conditions of each country. While both ISI and EP have their merits, their success depends on the ability to foster industrial growth, build global competitiveness, and maintain a balance between domestic priorities and global market forces. As such, developing countries must remain flexible in adapting their strategies to changing global conditions while striving to enhance their own industrial capacity and economic resilience.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

1. What are the key differences between the Import Substitution and Export Promotion strategies? Discuss their theoretical foundations and the primary goals of each strategy.
2. Explain the concept of the Infant Industry Argument in the context of the Import Substitution strategy. How does it justify the protection of domestic industries from foreign competition?
3. What are the main advantages and challenges associated with the Import Substitution Industrialization (ISI) strategy? Provide examples of countries that have adopted this strategy and the outcomes they experienced.
4. How does the Export Promotion (EP) strategy foster economic growth? Discuss the role of government intervention in supporting export-oriented industries and the long-term benefits of this strategy.
5. Evaluate the impact of Export Promotion on global market integration. How did countries like South Korea and Taiwan leverage this strategy to become global economic players?
6. In what ways do the Import Substitution and Export Promotion strategies overlap? Provide examples of countries that have successfully combined both strategies, and explain the circumstances under which this mix works.
7. Discuss the successes and failures of Import Substitution strategies in Latin American countries during the 1950s and 1960s. What lessons can be learned from their experience?

8. Based on the case studies of East Asian economies and Sub-Saharan African nations, how do trade strategies such as IS and EP influence the economic development of LDCs? Provide specific examples and outcomes for each region.

19.6 Evaluating the Impact of Trade Barriers and Protectionism

Trade barriers and protectionist policies have long been central to the discourse on international trade and economic development, particularly for developing nations. The core idea behind protectionism is to safeguard domestic industries from foreign competition, thereby promoting local economic growth, ensuring employment, and addressing trade imbalances. However, while protectionist policies such as tariffs, quotas, and subsidies can yield short-term benefits, their long-term impact on economic growth, efficiency, and global competitiveness remains a contentious issue. This section delves into the theoretical basis of trade barriers, their economic implications, and the consequences experienced by countries that have implemented them.

Theoretical Basis of Protectionism

The justification for trade barriers often stems from several key economic arguments. One of the most commonly cited reasons for protectionism is the infant industry argument. This rationale suggests that newly established industries in developing countries need protection from international competition in their early stages of development. Without protective measures such as tariffs or quotas, these industries would be unable to compete with more established foreign companies. Over time, however, the argument goes, these infant industries will mature, achieve economies of scale, and eventually be able to compete globally. This reasoning was central to the Import Substitution Industrialization (ISI) strategy implemented by many Latin American and Asian countries in the mid-20th century.

Another key justification for protectionism is employment protection. Governments may impose trade barriers to shield domestic industries from foreign competition, thereby preventing job losses in sectors that are vulnerable to international trade. In this sense, protectionism is seen as a tool for ensuring social stability by safeguarding local jobs, especially in industries critical to national economies. Additionally, national security concerns often drive protectionist policies, particularly in industries related to defense, energy, and agriculture. Countries may seek to avoid reliance on foreign suppliers for essential goods, thereby reducing vulnerability to global economic fluctuations or geopolitical risks.

Lastly, protectionist policies are sometimes used to improve the balance of payments by reducing imports of non-essential goods, thus helping to stabilize a country's external accounts.

By limiting imports, governments aim to reduce the trade deficit and encourage domestic production, thereby boosting local industries and increasing national wealth.

Impact of Trade Barriers on Domestic Economies

While the short-term benefits of trade barriers may seem attractive, especially for developing nations seeking to protect nascent industries, the long-term consequences often undermine the broader goals of economic development. One of the most significant drawbacks of protectionism is the distortion of market efficiency. Trade barriers artificially raise the price of imported goods, which benefits domestic producers by allowing them to sell their products at higher prices. However, this protection often comes at the expense of consumer welfare, as consumers face higher prices for goods that would otherwise be cheaper in the global market. This can reduce purchasing power, particularly for lower-income households, which are disproportionately affected by price increases.

Protectionism also stifles innovation and productivity. When domestic industries are shielded from foreign competition, they lack the incentives to innovate or improve efficiency. The absence of external competition can lead to complacency, where firms do not invest in improving their processes, products, or services. This stagnation can result in industries that are inefficient and uncompetitive in the global market. In countries that pursue protectionist policies for extended periods, industries that should have evolved through competition often remain stagnant and incapable of competing internationally.

Moreover, protectionist policies can lead to resource misallocation. When governments protect certain industries, resources are often diverted away from more efficient sectors to support less productive, protected ones. This misallocation prevents economies from utilizing their comparative advantages effectively, leading to suboptimal economic outcomes. For instance, a country with abundant agricultural resources may shift investment away from agriculture to support industries that would be better off competing in the global market. This can hinder long-term economic growth, as resources are not being allocated to their most productive uses.

Long-Term Consequences of Protectionism

The long-term impact of protectionist policies often includes economic stagnation and reduced global competitiveness. Industries that are consistently shielded from international competition struggle to innovate, and over time, they lose the ability to compete in the global market. The protectionist model fails to encourage the kind of efficiency improvements that are necessary for sustained economic growth. Furthermore, when industries remain inefficient and

uncompetitive, they become a drag on the overall economy, limiting its potential for growth and development.

Another significant consequence of prolonged protectionism is the reduced inflow of foreign direct investment (FDI). FDI is essential for the technological and managerial development of industries in developing nations. When countries impose high trade barriers, they often alienate foreign investors who are deterred by the restrictive business environment. This limits the opportunity for local industries to adopt new technologies, access capital, and improve production methods. The lack of FDI also deprives countries of the critical skills and knowledge that are necessary for improving industrial capacity and competitiveness.

Moreover, protectionism can lead to trade wars and retaliatory measures. When a country imposes trade barriers, its trading partners often respond with retaliatory tariffs or restrictions of their own, which can escalate into a broader trade conflict. These trade wars disrupt global supply chains, reduce global trade volumes, and increase the costs of goods and services across the board. The U.S.-China trade war in recent years is a prime example of how trade barriers can lead to a cycle of escalating tariffs, which harm both the domestic economies of the countries involved and the global economy at large.

Case Study: The U.S. Steel Industry

The U.S. provides a clear example of the effects of protectionism on a domestic economy, particularly in the context of the steel industry. In the early 2000s, the U.S. government imposed tariffs on imported steel, arguing that domestic steel producers were being undercut by cheaper foreign imports. The immediate effect of these tariffs was an increase in the price of steel, benefiting U.S. producers and protecting steel-related jobs. However, the long-term effects were far less positive.

While the tariffs helped steel producers in the U.S., they also increased the cost of steel for industries that depend on it, such as automakers, construction companies, and manufacturers of consumer goods. This resulted in higher production costs for U.S. industries, which were passed on to consumers in the form of higher prices. Additionally, the tariffs provoked retaliatory measures from other countries, further disrupting global supply chains and harming U.S. exporters. Over time, the U.S. steel industry remained inefficient, failing to modernize or innovate due to the lack of competition, which ultimately undermined its long-term viability.

Case Study: India's Protectionist Policies and Economic Growth

India's experience with protectionism during the ISI phase offers another important case study.

From the 1950s to the 1980s, India adopted protectionist policies aimed at promoting domestic industry and reducing reliance on foreign imports. The government imposed high tariffs, established state-run enterprises, and provided subsidies to local industries.

While some industries did see growth, the overall effect of these policies was largely negative. The lack of competition stifled innovation, and many domestic industries remained inefficient. The emphasis on capital-intensive industries, such as heavy manufacturing, resulted in low employment generation, particularly in rural areas. The protective barriers also led to increased foreign capital dependence, as local industries relied on foreign technology and expertise.

In the 1990s, India shifted toward a more open, export-oriented strategy by liberalizing its economy, reducing tariffs, and embracing global trade. This shift to Export Promotion led to significant economic growth, a reduction in poverty, and increased foreign investment. India's shift from protectionism to an export-driven economy is a testament to the potential for growth when countries embrace competition and global integration.

While protectionism and trade barriers may offer short-term benefits, such as shielding domestic industries from foreign competition, the long-term impact is often detrimental to economic growth and global competitiveness. Protectionism can lead to inefficiencies, higher consumer prices, reduced innovation, and stagnation in local industries. Additionally, it can result in trade conflicts, retaliatory measures, and a reduction in foreign investment. The experiences of countries like the U.S. and India demonstrate that, although protectionism may offer temporary relief, the most successful long-term growth strategies involve integrating into the global economy, embracing competition, and adopting trade policies that foster innovation, investment, and productivity. As such, the challenge for policymakers in developing countries lies in finding the right balance between protectionism and openness to ensure sustainable, inclusive economic development.

19.7 Advantages and Disadvantages of Import Substitution and Export Promotion

The trade strategies of Import Substitution Industrialization (ISI) and Export Promotion (EP) have been widely adopted by developing countries as part of their broader economic development strategies. These strategies offer distinct advantages and disadvantages, depending on the context in which they are applied. Import Substitution emphasizes reducing dependency on foreign goods through local production, while Export Promotion seeks to integrate the economy into the global market by increasing exports. Understanding the pros and cons of each strategy is crucial for policymakers as they decide on the most appropriate approach to foster industrialization, growth, and sustainable development. This section delves

into the advantages and disadvantages of both ISI and EP, providing a comprehensive view of how these strategies can shape economic outcomes.

19.7.1 Advantages of Import Substitution

1. **Protection of Domestic Industries:** Import substitution allows nascent industries to grow by shielding them from foreign competition through tariffs and quotas. This protection gives local industries the time to mature and become competitive in the global market.
2. **Job Creation and Industrial Growth:** By fostering domestic industries, ISI can create employment opportunities in manufacturing sectors, reducing unemployment and stimulating industrial growth, particularly in sectors previously reliant on imports.
3. **Reduction in Dependency on Foreign Goods:** ISI helps reduce dependency on imported goods, ensuring that a country is less vulnerable to global market fluctuations and foreign supply chain disruptions, thus promoting economic self-sufficiency.
4. **Encourages Technological Transfer and Local Innovation:** The protection of local industries can lead to technological advancements as domestic firms invest in developing their capabilities. Over time, this can result in innovation, improved production techniques, and increased technological self-reliance.
5. **Improvement in Balance of Payments:** By substituting imports with domestically produced goods, countries can reduce their import bills, improving their balance of payments and reducing reliance on foreign exchange.

19.7.2 Disadvantages of Import Substitution

1. **Inefficiency in Domestic Industries:** Protected from global competition, domestic industries may lack incentives to innovate or improve efficiency. As a result, these industries can become inefficient, leading to high production costs and poor-quality goods.
2. **Overdependence on Domestic Market:** Focusing heavily on the domestic market limits opportunities for firms to expand globally. This can stifle the growth potential of industries, as they miss out on the benefits of international markets and scale economies.
3. **Resource Misallocation:** Protectionist policies may lead to the misallocation of resources, with governments directing funds to inefficient industries that cannot compete on a global scale, thereby reducing overall economic welfare.
4. **High Costs to Consumers:** Import substitution often results in higher prices for consumers, as domestically produced goods are typically more expensive than imports. This reduces consumer purchasing power and can hinder overall economic welfare.

5. **Vulnerability to External Shocks:** While ISI aims for economic independence, it can also make a country vulnerable to domestic economic shocks, such as a lack of innovation, high production costs, and inefficient industries unable to compete internationally.

19.7.3 Advantages of Export Promotion

1. **Access to Larger Global Markets:** Export promotion enables countries to access global markets, expanding their customer base and enhancing their economic growth prospects. This allows firms to achieve economies of scale, reduce costs, and increase competitiveness.
2. **Stimulates Technological Advancements and Innovation:** As companies seek to meet the demands of international markets, they often invest in new technologies, research, and innovation, which improves productivity and industrial capacity in the long run.
3. **Increases Foreign Exchange Earnings:** Export promotion leads to an influx of foreign exchange, which can be used to finance imports, pay off foreign debt, and invest in domestic development projects, thereby improving the balance of payments.
4. **Job Creation and Economic Diversification:** The growth of export-oriented industries creates jobs and stimulates new sectors, promoting economic diversification and reducing reliance on a single industry or commodity.
5. **Improvement in Global Competitiveness:** Export-oriented strategies expose domestic industries to global competition, which encourages firms to enhance their productivity, quality, and efficiency, ultimately improving their position in the global market.

19.7.4 Disadvantages of Export Promotion

1. **Vulnerability to Global Market Fluctuations:** Export promotion exposes countries to the risks of global market volatility, including fluctuations in commodity prices and demand, which can lead to economic instability, particularly for countries reliant on a few key exports.
2. **Over-reliance on Export Markets:** Heavy reliance on export markets can make an economy vulnerable to external economic shocks. A downturn in global demand or the imposition of trade barriers by importing countries can significantly hurt domestic producers.
3. **Environmental and Social Costs:** Export-oriented industries may prioritize production over environmental sustainability and social welfare. The focus on rapid industrialization and resource extraction can lead to environmental degradation and negative social impacts,

such as labor exploitation.

4. **Trade Imbalances and Dependency:** While export promotion can boost a country's growth, it may also result in trade imbalances. Developing countries might find themselves heavily dependent on a narrow range of exports, which can undermine the long-term stability of their economy.
5. **Barriers in Developed Markets:** Even with an export-oriented strategy, many developing countries face significant barriers to entering developed markets. Tariffs, quotas, and non-tariff barriers can make it difficult for goods from LDCs to compete on equal terms with products from developed nations.

In conclusion, both Import Substitution Industrialization (ISI) and Export Promotion (EP) strategies come with their unique set of advantages and disadvantages. While ISI aims to protect and nurture domestic industries, it can lead to inefficiency, high consumer costs, and over-dependence on the local market. On the other hand, Export Promotion offers the potential for increased competitiveness, foreign exchange earnings, and global market integration but exposes developing nations to external market risks and dependency on global demand. Understanding the trade-offs associated with these strategies is crucial for developing countries in selecting the best approach for their economic and industrial development.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

1. What are the primary theoretical justifications for implementing protectionist policies and trade barriers? How do these theories support the adoption of strategies like Import Substitution Industrialization (ISI)?
2. Discuss the impact of trade barriers on domestic industries. How do protectionist policies affect market efficiency, consumer prices, and global competitiveness in developing countries?
3. What are the key advantages of the Import Substitution Industrialization (ISI) strategy for developing countries? Provide examples of how ISI has been beneficial in certain contexts.
4. Identify and explain the main disadvantages of the Import Substitution Industrialization (ISI) strategy. How do these disadvantages hinder long-term economic growth in developing nations?

5. What are the major advantages of the Export Promotion (EP) strategy in fostering economic growth? How has export-led growth contributed to the industrialization of countries like South Korea and Taiwan?
6. Discuss the disadvantages of the Export Promotion strategy. How do external market volatility, over-reliance on exports, and global competition pose challenges for developing countries pursuing EP?
7. Compare the advantages and disadvantages of the Import Substitution and Export Promotion strategies. Which strategy, if any, offers a more sustainable approach to economic development in developing countries?
8. How do trade barriers and protectionist policies impact the global competitiveness of domestic industries? Use case studies to illustrate the long-term consequences of relying on protectionism.

19.8 Conclusion

In conclusion, the debate between Import Substitution Industrialization (ISI) and Export Promotion (EP) strategies remains central to the development discourse in many less developed countries (LDCs). Both approaches offer distinct pathways for industrialization and economic growth, yet their successes and limitations vary based on the specific context, economic conditions, and global environment in which they are applied.

Import Substitution Industrialization (ISI), which was widely adopted by many Latin American and Asian countries in the mid-20th century, focuses on reducing dependency on foreign goods by fostering domestic production. Initially, ISI seemed promising, particularly as it allowed countries to protect and nurture their nascent industries behind tariff barriers. The strategy provided early-stage protection and support, enabling industries to grow and develop in a controlled environment. However, as time passed, many countries found that ISI led to inefficiency, market distortions, and high consumer prices. The lack of competition and innovation made it difficult for many protected industries to remain competitive on the global stage, ultimately impeding long-term economic progress.

On the other hand, Export Promotion (EP) focuses on integrating countries into the global market by increasing exports. The strategy emphasizes global market access, which allows countries to leverage their comparative advantage in producing goods at a lower cost. As seen in the success stories of East Asian economies like South Korea, Taiwan, and Singapore, export-led growth has been a highly effective strategy for driving industrialization, innovation, and economic growth. These countries benefited from export-oriented industries that not only

created jobs but also boosted technological advancement, increased foreign exchange reserves, and helped them become significant global players. However, the EP model is not without its challenges, including vulnerability to global market fluctuations, over-reliance on external demand, and the potential for environmental degradation or social inequality.

While Import Substitution and Export Promotion have often been framed as opposing strategies, many developing countries have employed a combination of both, adjusting their approach based on changing economic conditions. The hybrid approach allows countries to balance the need for domestic industry protection in the short term with the benefits of global market integration in the long term. Some nations, for example, began with ISI to establish basic industries and gradually transitioned toward EP once their domestic industries were strong enough to compete internationally.

The experiences of Sub-Saharan Africa, Latin America, and East Asia provide critical lessons in this regard. Latin American countries' reliance on ISI during the mid-20th century highlights the challenges of protectionism, inefficiency, and limited global competitiveness. Conversely, East Asian economies' focus on export promotion demonstrates the potential for rapid economic development through competitive industries, technological advancements, and market openness. Sub-Saharan Africa's mixed approach reveals the difficulties of balancing both strategies in the face of global economic pressures and structural barriers to development. Ultimately, the success of any trade strategy depends on various factors, including the country's level of development, institutional capacity, resource endowment, and global market conditions. There is no one-size-fits-all solution, and the appropriate strategy should be tailored to the unique needs and circumstances of each nation. In the modern global economy, an integrated approach that incorporates elements of both ISI and EP, while emphasizing flexibility, innovation, and competitiveness, is likely to offer the most sustainable path toward development.

The future of trade strategies in LDCs will require dynamic adaptation, as countries face an increasingly interconnected and rapidly changing global economic environment. The integration of technological advancements, foreign investment, and global market access will continue to shape the strategies of developing nations. By learning from past experiences, fostering industrial diversification, and addressing both domestic and global challenges, countries can enhance their prospects for achieving sustainable economic growth and development in the 21st century.

19.9 References / Suggested Readings

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19.10 Hints to Check Your Progress (CYP)

CYP-I

Q1: Refer to Section 19.3

Q2: Refer to Sub-section 19.3.1

Q3: Refer to Sub-section 19.3.2

Q4: Refer to Section 19.4

CYP-II

Q1: Refer to Section 19.5

Q2: Refer to Sub-section 19.7.1

Q3: Refer to Sub-section 19.7.2

Q4: Refer to Sub-section 19.7.3

Q5: Refer to Sub-section 19.7.4

19.11 Examination Oriented Questions

1. What is the primary goal of the Import Substitution Industrialization (ISI) strategy?

- Answer in 2-3 lines explaining the objective of ISI for developing countries.
2. Define Export Promotion (EP) strategy. How does it differ from Import Substitution Industrialization (ISI)?
 - Provide a clear comparison of both strategies in terms of goals and outcomes.
 3. Discuss one advantage and one disadvantage of Import Substitution (ISI).
 - Focus on practical benefits like industrial growth and the disadvantages such as inefficiency or market distortion.
 4. What role does government intervention play in Export Promotion (EP)?
 - Highlight how government policies, incentives, and subsidies support export-oriented industries.
 5. Explain the term "comparative advantage" and how it supports the Export Promotion strategy.
 - Discuss the relationship between global competitiveness and specialization.
 6. What were the main challenges faced by Latin American countries that pursued Import Substitution strategies in the 1950s and 1960s?
 - Mention issues such as inefficiency, rising costs, and overdependence on foreign capital.
 7. What are the key differences between the Infant Industry Argument and the Export Promotion strategy?
 - Compare the two theories in terms of market protection and long-term sustainability.

Dual Gap Analysis and WTO and Developing Countries

STRUCTURE

20.0 Objectives

20.1 Learning Outcomes

20.2 Introduction

20.3 Dual Gap Analysis

20.4 WTO and Developing Countries

20.4.1 WTO Agreements

20.4.2 Issues under WTO related to Developing countries

20.5 Let us sum up

20.6 Glossary

20.7 References

20.8 Hints to Check your Progress (CYP)

20.9 Examination related questions

20.0 Objectives

After going through the lesson, the student will

1. shall be able to understand the theory of dual gap analysis.
2. shall know about the importance of foreign borrowing.
3. shall be able to know the objectives and idea behind setting of WTO.

4. able to know the different agreements under WTO.
5. able to comprehend the issues of concern between developed and developing countries under WTO regime.

20.1 Learning Outcomes

After studying this lesson, students will be able to:

1. Understand the concept and theoretical framework of Dual Gap Analysis.
2. Explain the role of foreign borrowing in the development process of developing economies.
3. Describe the origin, purpose, and structure of the World Trade Organization (WTO).
4. Identify and analyze the main agreements under WTO such as TRIPS, TRIMS, GATS, etc.
5. Critically evaluate the issues faced by developing countries under the WTO regime.

20.2 Introduction

In the globalised world of today an economy's domestic savings can be supplemented by different types of external assistance. Role of foreign borrowing in the development process has remained prominent. But together with it is associated the debt servicing problem which is still present today in the developing world, affecting the lives of millions of poor people. It is an important fact that lending borrowing are natural features of capitalist economy or economic activity without these borrowing and lending operations capital accumulation would be confined or restricted to those sectors of economic activity that have a surplus of income over current requirements which would be inefficient and sub optimal from growth perspective. It is a fact that factors that cause the supply of capital to increase also create their own demand e.g. the increase in price of oil in 1973 and 1979 which created large surplus of oil importing countries and need to borrow by oil importing countries to maintain economic growth without cutting imports. Historically the process of

international borrowing and lending has played an important role in the development of many industrialized countries and continued to play a significant role in the economic transformation of today's developing nations.

20.3 Dual Gap Analysis

Foreign borrowing acts as a supplement to bridge gap between saving and investment and export and import i.e. foreign exchange gap. *Hollis Chenery* and his collaborator had put forward the *two gap or dual gap* analysis which shows foreign borrowing can supplement these two gaps to achieve a fast rate of growth and development. An important assumption underlying dual gap analysis is the lack of substitutability between foreign and domestic resources. Although it seems a severe assumption but it is valid in the short run e.g. if foreign exchange is scarce, it is not easy in short run to use domestic resources to earn foreign exchange or save domestic resources by doing away with imports. The ideas are that saving gap and foreign exchange gap are two separate and independent constraints on the attainment of target rate growth. "Chenery see" foreign aid as a way of filling these two gaps. A foreign borrowing is needed when the gap between foreign exchange earnings from exports and necessary imports is larger and the domestic and foreign resources are not easily substitutable for one another. Foreign borrowing must fulfill the gap which is larger of these two. Chenery suggests that countries in pre take up stage exhibit dominant investment saving gap followed by dominant foreign exchange gap with the possibility of skill constraint at any stage.

Why foreign borrowing is needed

- i) Most of the developing countries have dominant foreign exchange gap which exhibits itself in the form of BOP deficit in the current account where as domestic resources remain idle. Financing of these deficit is essential not only for the countries themselves but for the growth of the whole world economy. The reason for this is that mutual interdependence among world

economies that are linked through trade. Another way of solving this problem may be adjustment by deflation to reduce imports but it will result in slow growth of economic system as a whole.

- ii) Historical evidences have shown that many developed countries have gone for borrowing and the borrowing was ultimately converted into export surplus which enabled the country to repay its debt and become a net creditor.
- iii) In case of many developing countries of today, it is not possible for them to reduce the demand for resource inflow without any distortions or harm to the economy because of dominance of foreign exchange gap and need to meet the development requirements and to repay debt on the amount borrowed in past. It is difficult for many developing countries to convert domestic resources into foreign exchange not only because of depressed world economy but also due to structural factor i.e. they produce goods whose demand is price and income inelastic in world trade (Primary Products).

Dual gap analysis & foreign borrowing

In national income accounting on excess of investment over domestic saving is equal to a surplus of imports over exports from expenditure side national income accounting can be written as

$\text{Income} = \text{Consumption} + \text{Investment} + \text{Export} - \text{Import}$ Since saving is equal to $\text{Income} - \text{Expenditure}$

We have

$\text{Saving} = \text{Investment} + \text{Exports} - \text{Imports}$ $\text{Investment} - \text{Saving} = \text{Imports} - \text{Exports}$

Surplus of imports over exports financed by foreign borrowing allows a country to spend more than it produces or invest more than it saves. In accounting term, the amount of foreign borrowing required to supplement domestic saving is same whether the need is just for capital formation or for imports. The identity between the two gaps i.e. Investment saving (I-S) gap and import export (M-X) gap is due to nature of accounting procedure.

Before understanding dual gap, analysis there is a need to remind growth theories in order, growth require investment good either produced domestically or purchased from abroad.

In Harrod - Domar model r/s between growth and saving is given by incremental capital output ratio (c) which is reciprocal of productivity of capital (p) i.e.

$$g = S/C \quad \text{or} \quad g = SP$$

Where g = growth rate S = saving ratio

Similarly, growth can be expressed as the product of incremental output-

input ratio $\left(\frac{Y}{M} = m\right)$ and ratio of investment good import to income $\left(\frac{M}{Y} = i\right)$

$$\left(\frac{M}{Y} = i\right)$$

i.e. $g = mi$.

If the domestic and foreign resources are not substitutable growth will be limited by which ever factor is most limiting – domestic saving or foreign exchange. For e.g the growth rate permitted by domestic saving is less than growth rate permitted by the availability of foreign exchange. In this case growth will be saving limited and if the constrain is not lifted the proportion of foreign exchange will go waste. On the other hand, growth rate permitted by domestic saving is higher than that allowed by availability of foreign exchange. In this case growth will be foreign exchange constrained and a proportion of domestic savings will go waste. The implication is that there will be resources waste as long as one constraint is dominant.

Examples: Suppose a country set a target rate of growth 'r', the required saving ratio ($s^* = r/p$) and required import ratio ($i^* = r/m$). If domestic saving is less than level required to achieve target growth rate 'r', there exists Investment saving gap at time 't', is equal to

$$I_t = s^* Y_t - s Y_t = (r/p) Y_t - s Y_t \quad 1$$

Similarly, if import requirement to achieve target rate of growth are greater than import earning available for investment purpose, there exists foreign exchange gap at time t, is equal to

$$M_t - X_t = i^* Y_t - i Y_t = \left(r_{m'} \right) Y_t - i Y_t \quad 2$$

To achieve target rate of growth foreign capital must fill larger of these two gaps.

An important contribution of dual gap analysis to development theory is that it highlights the dual role of foreign borrowing in supplementing not only deficiency in domestic saving but also in foreign exchange. It synthesizes the traditional and modern view concerning trade and development. It also presents a more relevant theory for developing countries that justifies and import substitution. If growth is constrained by a lack of foreign exchange free trade cannot guarantee simultaneous internal and external equilibrium and gains from trade may be offset by underutilization of domestic resources.

20.4 WTO & Developing countries

The signing of the final act of the Uruguay round by member nation of GATT in April 1994 passed the way for the setting up of the world trade organization i.e. WTO. WTO is a permanent world trade organization designed to play the role of watch dog in the areas of trade in Goods, services, foreign investment, intellectual property rights etc. It was set up on January 1st, 1995. It has a legal status and enjoys privileges on the same grounds as the IMF & World Bank. There were 77 members of WTO on January 1, 1995. Now it has 159 members and 25 observers. India is one of the founder members.

WTO is the successor of GATT. GATT was signed by 23 countries in 1947. GATT was all along concerned with the promotion of international trade through tariff reduction, doing away non-discriminatory practices and counter protectionism. GATT was a forum where the member countries met from time to time to discuss and solve world trade organization. However, WTO is a properly established permanent World Trade Organization

WTO Ministerial Conferences:

Since coming into being of WTO in Jan 1995, eight ministerial conferences have been held.

- 1st held in Singapore on December 1996.
- 2nd was held in Geneva on May 1998.
- 3rd was held in Seattle (US) on November 1999.
- 4th was held in Doha in 2001.
- 5th was held in Cancun on September 2003.
- 6th was held in Hong Kong on December 2005.
- 7th was held in Geneva on December 2009.

- 8th was held in Geneva on December 2011.

Objectives

1. To improve the standard of living of people in the member countries.
 2. To ensure full employment and increase in real income and effective demand.
 3. To enlarge production and trade of goods and services.
 4. To ensure optimum utilization of world resources with objective of sustainable development.
 5. To make efforts to ensure that developing countries secure a share in growth of international trade.
 6. To develop integrated, durable, viable and multilateral trading system.
- To protect the environment.

20.4.1 WTO Agreements

The main agreements of WTO can be divided into following categories.

1. Agreement of Agriculture

This provides framework for agricultural trade and domestic policies over the period to come, with the purpose of introducing increased market orientation in agriculture trade. Members have to transform their non tariff barriers into tariff measures.

- It provides for commitments in the area of market access, domestic support and export competition.
- Tariffs resulting from transformation and other tariff on agricultural products are to be reduced on an average by 36% in case of developed countries and 24 in case of developing countries. These restrictions were required to be undertaken over 6 years in the case of developed countries and 10 years in case of developing countries. Least developed countries are not required to reduce their tariff.
- Reduction in subsidies and domestic support, the AOA stipulates that developed countries would reduce their subsidy by 20% in 6 years developing countries by 13% in 10 years.
- Domestic support measures that have a minimum impact a trade known as green box policies are included from reduction commitments.

Green box subsidy: It includes amount spend on government services such as research, diseases control, infrastructure and security. They also include payments directly made to farmers that do not stipulate production, such as certain forms of direct income support assistance to help farmers to restructure agriculture.

Amber Box: It promotes unlimited production like in India minimum support price is given.

Blue box subsidy: are direct payments made to farmers where the farmers are to limit production.

But the fact is that developed countries try to circumvent this agreement by providing green box and blue box subsidies to support agriculture. Also, this agreement does not make distinction between subsidies to promote food security and those meant to increase exports of farm products.

2. Agreement on Trade in Textiles and Clothing (ATC) (Multi fiber Arrangement)

The objective of this agreement is to secure the integration of the textiles and clothing sector into the GATT 1994. The bilateral agreements came in the form of quotas limiting imports from developing countries into market of developed countries. These countries were allowed to impose restrictions on imports of textiles and clothing. However, under WTO Multi-fiber agreement, it is mandatory for all countries to phase out this agreement over ten years of period starting from 1995. By 2005 this sector is fully integrated into normal WTO rules i.e. quotas came to an end in this sector.

3. General Agreement on Trade in Services (GATS)

Under this agreement for the first time, trade in services like banking insurance, travel, maritime transportation mobility of labour etc. was brought under the area of negotiation in the Uruguay round. It provides a framework of principles and policies which should govern trade in services under the condition of transparency and liberalizations. According to the agreement, Foreign Service and service suppliers would be treated on equal national footing with domestic services and service supplies. It also provided certain obligations like grant of MFN status to the other member nations with regard to trade in services and also the commitment of liberalization in general terms.

4. Trade related Investment Measures (TRIMS)

It refers to certain restrictions imposed by the government in respect of foreign investment in the country. TRIMS call for introducing national treatment of foreign investment and removal of quantitative restriction. The Agreement recognizes that certain investment measures restrict and distort trade. Trade related measures that are agreed to be inconsistent with the agreement are: -

- i) Local content requirement.
- ii) Trade balancing requirement (i.e. to produce for export as a condition to get imported inputs.

- iii) Trade and foreign exchange balancing requirement i.e. to balance foreign exchange outgo on importing input with foreign exchange earnings through exports.
- iv) Domestic sales requirements: Developed countries have to phase out this within 2 years developing countries have to phase out with 5 years and least developed countries within 6 years.

It establishes a committee to monitor the implementation of commitments and report to council of trade in good annually.

5. Agreement on Trade Related Intellectual Properties Rights (TRIPS)

Prices to the TRIPS agreement, Intellectual Property Rights concerning trade was decided by the national government. The maximum difference was seen in case of pharmaceutical sector where some countries protected the end product while many countries protected only the process of manufacturing. These loose patent laws adversely affected the interests of developed nation. Therefore, under TRIPS, these countries forced the stringent conditions for adoption of TRIPS. The scope of the agreement is widened as it includes not only patent but also copy rights, geographical indicators, industrial design, layout design of integrated circuit and protection of undisclosed information.

In the field of drugs, food, medicine chemical product the TRIPS provides granting of product patent earlier process patent was granted. Such product patent will be available for 20 years. In case of copy rights and related rights, protection will be available for 20 years.

6. Agreement on Technical Barriers

Agreement seeks to ensure that technical negotiation, standards and certificate procedures do not create any unnecessary to trade. Agreement however, recognizes country's right to adopt the standard that consider appropriate. This may be for human animal or plant life or for protection of environment.

7. Sanitary and Physio-sanitary Measures

This is a measure taken to protect human, animal plant life from risk arising from additives or diseases caused by spread of pests. The agreement seeks to ensure that animal and plant health and safety measures do not serve as unwarranted trade barrier.

8. Dispute Settlement system

Settlement of dispute under GATT was a long term or a never-ending process. The dispute settlement body set up under WTO seeks to remove these loopholes and provide security and

predictability to multilateral trading system. It has now been made necessary to settle dispute within 18 months. The finding of dispute settlement panel will be final and applicable on all parties concerned.

In addition to these Uruguay round also reached agreement on the implication of certain articles of GATT 1947 i.e. import licensing rules of origin, anti-dumping measures and countervailing duties safeguard, subsidies etc.

20.4.2 Issues under WTO related to Developing countries

The World Trade Organization (WTO) as contained in the final act was established on 1st of Jan 1991 and India became a founder member of WTO by ratifying the WTO agreement on 30 December 1994. Though the WTO has been established with the purpose of removing all barriers that inhibit free trade, promote free trade, optimum utilization of resources and improvement in standard of living of the people. These agreements are likely to benefit developing countries. Although it spells out various rules, regulations and agreements (provided they get cooperation from developing nation) but there exist bias in the implementation of these rules in the interests of developed nations. There is inequality in the structures of WTO and its bias towards the developed countries has tilted the balance in favour of these countries in all the negotiation. These inequalities affect the attainment of goal of free trade. Agreements which are likely to be disadvantages for developing countries are:

1. Agriculture:

WTO agreement on agriculture stipulated that developed countries would reduce these subsidies by 20% but in fact developed countries distort the agreement by providing, green and blue box subsidies to support agriculture. About 40 to 50 per cent of support to farmers of USA and EU is in the form of green box and blue box subsidies and thus exempted from reduction commitment. Developing countries are not allowed to increase their negligible level of export subsidies. Consequently, agriculture imports from developed countries are available at much below the market price in domestic economy affecting the competitiveness of developing countries in international market.

2. Labour Standard and Environment

Two very sensitive issues from the point of view of developing countries are issues related to labour standard. When imports from developing countries hurt the interest of developed countries, a number of environmental and human rights issues were raised with the objective of

imposing ban on the import from developing nation on the grounds that these countries use child labour in manufacturing of product. But the fact of matter is that child labour is prevalent in developed countries such as U.S, U.K, Italy and Spain as well. Many Americans have shifted their factories to remote Mexico, Indonesia where children are employed in these factories.

3. Trade related Intellectual Property Rights

Protection of intellectual property rights has been made more stringent in the Uruguay round. This has been done to protect the interest of multilateral corporations and developed countries as the agreement of TRIPS favours the patent holders. It would increase the area of coverage under patent system such as drugs, agriculture, patent varieties micro-organisms etc. By introducing process and product patent it will affect the price of pharmaceutical and life saving drugs and also affect the market of developing countries. Also, extension of intellectual property right to agriculture and micro-organism has serious consequence for developing countries. Patenting of plant varieties will transfer gains to Multinational Corporation and affect the poor farmer of developing nation where agricultures need governments support and assistance. For example, India's ancient use of Haldi was sought to be patented under American of 1995. An American company has been granted a patent right for Neem as a pesticide but actually neem is used as pesticide in India since centuries. Also microorganism's i.e. very small form of life has utility in developing bio-fertilizers and pharmaceuticals. The patenting of life will strictest the root of developing nation.

4. Trade Related Investment Measures (TRIMS)

The agreement on TRIMS is weak one. To make it balanced, from point of view of developing countries, it is necessary to formulate international rules for controlling restrictive business practices of foreign investors. But TRIMS is mainly concerned with elimination of trade related investment measures which protect the interest of foreign investors in the developing countries. It could drain the foreign exchange reserves of developing countries. Also, foreign investment in certain areas; affects the country freedom to restrict its harmful effect on our local industry and economy.

5. Competition in Services

GATS go against the interest of developing countries as there is vast difference in the development of service between developed and developing countries. In fact the inclusion of trade in services in Uruguay round negotiations is the result of persistent insistence of developed

countries. Countries like U.S.A France, Japan and Netherland account for about 60 per cent of world trade in services and will bound to benefit. Although many developing countries have skilled labours, doctors, scientists, software experts. But nothing has been proposed on this aspect of service sector and restriction of natural persons has been banned by many developed countries.

6. Textiles and Clothing

This agreement would benefit developing countries during transitional period but gains to them are likely to be delayed because of long period of phasing out of multi-fiber agreement.

7. Labour standard and environment

There are two sensitive issue that developed countries tried to force in a meeting held at Seattle, Washington in 1999. The developed countries force labour standards because they fear that globalization of trade will lure investment away from the industrialized world to poor countries where wage rate is low. But the fact is that child labours are prevalent in developed countries such as USA, U.K, Italy and Spain as well. Also, environmental protection clause with the intention of forcing the developing countries to pay for the alleged destruction of environment is not justified. But the fact is that 3/4th of damage to world ecological environment is done by developed countries.

8. Doha Declaration or Doha development agenda

Trade ministers WTO meet once in a year and this is known as the ministerial conference. The fourth ministerial conference was held at Doha in November 2001. Doha ministerial under auspices of the WTO in November 2001 had prepared at to raise the new issues such as investment, competition policy, government procurement. The developed nations led by USA were keen on discussing these issues but the developing nations wanted to consider issues related with the implementation of the decision taken during Uruguay round in 1994. The major cause of dissatisfaction of developing nations was that whereas the developed nation are agreed to reduce tariff and non-tariff barriers but in practice used a number of non-tariff to obstruct free flow of trade. Before the ministerial meeting at Doha India adopted "implementation before expansion" position. Many developing countries supported India stand. As a consequence of pressure from the developing nation, USA and European Union accepted a number of issues.

- 1) The major success attained by developing countries in the field of TRIPS and Public health. It was agreed the developing nations need not to get essential medicine drugs at high cost from western multinational companies holding patents. It states that any nations have right to knock off patents on pharmaceutical product on public health ground.
- 2) Many years after the conclusion of Uruguay Round developed countries had failed to fulfill their commitment regarding reduction in Agricultural subsidies as a result price of Agricultural commodities have declined. But as a consequence of Doha round the poor countries will be able to better look after their food security problem and countries will sell their surplus gains and would be able to stand competition from developed nations. Country like India with strong PDS will be able to retain it and provide greater support to rural economy.
- 3) Declaration also agreed to negotiations which aim at reduction or elimination of high tariff or check tariff as well as non tariff barriers products exported by developing nations.
- 4) With regard to services and related removal of restrictions on the natural movement of people is going to benefit many developing countries like India by increasing access for banking, insurances increasing opportunities for people to work in other countries. Flexibility in this regard may be given to country have bilateral facts and agreement.
- 5) To get benefit of reduction in Agricultural subsidies by developed nations; the developing countries had to make trade off with environment. However, they succeeded in preventing negotiation of labour issues on the ground that these issues are best left with ILO.
- 6) Doha ministerial conferences reaffirmed Special and Differential treatment (S&DT) Provision are an integral part of WTO Agreement and these provisions are reviewed to strengthen them and to make them effective.

But as far as implementation is concerned none of the deadlines regarding implementation of negotiation have been met, in some cases after the extension of deadlines. By July 2002 general council failed to work on S&DT. In case of TRIPS and public health, USA blocked the proposal of 45 members on December 2002 for distributing free patented to developing countries except in case of epidemics such as AIDS, tuberculosis and malaria. Developed countries continue to provide significant support to Agriculture production and also export subsidies.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own

words:

1. What are the two types of gaps highlighted in Dual Gap Analysis?

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2. Why is foreign borrowing considered crucial for developing countries?

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3. What is the role of WTO in international trade?

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4. Explain any three key agreements under WTO.

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5. Discuss two main concerns of developing countries regarding WTO provisions.

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20.5 Let us sum up

Thus, there is a need for strong stand on the part of developing nations so that they could raise their voice and form a joint front to get these negotiations implemented and get it real benefits. There are no doubts that there is double standard in the implementation of agreement by developed nation. But the formation of GATT and WTO rules no doubt provide greater

transformers, predictability and security in international trade relations to developing countries. Multilateralism is superior to bilateralism and if some commissions are extracted from strong partners belonging to US & EU, then the combined strength of developing countries can get strength full in this favour. Developing countries should take advantage of multilateral trade organization and regional development organization to show their combined strength to get more benefit. If such matter it will bring those real fruits to developing nation.

20.6 Glossary

- **Dual Gap Analysis:** A theory that highlights two main constraints to development—saving gap and foreign exchange gap—which foreign aid can help bridge.
- **Saving-Investment Gap:** The shortfall between what a country saves domestically and what it needs to invest to achieve a desired growth rate.
- **Foreign Exchange Gap:** The shortage of foreign currency required to finance necessary imports, especially in developing countries.
- **Foreign Borrowing:** The act of obtaining financial resources from other countries or international institutions to meet development needs.
- **WTO (World Trade Organization):** An international organization established in 1995 to regulate global trade, ensure fair practices, and resolve disputes among member nations.
- **GATT (General Agreement on Tariffs and Trade):** The predecessor to WTO, focused on reducing tariffs and trade barriers.
- **TRIPS (Trade-Related Aspects of Intellectual Property Rights):** A WTO agreement that sets international standards for protecting intellectual property such as patents and copyrights.
- **TRIMS (Trade-Related Investment Measures):** Rules under WTO that prohibit investment policies which restrict or distort trade, like local content requirements.
- **GATS (General Agreement on Trade in Services):** WTO agreement that governs international trade in services (e.g., banking, insurance, travel).
- **Green Box Subsidies:** WTO-permitted government subsidies with minimal impact on trade (e.g., research, rural development).
- **Blue Box Subsidies:** Subsidies tied to programs that require farmers to limit production—allowed under WTO rules.

- Amber Box Subsidies: Trade-distorting subsidies that must be reduced under WTO rules (e.g., price supports).
- Doha Declaration: A WTO agreement from the 2001 Doha Round, aiming to make trade rules fairer for developing countries.
- Dispute Settlement Mechanism: A system under WTO to resolve trade disputes among member countries in a time-bound manner.
- Special and Differential Treatment (S&DT): WTO provisions that give developing and least-developed countries more time and flexibility in implementing agreements.

20.7 References/ Suggested Readings

1. Datt, Guaran and Sundurum(2010), *Indian Economy*, S. Chand, New Delhi
 2. Meier, G.M(1995), *Leading issues in Economic Development*, Oxford Printing Press, Mumbai
 3. Misra and Puri (2011), *Indian Economy*, Himalaya Publishing House, New Delhi.
 4. Human development Report (2013), United Nations Development Programme, New York.
 5. Human development Report (2012), United Nations Development Programme,, New York
 6. Thirlwall A.P. (2006), *Growth and Development*, Palgrave, New York
- M.P and Smith, S.C (2006), *Economic Development*, Pearson Education, New York.

20.8 Hints to Check your Progress (CYP)

1. Refer to section 20.3, which elaborates on saving–investment gap and foreign exchange gap.
2. See the sub-section under "Why foreign borrowing is needed".
3. Section 20.4 provides background on WTO's objectives and structure.
4. The list of WTO Agreements is given in 20.4.1 – pick any three for elaboration.
5. Issues like agricultural subsidies, TRIPS, and labour/environment standards are detailed in 20.4.2.

20.9 Examination Oriented Questions

1. Why foreign borrowing is required for economic development?
2. What is the distinctive contribution of the dual gap analysis to the theory of economic development?
3. Explain the issues of concern for developing countries under WTO?
4. What are the broad issues related to agriculture that are being debated in WTO negotiations?
5. Describe the different agreements under WTO?

ROLE OF MONETARY AND FISCAL POLICY IN DEVELOPING COUNTRIES

STRUCTURE

21.0 Objectives

21.1 Learning Outcomes

21.2 Introduction

21.3 Meaning and Definition of Monetary Policy

21.3.1 Objectives of Monetary Policy

21.3.2 Methods of Monetary Policy or Techniques of Monetary Policy or Instruments of Monetary Policy

21.3.3 Monetary Policy and Economic Development or Role of Monetary Policy in the Economic Development

21.3.4 Limitations of Monetary Policy in Under Developed and Developing Countries

21.5 Lets Sum-up

21.6 Glossary

21.7 Further Readings

21.8 Hints to Check your Progress

21.9 Self- Assessment Exercise

21.0 OBJECTIVES

After going through this lesson, the students should be able to:

- Learn about the Meaning of Monetary Policy
- understand the Objectives of Fiscal Policy in an Underdeveloped Economy
- describe the Role of Monetary Policy in The Economic Development
- understand the Role of Fiscal Policy in a Developing Country like India

21.1 Learning Outcomes

After completing this lesson, students will be able to:

1. Explain the meaning and definition of monetary policy and fiscal policy.
2. Discuss the key objectives of monetary policy in underdeveloped and developing countries.
3. Analyse the various instruments and techniques used in monetary and fiscal policies.
4. Understand the role of monetary policy in economic development and capital formation.
5. Explain the limitations of monetary policy in developing economies.
6. Explore the objectives and roles of fiscal policy in underdeveloped, developing (like India), and developed countries.
7. Understand how fiscal policy can be used to control inflation, achieve full employment, and promote economic stability.

21.2 INTRODUCTION: MONETARY POLICY

Monetary policy refers to the policy of monetary authority of a country with regard to monetary matters. Such a policy involves influencing the aggregate supply of money in circulation by an effective credit control. Monetary policy in an underdeveloped country is regarded as an important instrument for stimulating the process of economic development by ensuring sufficient credit supply, controlling inflation and maintaining the equilibrium of the balance of payments. It also provides essential credit supply to meet the requirements of industry, trade and population in a fastly growing economy. As a matter of fact, monetary policy is required to play an important role in all types of economies whether underdeveloped, developing or even developed.

21.3 MEANING AND DEFINITION OF MONETARY POLICY

Monetary policy in a narrow sense means monetary matters and decisions of a country which aim at controlling the volume of money, influencing the level of interest rates, public spending, use of money and credit etc. But in the broader sense, it includes all those monetary and non-monetary measures and decisions which influence the cost and supply of money. Hence monetary policy implies measures designed to ensure an efficient operation of the economic system or set of specific objectives through its influence on the supply, cost and availability of money. For this purpose, monetary policy involves the deliberate and conscious use of monetary instruments like

bank rate, open market operations, change in reserve ratio and qualitative credit control measures.

Definitions

- (1) In the words of R. P. Kent, “Monetary policy is the management of the expansion and contraction the volume of money in circulation for the explicit purpose of attaining a specific objective, such as full employment.
- (2) In the words of D. C. Rowan, “The monetary policy is defined as discretionary act undertaken by the authorities designed to influence (a) the supply of money (b) cost of money or rate of interest, and (c) the availability of money.”
- (3) In the words of G. K. Shaw, “Monetary policy, we mean any conscious action undertaken by the monetary authorities to change the quality, availability or cost (rate of interest) of money.”
- (4) According to Harry G. Johnson, “Monetary policy refers to a regulatory policy whereby the Central Bank maintains its control over the Supply of money for the realization of general economic goals.”

21.3.1 OBJECTIVES OF MONETARY POLICY

The main objectives of monetary policy are as follows:

- (1) **Economic Growth.** The foremost objective of economic policy is to achieve the aim of economic growth. Prof Meier, defined, “Economic growth as the process whereby the real per capita income of a country increases over a long period of time.” In underdeveloped countries, the national income and real per capita income are very low along with poor standard of living. These economies are steeped poverty and unemployment. It is because the production capacity and productivity both are extremely low. It is due to low capital formation. On account of low capital formation, underdeveloped countries fail to utilise fully their natural and human resources. As a result of economic development, there will be proper utilisation of natural and human resources, more capital formation, more employment increase in national and per capita income, increase in incomes along with an increase in the standard of living.
- (2) **Price Stability.** Another main objective of monetary policy is to attain price stability in the country. Price stability refers to the prevention of wide fluctuations in prices. Economists like Cassels and Keynes suggested price stabilization as a main objective of monetary policy of a country. As a matter of fact, fluctuations in price level either in upward direction or downward direction distort the entire economic system of the country. In this way, price stability is a prerequisite for economic development of a country.

(3) Exchange Stability. Another major objective of monetary policy is to bring foreign exchange rate stability in the country. By foreign exchange rate is meant the number of units of foreign currency that can be had in exchange for one unit of domestic currency. For example, 1 U.S. \$ = Rs. 46.97 and 1 U.K. pound = Rs. 65.72. Fluctuations in the foreign exchange rate are very much influenced by balance of payment. By balance of payment is meant difference between total exports and total imports. When the total exports exceed total imports, it is said that balance of payment is favourable. On the contrary, when the total imports exceed total exports, it is said that balance of payment is unfavourable. Every country aims at favourable balance of payments.

(4) Full Employment. Another objective of monetary policy of each country is to attain and maintain full employment. Full employment implies a situation wherein all competent persons who are willing to work at the prevailing rate of wages, get work. To attain this situation, it is necessary to increase production and demand. During boom period, there is rapid increase in demand and thereby the production is also increased in order to meet the rising demand. It also leads to full employment. On the contrary, during the period of depression, there is low production because of low demand and wide unemployment. Hence, the objective of monetary policy is to check rising unemployment during depression period.

(5) Neutrality of Money. Another major objective of a monetary policy is neutrality of money. Economists like Workstead, Hayek and Robertson are the main exponents of neutral money. They hold the view that monetary policy should aim at neutrality of money in the economy. According to neutralists, the monetary changes cause distortion and disturbances in the proper operation of the economic system of the country. They are of the firm opinion that if somehow neutral policy is followed, there will be no cyclical fluctuations, no trade cycles, no inflation and no deflation in the economy. Under this system, money is kept stable by the monetary authority. In this way the main objective of monetary policy should be neutrality of money.

(6) Credit Control. Another Objective of monetary policy is credit control in order to influence the patterns of investment and production in the economy. Its main objective is to control inflationary pressures arising in the process of development. This requires the use of both quantitative and qualitative methods of credit control. Under the conditions of undeveloped money market, the traditional tools of credit control —the bank rate and open market operations have not been proved to be effective. Prof Sen also observed, “that the bank rate policy may not prove effective, and open market operations; while feasible on certain occasion, may not be possible on the necessary scale in underdeveloped money markets,” Thus, the

central bank will have to depend more on the new and non-traditional tools of credit control as the variation of reserve ratio and relative credit control.

(7) Equilibrium in the Balance of Payments. Another objective of monetary policy is to have equilibrium in the balance of payments. In an underdeveloped economy, a successful monetary policy must aim at achieving the balance of payments equilibrium. The developing countries generally face the problem of unfavourable balance of payments due to the excess of developmental imports over their lesser exports, with the result that they usually have a foreign exchange crisis. The central bank solves this problem of balance of payments equilibrium by using direct and traditional methods of exchange control. In order to provide suitable conditions for rapid economic development the maintenance of balance of payments will be essential which can be provided with the help of an effective monetary policy.

(8) Reduction in Inequalities of Income and Wealth. Another important objective of monetary policy is the reduction in inequalities of income and wealth. Under capitalism and mixed economies, there are inequalities in income and wealth due to right of private property and law of inheritance. As a result, the society is divided into two classes, rich and poor. Rich class exploits the poor class and thereby gross injustice is done to poor class. Thus, the objective of monetary policy is to reduce the inequalities of income and wealth so as to achieve harmony, peace, justice and overall prosperity.

(9) Debt Management. Debt management is another objective of monetary policy in an underdeveloped country. It aims at proper timing and issue of government securities, establishing their prices and minimizing the cost of servicing public debt. It is the central government of a country which undertakes the selling and buying of government bonds and making timely changes in the structure and composition of public debt.

(10) Creation and Expansion of Financial Institutions. Another objective of monetary policy in an underdeveloped country is to speed up the process of economic development by improving the currency and credit system of the country. For this purpose banks and financial institutions are to be established so as to provide larger credit facilities and to mobilize savings for productive purposes. In underdeveloped countries, there is dearth of banking and financial institutions. The monetary authority can help in the establishment and expansion of banks and financial institutions in urban and rural areas. This will obviously help in increasing the rate of development.

21.3.2 METHODS OF MONETARY POLICY OR TECHNIQUES OF MONETARY POLICY OR INSTRUMENTS OF MONETARY POLICY

Methods, techniques or instruments of monetary policy are as follows:

(1) Supply of Money. Supply of money means the currency issued by the monetary authority and the demand deposits lying in commercial banks and financial institutions of the country. In order to arrange the proper supply of money, the central bank has to play important role by adopting flexible methods of note issue on the one hand and encouragement for deposits etc. by banking and financial institutions on the other hand.

(2) Rate of Interest. Another method of monetary policy is the 'cheap money' and 'dear money' policy. The cheap money means that the interest rates are low, whereas, dear money means that the interest rates are high. Cheap money policy should be adopted in a business and industrial sectors. On the contrary, dear money policy should be adopted when there is hyper-inflation, hectic speculative activity and reckless investment by industrialists for unproductive purposes. Thus, during boom period, the rate of interest should be increased. On the contrary, during depression period, the rate of interest should be decreased.

(3) Credit Control Measures. Another method of monetary policy is the adoption of credit control measures. There are two methods of credit control (I) Quantitative credit control measures, and (II) Qualitative credit control measures. They may be discussed as under

(I) Quantitative Credit Control Measures. Those credit control methods whereby the central bank controls the quantity of credit in a country are called credit control measures. The main methods of quantity credit control are the follows

(I) Bank Rate. Bank rate is also called discount rate. It is the most important weapon of credit control in the hands of the central bank of a country. It is the rate of interest at which bills of specified type of commercial banks are discounted by the central bank. Rise in bank rate increases the rate of interest and fall in bank rate lowers the rate of interest. Weapon of bank rate is used as the objective of economic stability. When there is inflation in the country, bank rate is raised. Higher bank rate will check the expansion of credit of commercial banks. As a result, there is a fall in the aggregated demand which will lead to a fall in prices. On the contrary, during depression period, bank rate is lowered. This makes the credit cheap, i.e., money is available at a lower rate of interest. As a result; there is a rise in aggregate demand which will lead to a rise in prices. In this way, bank rate can be used in both the types of situation, i.e., inflation and depression.

(1) Open Market Operations. By open market operations, we mean sale and purchase of securities by the central bank or the government of a country in the open market. It is also an important weapon in the hands of the central bank or government of a country for controlling the

credit. If the credit is to be decreased in the country, the central bank or the government begins to sell securities in the open market. It will reduce the supply of money in the market. On the contrary if the central bank or the government wants to expand the credit, it begins to purchase securities in the open market. In this way, it will increase the supply of money in the market. In case of inflation, the Central Bank starts purchasing securities in the open market which will tend to reduce the supply of money in the market. On the contrary, during depression when prices are falling, the central bank starts purchasing securities. As a result, the aggregate demand increases along with increase in prices.

(2) Change in the Minimum Reserve Ratio. According to this method, all commercial banks are required to keep a given percentage of their total deposits as cash reserve with the Central Bank of a country. In case of India, the cash reserve is to be kept with Reserve Bank of India. If the Central Bank wants to reduce credit, it will raise the cash-reserve ratio. As a result, the commercial banks are left with a smaller number of deposits. In this way, their power or providing credit is reduced. It happens in case of inflation. On the contrary, when the Central Bank wants to expand credit, it lowers the cash-reserve ratio. As a result, more amount of cash is left with the commercial banks which will enable them to create more credit in the market.

(3) Change in Liquidity Ratio. Under this method, every commercial bank is required to keep a certain proportion of its deposits as cash with itself. It is called liquidity ratio. When the Central Bank wants to reduce credit, it raises liquidity ratio. On the contrary, when the Central Bank wants to expand credit, it lowers the liquidity ratio. The liquidity ratio is increased during inflation and reduced during depression.

(II) Qualitative or Selective Credit Control Measures. The main qualitative or selective credit control measures are as follows:

(1) Change in Marginal Requirement. The first and the foremost qualitative measure of credit control is the change in marginal requirements. Under this method, Central Bank of a country makes change in marginal requirements to control and release funds. When the central bank feels that the traders are stock-piling certain commodities on account of which their prices are rising then the Central Bank controls credit by changing the marginal requirements of loan against those commodities. It means that the margin between the value of goods pledged as security and the amount of loan sanctioned is increased. Suppose person pledges goods worth Rs. 100 as security with a bank and gets a loan amounting to Rs. 80. In this case the marginal requirement is 20%. Now if the margin requirement is increased, i.e., say, 30%, it would mean that the bank now sanctions loan amounting to Rs. 70 only against the security of goods worth

Rs. 100. It means that the amount of credit is reduced. In other words, this would reduce money supply and the inflation would be curtailed. On the contrary, in case of depression the Central Bank margin is reduced, say from 30% to 20%, it would amount to expansion of credit.

(2) Rationing of Credit. Under this method, the Central Bank of a country fixes a limit of the credit facilities to commercial banks. Being the lender of the last resort, Central Bank can introduce rationing of credit so as to control credit, rationing of credit can be done in the following ways (i) Central bank can refuse loan to any commercial bank; (ii) Central Bank can reduce the amount of loans given to the commercial banks; (iii) Central Bank can fix the quota of credit for the commercial banks, and (iv) Central Bank can determine the link of credit sanctioned to a part trade or industry.

(3) Direct Action. Under this method, Central Bank takes direct action against those commercial banks which do not comply with the instructions given by it. In this case, Central Bank imposes strict restrictions against defaulting commercial banks such as, withdrawal of discounting facilities,

(4) Moral Persuasion. Under this method, Central Bank of a country uses moral persuasion on the commercial banks so as to behave in a particular manner. As a matter of fact moral persuasion is a sort of advice. There is no element of compulsion in it. Commercial banks are expected to follow the advice of the Central Bank in granting loans. It is a new method of credit control.

21.3.3 MONETARY POLICY AND ECONOMIC DEVELOPMENT OR ROLE OF MONETARY POLICY IN THE ECONOMIC DEVELOPMENT

Monetary policy plays a key role in accelerating the rate of economic development in underdeveloped and developing economies. The chief objective of the monetary policy in the underdeveloped and developing countries is to raise the capital formation for economic development. Capital formation depends on investments, and investments depend on savings. By mobilization of these savings the same can be invested in a befitting manner. Investment of savings results in capital formation and the capital formation accelerates the rate of economic development.

Another method of capital formation for economic development is to adopt a policy of cheap money and to stimulate investment by lowering the rate of interest, directing investment into desired channels through selective credit controls (if investment is found to be misdirected) and by undertaking public investment on a large scale (since private investment may not be forthcoming in

adequate amounts). In view of scarcity of capital and shyness of capital, some economists have suggested a policy of high rate of interest for developing countries. In their opinion, high rates of interest would channelise the scarce capital only to the most productive channels and would eliminate wasteful use of resources. It would stimulate savings and check inflation. It is true that a policy of high interest rates may be successful in doing all this, but it may not be desirable to generalise investment just for keeping inflation under check. In fact, a mild dose of inflation helps in raising the level of investment. Direct controls and control over capital issues and use of qualitative methods of credit control would ensure investment in desirable direction. Further, "it is unlikely that a high rate of interest would stimulate savings, because with less saving the people will earn the same or more income than what they would have earned at low rates of interest. However, its use could be made when speculation in goods and securities gets beyond control. The monetary policy can create a favourable climate both for savings and investments. The shape of investment would, however, depend on the policy of credit institutions and the forms of credit controls that are adopted. In most developing countries, the commercial banks provide only short-term credit which is chiefly used for carrying inventories, purchasing land and real estate or for financing the production of export crops. The government will have to make guarantees or provide rediscounting facilities if the commercial banks are to be induced to advance medium-term and long-term loans. Selective Credit Controls can be another method to influence the pattern of investment and production. The banks can differentiate between different sectors and industries in matters of cost and amount of credit, the duration, the amount of collateral, etc. And if the Central Bank has adequate control on the commercial banks, selective control could be exercised indirectly by influencing the behaviour of banks — by having different rediscount rates for different types of loans or by making exceptions in regard to reserve requirements. On a selective basis, for correcting an adverse balance of payment the monetary authority, besides exercising direct control on foreign exchange, may make use of the bank rate. For promoting capital formation, fiscal policy has been found to be more effective than the monetary policy and therefore, much reliance could not be placed on the latter.

From the above study, we conclude that in order to accelerate the rate of economic development of underdeveloped and developing countries, monetary policy may adopt the following measures

- (1) Monetary Policy and Capital Formation.
- (2) Credit Control Measures.

(I) Quantitative Credit Control Measures. Those credit control methods whereby the central bank controls the quantity of credit in a country are called credit control measures. The main methods of quantity credit control are the follows

(1) Bank Rate. Bank rate is also called discount rate. It is the most important weapon of credit control in the hands of the central bank of a country. It is the rate of interest at which bills of specified type of commercial banks are discounted by the central bank. Rise in bank rate increases the rate of interest and fall in bank rate lowers the rate of interest. Weapon of bank rate is used as the objective of economic stability. When there is inflation in the country, bank rate is raised. Higher bank rate will check the expansion of credit of commercial banks. As a result, there is a fall in the aggregated demand which will lead to a fall in prices. On the contrary, during depression period, bank rate is lowered. This makes the credit cheap, i.e., money is available at a lower rate of interest. As a result; there is a rise in aggregate demand which will lead to a rise in prices. In this way, bank rate can be used in both the types of situations, i.e., inflation and depression.

(2) Open Market Operations. By open market operations, we mean sale and purchase of securities by the central bank or the government of a country in the open market. It is also an important weapon in the hands of the central bank or government of a country for controlling the credit. If the credit is to be decreased in the country, the central bank or the government begins to sell securities in the open market. It will reduce the supply of money in the market. On the contrary if the central bank or the government wants to expand the credit, it begins to purchase securities in the open market. In this way, it will increase the supply of money in the market. In case of inflation, the Central Bank starts purchasing securities in the open market which will tend to reduce the supply of money in the market. On the contrary, during depression when prices are falling, the central bank starts purchasing securities. As a result, the aggregate demand increases along with increase in prices.

(3) Change in the Minimum Reserve Ratio. According to this method, all commercial banks are required to keep a given percentage of their total deposits as cash reserve with the Central Bank of a country. In case of India, the cash reserve is to be kept with Reserve Bank of India. If the Central Bank wants to reduce credit, it will raise the cash-reserve ratio. As a result, the commercial banks are left with a smaller number of deposits. In this way, their power of providing credit is reduced. It happens in case of inflation. On the contrary, when the Central Bank wants to expand credit, it lowers the cash-reserve ratio. As a result, more amount of cash is left with the commercial banks which will enable them to create more credit in the market.

(4) Change in Liquidity Ratio. Under this method, every commercial bank is required to keep a certain proportion of its deposits as cash with itself. It is called liquidity ratio. When the Central Bank wants to reduce credit, it raises liquidity ratio. On the contrary, when the Central Bank wants to expand credit, it lowers the liquidity ratio. The liquidity ratio is increased during inflation and reduced during depression.

(II) Qualitative or Selective Credit Control Measures. The main qualitative or selective credit control measures are as follows:

(1) Change in Marginal Requirement. The first and the foremost qualitative measure of credit control is the change in marginal requirements. Under this method, Central Bank of a country makes change in marginal requirements to control and release funds. When the central bank feels that the traders are stock-piling certain commodities on account of which their prices are rising then the Central Bank controls credit by changing the marginal requirements of loan against those commodities. It means that the margin between the value of goods pledged as security and the amount of loans sanctioned is increased. Suppose person pledges goods worth Rs. 100 as security with a bank and gets a loan amounting to Rs. 80. In this case the marginal requirement is 20%. Now if the margin requirement is increased, i.e., say, 30%, it would mean that the bank now sanctions loan amounting to Rs. 70 only against the security of goods worth Rs. 100. It means that the amount of credit is reduced. In other words, this would reduce money supply and the inflation would be curtailed. On the contrary, in case of depression the Central Bank margin is reduced, say from 30% to 20%, it would amount to expansion of credit.

(2) Rationing of Credit. Under this method, the Central Bank of a country fixes a limit of the credit facilities to commercial banks. Being the lender of the last resort, Central Bank can introduce rationing of credit so as to control credit, rationing of credit can be done in the following ways (i) Central bank can refuse loan to any commercial bank; (ii) Central Bank can reduce the amount of loans given to the commercial banks; (iii) Central Bank can fix the quota of credit for the commercial banks, and (iv) Central Bank can determine the link of credit sanctioned to a part trade or industry.

(3) Direct Action. Under this method, Central Bank takes direct action against those commercial banks which do not comply with the instructions given by it. In this case, Central Bank imposes strict restrictions against defaulting commercial banks such as, withdrawal of discounting facilities,

(4) Moral Persuasion. Under this method, Central Bank of a country uses moral persuasion on the commercial banks so as to behave in a particular manner. As a matter of fact, moral

persuasion is a sort of advice. There is no element of compulsion in it. Commercial banks are expected to follow the advice of the Central Bank in granting loans. It is a new method of credit control.

(III) Monetary Policy and Price Stability. Another main objective of monetary policy is to attain price stability in the country. Price stability refers to the prevention of wide fluctuations in prices. Economists like Cassels and Keynes suggested price stabilization as a main objective of monetary policy of a country. As a matter of fact, fluctuations in price level either in upward direction or downward direction distort the entire economic system of the country. In this way, price stability is a prerequisite for economic development of a country.

(IV) Monetary policy and Deficit Financing. In modern times, most of the underdeveloped and developing countries resort to deficit financing for economic development. However, heavy dose of deficit financing restricts the smooth operation of monetary policy.

(V) Monetary Policy and Exchange stability. Another major objective of monetary policy is to bring foreign exchange rate stability in the country. By foreign exchange rate is meant the number of units of foreign currency that can be had in exchange for one unit of domestic currency. For example, 1 U.S. \$ = Rs. 46.97 and 1 U.K. pound = Rs 65.72. Fluctuations in the foreign exchange rate are very much influenced by balance of payment. By balance of payment is meant difference between total exports and total imports. When the total exports exceed total imports, it is said that balance of payment is favourable. On the contrary, when the total imports exceed total exports, it is said that balance of payment is unfavourable. Every country aims at favourable balance of payments.

(VI) Monetary Policy and Full Employment. Another objective of monetary policy of each country is to attain and maintain full employment. Full employment implies a situation wherein all competent persons who are willing to work at the prevailing rate of wages, get work. To attain this situation, it is necessary to increase production and demand. During boom period, there is rapid increase in demand and thereby the production is also increased in order to meet the rising demand. It also leads to full employment. On the contrary, during the period of depression, there is low production because of low demand and wide unemployment. Hence, the objective of monetary policy is to check rising unemployment during depression period.

(VII) Proper Interest Rate Policy. Another method of monetary policy is the 'cheap money' and 'dear money' policy. The cheap money means that the interest rates are low, whereas, dear money means that the interest rates are high. Cheap money policy should be adopted in a business and industrial sectors. On the contrary, dear money policy should be adopted when there is hyper-inflation, hectic speculative activity and reckless investment by industrialists.

for unproductive purposes. Thus, during boom period, the rate of interest should be increased. On the contrary, during depression period, the rate of interest should be decreased.

(VIII) Adjustment between Demand for and Supply of Money. Economic development results in rising demand for money because the growth of economy and a corresponding contraction of the subsistence sector greatly increases the transaction demand for money. Beside the rise in per capita income and increase in population during the development process also increases the demand for money to carry out day-to-day transactions. The continuously rising demand for money makes it imperative for the monetary authority to increase the money supply at a rate roughly equal to the rate of increase in real income so that prices do not fall consequent upon a rise in national output. A falling price level adversely affects the pace of economic growth by initiating a vicious downward spiral of prices and output.

(IX) Debt Management. Debt management is another objective of monetary policy in an underdeveloped country. It aims at proper timing and issue of government, establishing their prices and minimizing the cost of serving public debt. It is the central government of a country which undertakes the selling and buying of government bonds and making timely changes in the structure and composition of public debt.

(X) Money Policy and Price Control.

(XI) Establishment of Financial Institutions discussed.

21.3.4 LIMITATIONS OF MONETARY POLICY IN UNDER DEVELOPED AND DEVELOPING COUNTRIES

The main difficulties and limitations are as follows:

(1) Unorganized Money Market. The foremost limitation of monetary policy in underdeveloped and developing countries like India is the existence of an unorganized and divided money market which is outside the jurisdiction of the Central Bank of a country, such as indigenous bankers in India (it was 90% in 1930 and is roughly 50% even now). These indigenous bankers on one side occupy an important place in the money market of the country and on another side, they do not comply with the monetary policy of the Central Bank. Thus, whatever monetary policy is pursued by the Central Bank the indigenous bankers by working against it render the same ineffective.

(2) Existence of Non-monetized Sector. Another limitation of monetary policy is the existence of a large non-monetized sector, perhaps one-third of the economy in underdeveloped countries which seriously limits the scope of the use of monetary weapons. In this sector,

goods are exchanged for goods and thus no money is used. In this way, this sector restricts the operation of monetary policy.

- (3) Less Importance of Demand Deposit.** In underdeveloped Countries, people prefer to hold and use currency. As such, a small portion of money is kept in the banks as demand deposits and thereby weapons of credit control have only limited applications.
- (4) Lack of Banking Facilities.** In underdeveloped and developing countries, adequate banking facilities are not available. As such the idle savings remain buried under the earth and thus unutilized.
- (5) Black Money.** In underdeveloped countries, the administrative grip on the antisocial elements is not very firm and they come to amass huge wealth through tax-evasion and other illegal transactions. This unaccounted money which is popular known as black money gives birth to a parallel economy which helps speculative and illegal dealings and makes monetary policy ineffective.
- (6) Ineffectiveness of Credit Control Measures.** The instruments of credit control like the bank rate, open market operations, variations in reserve requirements and other selective credit controls, have lesser operational effectiveness in these countries as compared to the advanced countries due to undeveloped security or bill market, unsound practices of banking institutions and lack of banking habits on the part of the people.
- (7) Lack of Integrated Interest Rate Structure.** In under developed and developing countries, various types of interest rates prevail in the money market which do not bear any definite relationship with the bank rate of the country. As such, the Central Bank of the country is unable to control the money market in an effective manner and thereby monetary policy fails to operate properly.
- (8) Deficit Financing.** In modern times, most of the under developed and developing countries resort to deficit financing for economic development.
- (9) Ambiguous and Contradictory Objectives.** It is said that objectives of monetary policy are not clear and sometimes contradictory to each other in the context of developing countries. For example, take price stability and economic growth. In the period of growth, some price rise or inflation is inevitable.
- (10) Persuasive Monetary Policy.** Generally monetary policy followed in underdeveloped and developing countries is soft, lenient and persuasive and this leads to its ineffectiveness. As such, it fails to achieve its objectives.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words

Q1 Define monetary policy and explain any two objectives of it in developing countries.

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Q2 What is meant by quantitative credit control? Name any two instruments used under it.

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Q3 How does monetary policy help in achieving economic development?

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Q4 Mention any two limitations of monetary policy in underdeveloped economies.

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21.5 Lets Sum-up

To conclude with Dr. Baljit Singh, “Development of banking facilities and savings institutions, reorganization of agricultural and industrial credit, integration and improvement of the money market, growth of a sound central banking, closing of free markets in gold and silver, replacement

of hoards and above all currency reforms are urgently needed. It is only after these deficiencies are made good that the monetary apparatus of economically backward countries can prove effective in aiding construction and development. If a country fails in this task it would either go slow, even stagnate or be compelled to switch over its economic system to overall planning and reallocation of resources through direct state control.”

Despite the higher multiplier effect of government spending against changes in tax rates, the latter can be operated more promptly than the former. Emphasis has thus shifted to taxation as the best fiscal device for controlling cyclical fluctuations. Thus, when the turning point of a business cycle is already underway, discretionary fiscal action tends to strengthen the built-in stabilizers, as has been the experience of developed countries like the USA.

21.6 Key words

- Monetary Policy – Policy by the central bank to regulate the money supply, interest rates, and credit availability to achieve macroeconomic objectives.
- Fiscal Policy – Government’s policy regarding taxation, public spending, and borrowing to influence economic activity.
- Cheap Money Policy – A monetary policy with low interest rates to encourage borrowing and investment.
- Dear Money Policy – A monetary policy with high interest rates to discourage borrowing and curb inflation.
- Quantitative Credit Control – Measures to regulate the total volume of credit, including tools like bank rate, open market operations, and reserve ratio.
- Qualitative Credit Control – Selective control of credit by targeting specific sectors, using tools like margin requirements, rationing of credit, and moral persuasion.
- Open Market Operations (OMO) – Buying and selling of government securities in the open market by the central bank to control liquidity.
- Bank Rate – The interest rate at which a central bank lends money to commercial banks.
- Reserve Ratio – The percentage of deposits that banks are required to hold as reserves with the central bank.
- Liquidity Ratio – The proportion of liquid assets a bank must hold against its liabilities.

- Deficit Financing – Financing government expenditure by borrowing or creating new money when revenue is insufficient.
- Public Debt – Money borrowed by the government through bonds or other instruments to fund expenditure.
- Capital Formation – The process of building up physical capital such as infrastructure, machinery, and tools that contribute to economic production.
- Full Employment – A situation where all willing and able persons are employed at prevailing wage rates, excluding frictional and structural unemployment.
- Price Stability – The absence of significant inflation or deflation, maintaining a stable price level.
- Economic Development – Sustained, long-term improvement in income, employment, productivity, and living standards.
- Black Money – Unaccounted income that escapes taxation and is often used in illegal or unregulated markets.
- Redistribution of Income – Fiscal efforts to reduce income and wealth inequalities through taxation and public expenditure.
- Pump Priming – Initial government spending to stimulate private sector investment and economic activity.
- Compensatory Spending – Government expenditure aimed at offsetting a decline in private sector investment during economic downturns.

21.7 FURTHER READINGS

Agarwal R.C: Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L : The Economics of Development and Planning

Jhingan M.L : Advanced Economic Theory

21.8 Hints to Check your Progress (CYP)

CYP-I

Q1: Refer to subsection 21.3.1

Q2: See 21.3.2 (Quantitative Credit Control Measures)

Q3: Explained under 21.3.3 (Role of Monetary Policy in Economic Development)

Q4: Covered in 21.3.4 (Limitations of Monetary Policy)

21.9 SELF ASSESSMENT EXERCISE

Q1. What is meant by monetary policy? Discuss the objectives of monetary policy?

Q2. Examine the role of monetary policy in the economic development of a country?

Q3. Define monetary policy. What are its limitations in an underdeveloped economy?

Q4. Explain in brief the quantitative credit control measures of monetary policy?

Q5. What is meant by Cheap Money and Dear Money Policy?

ROLE OF FISCAL POLICY IN DEVELOPING COUNTRIES

STRUCTURE

22.0 Objectives

22.1 Learning Outcomes

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22.3 Introduction of Fiscal Policy

22.3.1 Meaning and Definition of Fiscal Policy

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- Objectives of Fiscal Policy in an Underdeveloped Economy
- Role of Fiscal Policy in an Underdeveloped Economy

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- Objectives of Fiscal Policy in Developing Country like India
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22.3.6 Objectives of Fiscal Policy in Developed Economy

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22.5 Let's Sum-up

22.6 Glossary

22.7 Further Readings

22.8 Hints to Check your Progress

22.9 Exam Oriented Questions

22.0 Objectives

By the end of this lesson, you will be able to:

1. Understand the concept of fiscal policy and its significance in the economy.
2. Explore the role of government actions through taxation, public spending, and borrowing.
3. Analyze the components of fiscal policy, such as budgetary policies, taxation, and public debt.
4. Evaluate the primary objectives of fiscal policy, including economic stabilization and growth.
5. Learn about the application of fiscal policy in underdeveloped, developing, and developed economies.
6. Assess the fiscal tools used to stimulate economic development and address inflation.
7. Recognize the limitations and challenges of fiscal policy.

22.1 Learning Outcomes

1. Define fiscal policy and understand its role in economic regulation.
2. Identify the key instruments used in fiscal policy, such as taxation and public expenditure.
3. Differentiate between fiscal policies in underdeveloped, developing, and developed countries.
4. Explain the core objectives of fiscal policy, including stabilization and growth.
5. Assess the impact of fiscal policy on national income, employment, and production.
6. Evaluate the effectiveness of fiscal policy in addressing poverty, capital formation, and development.
7. Understand the limitations of fiscal policy, including timing and coordination challenges.

22.2 Introduction

Fiscal policy plays a pivotal role in shaping the economic structure and development of a country, especially in developing nations. In these economies, fiscal policy serves as a fundamental tool to achieve economic stability, growth, and poverty alleviation. Defined broadly, fiscal policy refers to government decisions on taxation, public spending, and borrowing, which are utilized to influence the national economy. Its primary objective is to stabilize the economy, control inflation, reduce unemployment, and accelerate capital formation for economic growth.

Historically, fiscal policy was considered a means to ensure minimal government intervention in the economy. However, after the Great Depression of the 1930s, economists realized that active fiscal management was necessary to regulate the economy. The global economic downturn emphasized the need for government involvement to mitigate market failures and ensure a balanced and sustainable economic environment. Today, fiscal policy is viewed as an essential mechanism for promoting full employment, controlling inflation, and fostering economic development.

In developing countries, fiscal policy goes beyond simple economic stabilization; it becomes a key driver for fostering economic growth and tackling systemic challenges such as poverty, inequality, and underdeveloped infrastructure. Governments in these countries often use fiscal tools to direct resources toward critical sectors like education, health, and infrastructure development, which are essential for long-term economic growth. Moreover, fiscal policy helps address issues such as low savings rates, high unemployment, and unequal income distribution, which are prevalent in many developing economies.

For countries like India, fiscal policy plays a dynamic role in stimulating investment, increasing capital formation, and promoting economic stability. It ensures the mobilization of resources for development projects, provides social safety nets, and addresses sectoral imbalances that hinder progress. Additionally, fiscal policy helps mitigate inflationary pressures and maintains price stability, which is crucial for ensuring sustainable economic development.

Thus, fiscal policy is not merely about balancing budgets or managing taxes. It is about shaping a country's economic future, influencing patterns of growth, and ensuring that the benefits of development reach all segments of society, especially those who are most vulnerable. In this context, understanding the components and objectives of fiscal policy in developing countries is critical for both policymakers and citizens striving for an equitable and prosperous future.

22.4 INTRODUCTION OF FISCAL POLICY

Fiscal policy refers to the policy of the government with regards to taxation, public expenditure and public borrowings for securing economic stabilization and development. The use of fiscal policy for the purposes of promoting economic development is of recent origin. The role of fiscal policy in advanced countries is to stabilize the rate of growth, whereas, in the context of underdeveloped and developing countries, the role of fiscal policy is accelerating the rate of capital formation and economic development. There was a time when it was considered that the best government was one which governs the least and has minimum interference in the economic field. However, after the world-wide depression of 1930, the circumstances brought changes in the fiscal policy. Now fiscal policy is considered as an effective tool in the hands of the government for bringing economic stability, price control, full employment and economic development in a country.

22.4.1 MEANING AND DEFINITION OF FISCAL POLICY

The objective of every government is always to have a balanced budget. However, generally the expenditure exceeds the revenue income of the government. In order to meet this situation, the government imposes new taxes or increases existing taxes, takes internal or external loans or resorts to deficit financing by issuing fresh currency notes. Thus, the policies of imposing taxation, taking loans or deficit financing are collectively known as 'fiscal policy'. The term 'Fisc' in English language means treasury. Hence policy concerning treasury or government is known as Fiscal Policy.

Definitions:

Musgrave, "Fiscal Policy is concerned with those aspects of economic policy which arise in operation of the public budget."

According to Paul Samuelson, "Fiscal Policy means public expenditure and tax policy."

According to Arthur Smithies, "Fiscal Policy is a policy under which government uses its expenditure and revenue programmes to produce desirable effects and avoid undesirable effects on the national income, production and employment." The significance of fiscal policy as an instrument of economic control was first emphasized by Prof. J.M. Keynes in his famous book—titled *General Theory of Employment Interest and Money*. However, Prof. Keynes never gave any formal definition of fiscal policy. A working definition can be derived from Keynes' writing. He used the term fiscal policy when referring to the influence of taxation on savings and of

government investment expenditure financed by loans from the public. He looked at fiscal policy as one form of State action as a balancing factor. Thus, for the purpose of interpretation of Keynes thought we can define fiscal policy “as a policy that uses public finance as a balancing factor in the development of the economy” “Government activities as regarding spending, taxing, borrowing, deficit financing and budgeting are known as fiscal activities and the purposeful manipulation of these activities to attain desired objectives, say, economic stability rapid economic growth and full employment — is known as fiscal policy. “By a positive fiscal policy, we mean the process of shaping public taxation and public expenditure so as (i) to help dampen down the swings of the business cycle, and (ii) in contribute toward the maintenance of a progressive high employment economy free from excessive inflation or deflation”.

It is thus, obvious, that fiscal policy deals quite directly with matters which immediately influence the consumption and investment expenditure and hence, the income, output and employment in the economy.

22.4.2 Components of Fiscal Policy or Instruments of Fiscal Policy

The main components or instruments of fiscal policy are as follows

(1) Budgetary Policy. The old classical economists advocated a policy of balanced and small budgets. However, this policy will not help to tide our depression and unemployment according to Prof. J.M. Keynes. The need at such a time is to increase the flow of income-stream into the economy and could be made possible, according to Prof J. M. Keynes, only through deficit budgeting. Hence, it is essential that the government should incur large deficits in the budget and then meet these deficits either by borrowing from the banks etc. or through printing fresh currency notes. It will inject fresh purchasing power in the economy, helping it to fight depression and unemployment effectively.

2) Taxation Policy. Taxation is the most powerful instrument of fiscal policy in the hands of public authorities. According to economic bulletin in Asia and the Far East, “Taxation, therefore, remains as the investment and transferring resources to the government for economic development”. In order to fight depression and unemployment, taxation policy of the government, according to Keynesians should be so designed as to stimulate both consumption and investment simultaneously. The only way to do it successfully is to reduce the general burden of taxation on the community. The commodity taxes should be cut down to the minimum so as to stimulate consumption on the part of the public. Further, to promote

increased investments, it may also be essential to cut down business and corporate taxes.

In order to promote economic development, taxation may be used to achieve the following objectives (i) to put a curb on consumption and thereby transfer resources from consumption to investment, (ii) to increase incentives so as to save and invest, (iii) to change the pattern of investment; (iv) to divert resources from the hands of the public to the hands of the government for their more effective utilization, (v) to reduce the inequalities of income and wealth; (vi) to mobilize economic surplus for development; and (vii) to control inflation.

(3) Public Debt. Public debt can also be employed by the government as an instrument to fight depression and unemployment. The deficits in government's budgets shall have to be met partly if not wholly through public borrowings. But while adopting the fiscal policy of public borrowing (public debt), the government shall have to keep the following two considerations in mind. First in order to keep the burden of public debt low, the government should aim at a policy of low interest rates during depression. Secondly, the government should try as far as possible to borrow from those sections of the community with whom the funds are lying idle,

(4) Public Expenditure. An increase in public expenditure can also be employed by the government as an instrument to fight against unemployment. Increase in public expenditure at such a time may take the following two forms (i) Pump Priming, and (ii) Compensatory Spending. Pump priming refers to that public expenditure helps initiate and revive economic activity in an economy where stagnation reigns supreme consequent upon depression. The object is to increase private investment through an injection of purchasing power in the form of an increase in public expenditure. On the other hand, compensatory spending refers to the government expenditure which is undertaken with a view to compensating the decline in private investment.

22.4.3 OBJECTIVES OF FISCAL POLICY

The main objectives of fiscal policy are as follows:

(1) Economic Stabilization. The first and the foremost objective of fiscal policy is to eliminate cyclical fluctuations in economic activity and to maintain it at a stable level. The up-and-down swings in business are checked by compensatory fiscal action to counteract fluctuations. Strict steps are taken to control both inflation and deflation and efforts are made to make the budget more or less balanced over the period of the cycle.

(2) Economic Growth. The second important objective of fiscal policy is to maintain a continuous upward trend in economic activity. Total outlay is increased in depression but is not allowed to

decrease correspondingly in boom. Economic growth continues to be an important aim of fiscal policy.

(3) Break the Vicious Circle of Poverty. Another objective of fiscal policy is to break the vicious circle of poverty and to usher in a rapid development of both agriculture and industry.

(4) Provide Full Employment. Fiscal policy is considered as an effective instrument for reducing unemployment and securing full employment. Full employment occurs where there is job available for everyone who is fit to work and wants a job at the prevailing wage rates.

(5) Reduce Inflationary Pressure. Another objective of fiscal policy is to reduce inflationary pressure. In a developing country the inflation is inevitable and it is fiscal policy which assists in reducing the pressure.

(6) To accelerate the rates of saving, investment and capital formation.

(7) To bring stability in prices.

(8) To restrict monopolies and check the concentration of economic power in fewer hands only.

(9) To establish balance in foreign trade.

(10) To have rapid economic development in the country.

(11) In case of underdeveloped and developing countries, the main objectives of fiscal policy are:

- (i) promoting the growth of savings and investments, and
- (ii) reducing income and wealth inequalities.

22.4.4 INTRODUCTION OF FISCAL POLICY IN UNDERDEVELOPED ECONOMY

Fiscal policy is an important instrument of policy in underdeveloped countries. The major problem of underdeveloped countries is the attainment of rapid economic growth. Hence, major objective of fiscal policy, as of all other aspects of economic policy, must be to increase capital formation and investment, so that the productive capacity of economy is increased and economic growth becomes possible. Besides increasing capital formation and investment, fiscal policy may also aim at influencing the pattern of production, influencing prices (the general price level as well as the structure of relative prices) and bringing about a redistribution of wealth and incomes.

• OBJECTIVES OF FISCAL POLICY IN AN UNDERDEVELOPED ECONOMY

Fiscal policy is an important instrument of policy in underdeveloped countries. It plays a

dynamic role in underdeveloped countries. However, the nature of fiscal policy in an underdeveloped economy is bound to be different from that of a developed country. Underdeveloped countries usually suffer from (i) chronic unemployment, (ii) chronic poverty (iii) chronic backwardness, both economic and social, and (iv) glaring inequalities of income and wealth. Hence the objective of fiscal policy in an underdeveloped country is to remove the above problems and thus to have a rapid economic growth. In this way, they could be the major objectives of fiscal policy in an underdeveloped country:

- 1) The very first and foremost objective of fiscal policy in an underdeveloped country should be to maximize the level of aggregate savings by applying a cut to the actual and potential consumption at large.
- (2) The second objective of fiscal policy in an underdeveloped economy should be to maximize the rate of capital formation, to break down economic stagnation and thus to lead the country to the path of rapid economic progress.
- (3) The third objective of fiscal policy in an underdeveloped country should be to divert capital resources, from less productive to more productive, and from socially less desirable to socially more desirable uses. The objective is implicit in planned economic development.
- (4) The fourth objective of fiscal policy in an underdeveloped country is to increase employment opportunities in the country. The government should undertake local public works of community development involving more labour and less capital per head. Besides undertaking the establishment of public enterprises the government should encourage private enterprises through tax holidays, concessions, cheap loans, subsidies etc. In the rural areas, efforts should be made to encourage domestic industries, by providing training, finance, marketing facilities and small machines connected with them.
- (5) The fifth objective of fiscal policy in an underdeveloped country is to protect its economy from the demon of inflation. Inflation can prove ruinous to an underdeveloped economy. Hence the fiscal policy of an underdeveloped country should be designed in such a manner as to curb inflationary forces arising during the process of economic growth.
- (6) The sixth objective of fiscal policy in an underdeveloped country should be to eliminate as far as possible, sectoral imbalances arising in the economy from time to time. Though the fiscal policy will help in maintaining price stability in the economy as a whole by curbing inflationary forces, there may arise sectoral price fluctuations in certain sectors of the economy on account of the existence of several bottlenecks. Hence the fiscal policy should be devised in such a manner

that it can correct such imbalances in time before they could inflict any damage on the economy of the country.

- (7) The seventh objective of fiscal policy should be to eliminate, as far as possible, the glaring inequalities of income and wealth. These inequalities create social cleavages, which lead to economic and political instability and stand in the way of economic development. The fiscal policy should be designed in such a way that on one side it helps in increasing national income and on the other side it helps in reducing the inequalities of income and wealth in the economy.

• **ROLE OF FISCAL POLICY IN AN UNDERDEVELOPED ECONOMY**

Fiscal policy as a means of promoting economic development of underdeveloped countries may have to play the following roles

(I) Mobilization of Resources.

The national income and per capita income of underdeveloped countries is very low, hence the volume of voluntary savings is also low. When the volume of voluntary savings is low, the capital formation too shall be quite low. Hence financing of development plans poses a very difficult problem for the government of an underdeveloped country. It is of utmost importance to increase the rate of savings, investments and capital formation so as to raise the rate of economic growth in underdeveloped countries. The government can help mobilization of resources and accumulation of capital by means of adopting the following methods:

- (1) Inducement to Save.** Inducement to invest in private enterprise may be effective if (i) private enterprise is secured and profitable, and (ii) there are suitable institutions through which investment can be made. The profitability of private enterprise may be helped by the government in many ways. For example, protection may help certain industries to develop. There may be provision for technical advice and guidance and for the supply of commercial information. The tax burden on desired types of enterprise may be lessened. Profits which are reinvested may be exempted from taxation or may be taxed lightly. Apart from such measures for helping specific types of enterprise, such other activities of the government as the development of transport and power etc., are also important. There must also be suitable institutions through which investment may be canalized. Most underdeveloped countries do not have well developed banking structures. In the absence of facilities for depositing money the people either do not save at all, or if they do save something, they do so in the shape of hoards of jewelry etc. Thus, banking facilities have to be made available to as large a proportion of the people as possible.

Commercial banks, generally do not provide long-term loans for development projects. State Banks or Cooperative Banks may, therefore have to be resorted to.

(2) Government Borrowing or a Non-Inflationary Nature. Government borrowing of a non-inflationary nature is also an important instrument for mobilising private savings and government securities provide a safe outlet for the people's savings. The aim has to be to see that different types of securities are offered to the people so that persons of different means, or with different types of requirements may purchase them. Small savings schemes are of special significance in underdeveloped countries. For this purpose savings banks or other similar institutions have to be set up in large numbers all over the country, specially in small towns and villages. Other steps that can be taken are attractive rates of interest, different dates of maturity in the case of savings certificates and lotteries. Another possibility is that savings and government borrowing in any particular area may be linked with a specific project, so that people may be more willing to subscribe money or it.

(3) Compulsory Savings. It may happen, however that in spite of every effort the volume of voluntary savings may not be very large. This, as we have seen, may be due to several causes. The incomes of the people in underdeveloped countries are generally so low that they cannot save much. Even a rise in income levels due to economic development generally leads not to more saving but to increased consumption. In many underdeveloped countries, whatever little savings are done are in the form of purchases of land or hoarding of cash. The absence of a well-developed financial market also discourages savings.

(4) Taxation. Taxation can play an important part in diverting resources from consumption or non-productive uses, into investment. This happens in two ways. In the first place, Taxation takes away purchasing power from individuals and firms and transfers it to the Government. Thus, on the one hand private uses of resources are curtailed and, on the other, the Government obtains funds with the help of which it can acquire control over these resources and can direct them into investment. Both direct and indirect taxation have the effect of curtailing consumption. Direct taxes do so by reducing income and indirect taxes by making consumption goods costly. Indirect taxation involves the taxation not only of luxuries and semi-luxuries but even of commodities which usually considered essential so that the propensity to consume which is naturally high in poor countries may be held in check. Additional income resulting from economic development may be prevented from flowing into consumption if (a) the scale of income and other direct taxes is progressive so that the people getting increased incomes may be taxed more stiffly and they may be prevented from increasing their

consumption to the extent of the rise in their incomes, and (b) goods with a high income elasticity of demand (i.e., the demand for which tends to increase with a rise in income) are taxed.

(5) Surpluses from Public Enterprises. The resources of underdeveloped Countries can be increased by mobilizing the surpluses from public enterprises. According to Indian Taxation Enquiry Commission, “The making of profit is not necessarily inconsistent with public enterprises; indeed, the generation of surpluses in public enterprises may be considered to be a public purpose for the development of economy.

(6) Deficit Financing. Deficit financing also constitutes an important source for financing development plans in underdeveloped countries. It makes possible capital formation in two ways (i) by activating hidden and idle resources, and (ii) directing resources from current consumption into investment.

Deficit financing by placing all resources in the hands of the government, enables it to acquire resources which were so far unutilized and to use them for productive purpose.

Deficit financing can also bring about a diversion of resources from non-productive uses. As a result of deficit financing, the government acquires control over additional purchasing power and can buy goods and services needed for its investment programmes. Thus, these goods and services are diverted from private uses to government uses. This process of diversion from private to govt. uses is aided by the tendency of deficit financing to raise prices. Because of the rise in prices, private demand for goods and services tends to decline and, as a result of government purchases (with the help of the additional purchasing power acquired by the government), these goods and services move into uses determined by the government.

(II) Accelerating the Rate of Economic Growth

Fiscal policy can also contribute to the acceleration of the rate of growth in underdeveloped countries by increasing the rate of investment through public expenditure and taxation policies. The role of fiscal policy can be positive and dynamic in accelerating the rates of growth by increasing the rates of saving and investment. The government can start various development projects for rapid economic progress of underdeveloped countries. The government should provide opportunities and incentives to save and invest. Equal importance should be given to the development of agriculture and industry. The development of

agriculture depends on industrial development as the demand of most of the agricultural products comes from industrial sector.

(III) Fiscal Policy and Redistribution of Income

The distribution of income and wealth is becoming more and more unequal due to the constantly increasing inflationary pressures on the economy. These inequalities in the distribution of income and wealth adversely affect the pace of economic progress of these underdeveloped countries, create social and political unrest in the country and instability in the economy. Fiscal policy of a country aims to reduce the inequality of income and wealth of an underdeveloped country in the following ways

- (1) To Change the Structure of Resource Ownership.
- (2) To Change Price Structure.
- (3) To Change the Size of Income.
- (4) Planned Development.
- (5) Change in the Tax Structure.

(IV) Fiscal Policy and Economic Stability

Fluctuations in business activities create uncertainties in the underdeveloped economy. The following compensatory fiscal measures may be adopted so as to avoid or restrict cyclical fluctuations.

(1) Fiscal Policy During Inflation. Obviously, inflation is the result of excessive private expenditure, and therefore, fiscal tools must be used to check the inflationary tendencies. The supply of money being more than its demand and on the other hand the demand for commodities and services being more than its supply become the key factors of inflation, Fiscal measures can be used in various ways

- (i) By spending less.
- (ii) By imposing new taxes and raising the rates of existing taxes, this will transfer resources from private use to government use.
- (iii) The government may borrow money to prevent expenditure from increasing.

- (iv) The government can increase the interest rates by increasing Bank Rate and may induce people to save more and consume less.

(2) Fiscal Policy During Depression. Deflation or unemployment is the result of deficiency in the private expenditure. This deficiency in private expenditure can be overcome in several ways

- (i) The tax rates may be reduced.
- (ii) The government may increase its expenditure at old age pension and unemployment benefits.
- (iii) The government may reduce the rate of interest and may lend liberally to private businessmen to encourage investment expenditure.
- (iv) The government can sanction subsidies and grants to the backward and underdeveloped sectors of the economy as agriculture.
- (vi) It may repay its debt so that consumption and investment expenditure both may increase.

(V) Fiscal Policy and Price Stability

Apart from the above considerations, fiscal policy must also seek to attain price stability. Attempts to force the pace of development tend to push up prices. This is also because the limited resources of an underdeveloped economy are deliberately diverted into large-scale investment so that the availability of consumer goods is reduced, specially if the investment is in projects with long gestation periods. Since the foreign exchange resources of underdeveloped countries are also generally limited, the shortage of goods produced within the country cannot be made up by imported goods. While a mild rise in prices may help the process of development, inflation not only causes hardships to large sections of the population, but also upsets calculations about costs of plan Programmes and discourages savings. Hence all measures, including fiscal measures have to be taken to avoid inflationary situations. If deficit financing is adopted and it may often be unavoidable, or may even be desirable, for reasons mentioned earlier, the pressure on prices may become still greater and care has to be taken to see that its extent and timings are such as not to give rise to inflationary situation and that it is accompanied by measures to check inflationary tendencies. Apart from steps to increase production, the fiscal measures that can be adopted are taxation and borrowing to remove purchasing power from circulation. A situation of falling prices is not so characteristic of developing economies as that of rising prices, but if such a situation develops, fiscal policy

along with other instruments of policy will have to play its part.

(VI) Fiscal Policy and Employment

Unemployment is the burning problem of underdeveloped countries. Fiscal policy is an important tool of removing unemployment in a country. Hence the government should adopt such a policy which can solve the problem of unemployment in underdeveloped countries. The fiscal policy should include the following:

- (i) Increase in public and private investments.
- (ii) Free technical education.
- (iii) Development of employment opportunities.
- (iv) Unemployment Allowance.

(VII) Fiscal Policy and Production

In underdevelopment countries the production and productivity both are low and fiscal policy is an important tool of increasing both production and productivity. In this connection the following steps may be taken:

- (i) The government can increase production by giving economic assistance.
- (ii) Domestic industries can be encouraged by giving them protection, export industries by economic assistance and new industries can be established by giving tax exemptions.
- (iii) New producers can be encouraged by giving them loans at low rate of interest.

22.4.5 INTRODUCTION OF FISCAL POLICY IN A DEVELOPING COUNTRY LIKE INDIA

Fiscal policy in a developing country like India differs from that in a developed country both in respect of its objectives and its contents. In a developing economy, the government has to play an increasing role in promoting economic development, which is the primary objective of its economic policy. Fiscal policy, therefore, becomes an important instrument for achieving this objective.

• OBJECTIVES OF FISCAL POLICY IN DEVELOPING COUNTRY LIKE INDIA

- (1) Promotion and acceleration of capital formation in the public and private sectors.
- (2) Promotion and maintenance of economic stability.

(3) Removal of unemployment.

(4) Promotion and maintenance of price stability.

• **ROLE OF FISCAL POLICY IN A DEVELOPING COUNTRY LIKE INDIA**

Fiscal policy has a dynamic role to play in the promotion at rapid economic development in developing countries like India. If it is carefully conceived and efficiently executed, it can accelerate the process of development in a developing country.

The role of fiscal policy in a developing country like India may be studied under the following heads; -

(1) Fiscal Policy and Capital Formation. Fiscal policy is used as an instrument of capital formation in developing countries. It performs this task in two ways: (i) by expanding investment in public and private enterprises, and (ii) by directing the flow of resources from socially less desirable to more desirable investment. The increase of investment in the public sector is done by implementing the programmes of development on a large scale along with finding requisite funds for this purpose. As regards expanding investment in private sector, fiscal policy is used as an instrument in stimulating investment in the private sector by allowing depreciation allowances in company taxation, tax holidays, development rebates, provision of finance, subsidies, etc. The second aspect of this policy changes the content of the total investment in the economy and creates capital by bringing about a quantitative improvement in it.

(2) Fiscal Policy and Mobilization of Resources. Developing countries suffer from a very low rate of voluntary private saving. The propensity to consume there is high and the propensity to save very low resulting in deficiency of resources, mainly financial resources. For the mobilization of financial resources, the following fiscal means may be used: (i) taxation, (ii) public borrowings, (iii) deficit financing, and (iv) stimulating private savings, (v) profits of public enterprises. There must be a harmonious combination so as to accelerate economic progress without inflation.

(3) Fiscal Policy and Economic Stability. Another objective of fiscal policy in a developing country is the promotion and maintenance of economic stability. Economic instability in developing countries is mainly caused on account of instability in other countries. The exports of these countries usually consist of primary products and these commodities are particularly sensitive to fluctuations of demand abroad. The fluctuations are more in prices than in output. There are,

therefore, variations in terms of trade. Thus, export earnings are particularly subject to fluctuations and the foreign exchange resources are unstable and unreliable. This kind of instability is corrected by using particular taxes than by aggregative fiscal policy. Manipulation of export taxes helps to counteract the effects of changing foreign demand. Long-term fluctuations can be checked by rapid economic development.

(4) Fiscal Policy and Redistribution of National Income. Developing countries suffer from marked inequalities in incomes and wealth. Inequalities in incomes and wealth can be reduced by adopting a suitable fiscal policy. Besides other measures, the main elements of the fiscal policy should be (i) progressive taxation of income and wealth, (ii) suitable public expenditure programmes for poorer sections of the society.

(5) Fiscal Policy and Price Stability Another objective of fiscal policy in a developing country is the promotion and maintenance of price stability. The main reason of price instability is the inflation. There is tendency for price to rise on account of the large development expenditure which is seldom accompanied by a corresponding increase in production.

22.4.6 OBJECTIVES OF FISCAL POLICY IN DEVELOPED ECONOMY

The main objective of fiscal policy in a developed country is the maintenance of economic stability

(1) To raise the level of investments. The main objectives of fiscal policy in a developed country should be to raise the volume of production keeping in view the fact that the level of production should not be higher than the level of consumption.

(2) To check the fluctuations in the effective demand of money. In developed countries there exists irregular unemployment. If the people do not like to work in spite of the available opportunities of work or if they possess so much income that they can lead healthy life even without doing any work, it will lead to irregular unemployment. The manpower will become idle. Now to control irregular unemployment, it is essential to check fluctuations in the effective demand of money.

(3) To control the Automatic Process of the Market. Today, all the economists are of the opinion that on reaching the developed economy at the top, it cannot be left alone. This fact has been verified by 1930 worldwide depression. The worldwide depression had disturbed the

economy of the world badly. Hence, in order to avoid the uncertainty of the market, effective control is needed.

(4) Proper Direction to Government Investments. In order to have effective coordination between demand and supply, the government investments are required to play an important role. Hence proper direction should be given to government investments.

(5) Determination of Suitable Taxation Policy. What to say of underdeveloped and developing economies, taxation policy is required to play an important role in developed countries also. In order to establish short-term and long-term balance in the economy, it is essential that there exists complete coordination between taxation policy, credit creation policy, lending policy, and resources mobilization policy of the government. Unless there is a mutual coordination between them, it is not possible to bring about stability in developed economy.

22.4.7 ROLE OF FISCAL POLICY IN CONTROLLING INFLATION

The major anti-inflationary fiscal measures are as follows

(1) Government Expenditure. During inflation, the aggregate effective demand increases far too much on account of unregulated and increased government and private expenditure. The increased expenditure presses heavily against the limited supply of goods and services available in the market.

(2) Taxation. It acquires great significance as an effective anti-inflationary weapon during an inflationary boom. Taxation increases the tax amount of the government on one side and decreases the disposable purchasing power with the general public on the other side and, therefore, has anti-inflationary effects. Hence the rate of existing taxes should be steeply increased, while new taxes should be imposed on goods and services so as to leave less money supply with the public to spend.

(3) Public Borrowings. Another major anti-inflationary fiscal measure is the public borrowings. The object of public borrowings is to take away from the public excess purchasing power which, if left free, would exert an upward pressure on the price level in view of the limited supply of goods and services in the economy. Public borrowings may be voluntary or compulsory. Ordinarily, public borrowing is voluntary, left to the free will individuals. However, it does not bring to the government sufficient amount so as to have an effective impact on the inflationary pressures in the economy.

(4) Private Savings. Private savings have a strong anti-inflationary effect on the economy and increase in these is an important measure for controlling inflation. Hence, the government fiscal policy must include the devices of increasing private savings. Besides other measures, the fiscal policy should include (i) increase in the rate of interest, (ii) rebate in taxation on investment in saving schemes, such as national saving scheme (N.S.S.), national saving certificates, mutual fund tax saving schemes etc.

(5) Debt Management. Another anti-inflationary fiscal measure is the debt management. The existing public debt should be managed in such a way as to reduce the existing money supply and prevent further credit expansion. Anti-inflationary, debt management usually requires the retirement or payment of bank-held debt out of a budget surplus. The idea is that government securities held by commercial banks should be retired by government out of a budgetary surplus. This would check the power of commercial banks to encash their securities and add to the reserve for the purpose of credit expansion.

22.4. 8 MEANING OF FULL EMPLOYMENT

The term full employment is purely a formal concept. It does not imply that every individual in the country, who is fit and free to work, is employed productively on every day of his working life. On the contrary, full employment may be quite consistent with frictional, seasonal and technological unemployment. Even though a society is fully employed, it may not be wholly free from frictional, seasonal, structural and technological unemployment.

22.4.9 ESSENTIALS OF A FISCAL POLICY TO PROMOTE FULL EMPLOYMENT IN A DEVELOPED ECONOMY

In order to promote full employment in a developed economy, the fiscal policy of the government should be adjusted along the following lines

(1) Budgetary Policy. The old classical economists advocated a policy of balanced and small budget. However, this policy will not help tide over depression and unemployment according to Prof. J.M Keynes. The need at such a time is to increase the flow of income-stream into the economy and could be made possible, according to Prof. J. M. Keynes, only through deficit budgeting. Hence, it is essential that the government should incur large deficits in the budget and then meet these deficits either by borrowing from the banks etc. or through printing fresh currency notes.

(2)Taxation Policy. In order to fight depression and unemployment, taxation policy of the government, according to Keynesians should be so designed as to stimulate both consumption and investment simultaneously. The only way to do it successfully is to reduce the general burden of taxation on the community.

(3)Public Debt. Public debt can also be employed by the government as an instrument to fight depression and unemployment. The deficits in govt. budgets shall have to be met partly if not wholly through public borrowings. But while adopting the fiscal policy of public borrowing (public debt), the govt. shall have to keep the following two considerations in mind; firstly, in order to keep the burden of public debt low, the government should aim at a policy of low interest rates during depression. Secondly the government should try as far as possible to borrow from those sections of the community with whom the funds are lying idle.

(4)Public Expenditure. An increase in public expenditure can also be employed by the government as an instrument to fight against depression and unemployment. Increase in public expenditure at such a time may take the following two forms (i) Pump Priming, and (ii) Compensatory Spending. Pump Priming refers to that public expenditure which helps initiate and revive economic activity in an economy where stagnation reigns supreme consequent upon depression. The object is to increase private investment through an injection of purchasing power in the form of an increase in public expenditure. On the other hand, compensatory spending refers to the government expenditure which is undertaken with a view to compensating the decline in private investment. Usually, private investment suddenly declines at the time of depression.

22.4.10 LIMITATIONS OF FISCAL POLICY

The Following are the limitations of fiscal policy

(1)Dependence on the size of measures and their timing. The effectiveness of fiscal policy depends on the size of measures adopted and their timing. The exact change affected in the national income will depend on the change in the revenue expenditure made by authorities. Moreover, the current timing of the change is an essential factor in their success. One of the limitations of fiscal policy is the practical difficulty of observing these conditions. The correct timing of the measures is also a very difficult job. It is very difficult for the authorities to realize when a boom or slump is coming.

(2)Dependence on the Redistribution of Income. The exact effects of fiscal measures adopted also depend o the redistribution of income that results from them. When a large part of any addition to income goes to the classes which are in the habitof saving, the effect on total demand is likely to be smaller than expected. On the contrary, if the large part of any addition to income goes to the classes which are inthe habit of excessive expenditure, the multiplier effects are likely to be larger thanexpected.

(3)Flexibility of the Government Revenue. The flexibility of government revenueitself maywork as a restrictive influence on any fiscal policy adopted by the government. When increased income is made for the purpose of expanding total spending in thecommunity, a part of the same might come back to govt. as more revenue and thusreduce the extent of higher public expenditure.

(4)Effects on Prime Investment. Government spending does not have full effecton natl income if its effect on private investment is contradictory.

(5)Dependence on the Supply of Human Efforts. The effects of fiscal policy depend on the supply of human effort. The national income will rise when people desire to work. On the contrary, rising income might make people less inclined towork hard. In the same way, an anti-inflationary policy is partly nullified by peopletrying to work harder and making up for the discouragement provided by the government.

(6)Lack of Coordination and integration. There is lack of coordination and integration in different fields of economy and thus the fiscal policy fails in creating therequisite effect.

(7)Limitations of Budgetary Policy. Budget is a small part of national income ofa country and it is not in a position to have effective effect in the economy of a country.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words

Q1 What is fiscal policy? Mention any two components of it.

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Q2 Explain two major objectives of fiscal policy in a developing country like India.

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Q3 How does fiscal policy help in controlling inflation?

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Q4 List two limitations of fiscal policy in achieving full employment.

22.5 Let Us Sum Up

- **Role of Fiscal Policy:** Fiscal policy is a crucial tool for government economic management, aiming to stabilize the economy and promote growth.
- **Economic Stabilization:** It helps in controlling inflation, deflation, and cyclical fluctuations, ensuring economic stability.
- **Promotion of Growth:** Fiscal policy aims to accelerate capital formation and investment to foster economic development in developing countries.
- **Full Employment:** One of the primary goals is to create jobs and reduce unemployment through targeted fiscal measures.
- **Redistribution of Income:** Fiscal policy helps in reducing income inequalities by using progressive taxation and redistributing wealth.
- **Sectoral Balance:** It ensures resources are allocated effectively, addressing sectoral imbalances and promoting equitable development.

- **Public Expenditure:** Increased public spending, through compensatory and pump-priming methods, helps stimulate economic activity, especially during downturns.
- **Limitations of Fiscal Policy:** While fiscal policy is powerful, it faces challenges related to timing, effectiveness, and coordination with other policies.

22.6 Glossary

- **Fiscal Policy:** Government policies regarding taxation, public spending, and borrowing aimed at influencing the economy.
- **Budgetary Policy:** Government decisions on fiscal deficits, public spending, and balancing national budgets to stabilize the economy.
- **Taxation Policy:** Government strategies for using taxes to generate revenue, reduce inequality, and influence consumption and investment.
- **Public Debt:** The total amount of money borrowed by the government to finance deficits and development projects.
- **Deficit Financing:** The process by which a government borrows money or prints currency to cover the gap between its revenue and expenditure.
- **Progressive Taxation:** A tax system where higher incomes are taxed at higher rates, aiming to reduce income inequality.
- **Pump-Priming:** Public expenditure aimed at stimulating economic activity, particularly during periods of economic downturn.
- **Compensatory Spending:** Government spending designed to compensate for a decline in private sector investment, thus stimulating economic recovery.

22.7 Further Readings

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- Ray, Debraj (2012), *Development Economics*, Oxford India.
- Thirlwall, A.P. (2006), *Growth and Development*, Palgrave, New York.
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22.8 Hints to Check your Progress

CYP-I

Q1: Refer to subsection 14.4.1 and 14.4.2

Q2: See 14.4.5 (Objectives in India)

Q3: Covered in 14.4.7 (Fiscal Policy in Controlling Inflation)

Q4: Explained in 14.4.10 (Limitations of Fiscal Policy)

22.9 Exam oriented Questions

1. What is fiscal policy? Discuss its importance in economic management.

- Define fiscal policy as government policies related to taxation, public spending, and borrowing.
- Explain the role of fiscal policy in stabilizing the economy, controlling inflation, and promoting growth.
- Mention the significance of fiscal policy in addressing unemployment and inflation.
- Discuss how fiscal policy is a tool for economic development, especially in developing countries.

2. Explain the components of fiscal policy.

- Budgetary policy: Discuss how governments plan their expenditure and revenue.
- Taxation policy: Explain the role of taxation in generating revenue and controlling consumption.
- Public debt: Discuss how borrowing is used to finance deficits and development programs.
- Public expenditure: Explain how government spending stimulates economic growth, especially during recessions.

3. What are the main objectives of fiscal policy in developing countries like India?

- Promote capital formation and accelerate investment in both public and private sectors.
- Achieve economic stability and maintain a balanced growth trajectory.

- Focus on job creation and reduce unemployment through targeted fiscal measures.
 - Address inequalities in income and wealth through progressive taxation and redistribution.
4. How does fiscal policy contribute to controlling inflation?
- Discuss how increasing taxes can reduce disposable income, thus controlling demand.
 - Explain how reducing government expenditure can curb inflationary pressures.
 - Mention the role of public borrowings in withdrawing excess money supply from circulation.
 - Discuss how fiscal policy helps in managing price stability by controlling inflation.
5. Discuss the limitations of fiscal policy in developing countries.
- Timeliness: Explain the difficulty in implementing fiscal measures at the right time to match economic conditions.
 - Coordination: Discuss the challenges in coordinating fiscal policy with monetary policy for effective results.
 - Debt management: Highlight how reliance on debt may limit long-term effectiveness.
 - Fiscal deficits: Discuss the problem of persistent fiscal deficits and their impact on economic stability.
6. How does fiscal policy help in breaking the vicious cycle of poverty?
- Explain how fiscal policy can promote higher savings and investment in critical sectors such as education and health.
 - Discuss how increasing government expenditure on infrastructure can raise productivity and create jobs.
 - Mention how redistributing income through taxation and public welfare programs can address income inequality.
 - Explain the role of fiscal policy in boosting capital formation and facilitating economic growth in impoverished regions.
7. What role does fiscal policy play in promoting full employment in a developing economy?
- Discuss how fiscal policy can stimulate demand through increased public spending.

- Explain the role of government initiatives in encouraging investment, both public and private.
 - Mention the role of targeted fiscal programs like public works and infrastructure projects in job creation.
 - Discuss how fiscal policy can regulate the labor market and reduce unemployment through effective taxation and subsidies.
8. How can fiscal policy address income and wealth inequalities?
- Discuss the use of progressive taxation to reduce the income gap.
 - Explain how government spending on social welfare programs helps to improve living standards for lower-income groups.
 - Mention the role of fiscal policy in creating opportunities for wealth distribution through capital formation.
 - Explain how fiscal policy supports policies to encourage savings and investment in underdeveloped areas.
9. What is the significance of public debt as an instrument of fiscal policy?
- Explain how public debt helps in financing government expenditure, especially during times of economic downturns.
 - Discuss the benefits of borrowing at low-interest rates to avoid inflationary pressures.
 - Mention how government debt can be used to finance long-term development projects.
 - Discuss the challenges of managing public debt, such as maintaining a balance between debt levels and economic growth.
10. Explain the concept of "Pump Priming" in the context of fiscal policy.
- Define "Pump Priming" as an increase in public expenditure aimed at stimulating economic activity.
 - Explain how government spending injects purchasing power into the economy to revive economic growth.
 - Discuss how "Pump Priming" aims to increase private sector investment by providing initial capital.
 - Mention the role of fiscal policy in ensuring that "Pump Priming" leads to sustainable growth rather than just short-term relief.

STRUCTURE

23.0 Objectives

23.1 Learning Outcomes

23.2 Introduction

23.3 Inflation and Economic Growth: Theoretical Framework

- 23.3.1 Classical View
- 23.3.2 Keynesian View
- 23.3.3 Monetarist View
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23.4 Empirical Evidence of Inflation's Impact on Economic Growth

- 23.4.1 Inflation and Growth in Developed Economies
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- 23.4.3 Hyperinflation Case Studies
- 23.4.4 Cross-Country Studies

23.5 Mechanisms Through Which Inflation Affects Economic Growth

- 23.5.1 Inflationary Uncertainty
- 23.5.2 Real Wages and Labor Productivity
- 23.5.3 International Trade and Competitiveness
- 23.5.4 Interest Rates and Investment

23.6 The Role of Monetary and Fiscal Policies in Controlling Inflation and Supporting Growth

- 23.6.1 Monetary Policy

- 23.6.2 Fiscal Policy
- 23.6.3 Inflation Targeting

23.7 Empirical Models Used in Inflation and Growth Analysis

- 23.7.1 Phillips Curve
- 23.7.2 Okun's Law
- 23.7.3 The Fischer Equation
- 23.7.4 Vector Autoregression (VAR) Models

23.8 Glossary

23.9 Let's Sum Up

23.10 Suggested Readings

23.11 Hints to Check Your Progress

23.12 Examination-Oriented Questions

23.0 Objectives

By the end of this lesson, you should be able to:

- Understand the relationship between inflation and economic growth.
- Analyze how inflation affects economic growth in both short-term and long-term scenarios.
- Evaluate the impact of moderate inflation on business investments and economic performance.
- Examine the negative effects of high inflation and hyperinflation on economic stability and growth.
- Explore the role of monetary policy in managing inflation and supporting sustainable growth.
- Investigate empirical studies and real-world data on inflation and growth in different economies.
- Identify policies that help balance inflation control with economic growth objectives.

23.1 Learning Outcomes

- Define inflation and economic growth, and describe their relationship in economic terms.
- Analyze how inflation can act as both a stimulus and a hindrance to economic growth.
- Understand the role of central banks in controlling inflation while fostering long-term growth.
- Evaluate how inflation influences the investment climate and business cycles.
- Interpret empirical evidence on the impact of inflation on growth in developed and developing economies.
- Assess the trade-offs between inflation control and economic growth strategies in policymaking.
- Apply models such as the Phillips Curve to understand the relationship between inflation, unemployment, and economic growth.

23.2 Introduction

Inflation and economic growth are two of the most widely discussed concepts in economics, particularly in the context of how they interact and influence one another. Understanding this relationship is critical for policymakers, businesses, and individuals as they make decisions

about economic strategies, investments, and government policies. Inflation refers to the sustained increase in the general price level of goods and services in an economy over a period of time. It can have both positive and negative effects on the economy, depending on its level and how it is managed. On the other hand, economic growth is the increase in the production of goods and services in an economy, typically measured by the growth in Gross Domestic Product (GDP). Both of these factors are vital for a healthy economy, but their relationship is complex.

The relationship between inflation and economic growth has been the subject of extensive debate among economists. Traditionally, some economists argued that inflation is detrimental to economic growth, while others suggested that mild inflation could actually encourage growth by stimulating demand. For instance, moderate inflation is often seen as a sign of a growing economy, where demand for goods and services leads to higher prices. In such cases, inflation can encourage businesses to invest in capacity expansion and production, which in turn boosts overall economic activity.

However, when inflation reaches very high levels, it can have serious adverse effects on the economy. High inflation, often termed hyperinflation, erodes the purchasing power of money, creates uncertainty in the economy, and distorts price signals. This makes it difficult for businesses to plan for the future and hampers long-term investments. Hyperinflation, like that experienced in Zimbabwe or Venezuela, often leads to economic collapse and political instability, demonstrating how inflation, when uncontrolled, can significantly harm growth.

In contrast, deflation, which is the opposite of inflation, can also be harmful. Deflation occurs when the general price level of goods and services declines. While it may seem beneficial because prices are falling, deflation can lead to decreased consumer spending and lower business profits, ultimately causing a slowdown in economic activity. For this reason, central banks typically aim to maintain low and stable inflation to ensure steady economic growth.

This lesson aims to explore the empirical evidence that exists on the relationship between inflation and economic growth. Empirical evidence refers to the data collected from real-world observations and experiments, and it helps us understand how inflation has historically impacted economies across different regions. By examining empirical studies, we can identify patterns and draw conclusions about how inflation affects growth in both the short and long term.

In addition to analyzing empirical evidence, the lesson will also explore the various economic models that explain the relationship between inflation and growth, such as the Phillips Curve, which suggests an inverse relationship between inflation and unemployment, and the Taylor

Rule, which provides guidance on how central banks should respond to inflation in relation to economic growth.

Ultimately, this lesson will help you understand the nuanced ways in which inflation influences economic growth, both positively and negatively, and provide you with insights into how policymakers manage inflation to foster sustainable economic development. Through this, you will gain a clearer understanding of the challenges and opportunities that inflation presents to economies at different stages of development.

23.3 Inflation and Economic Growth: Theoretical Framework

Inflation and economic growth have long been topics of significant interest in economics, with various schools of thought providing differing views on how inflation affects growth. These views are essential to understand the broader relationship between these two critical economic factors. In this section, we explore the Classical, Keynesian, Monetarist, and Structuralist perspectives on inflation and economic growth, emphasizing their underlying models and key assumptions.

23.3.1 Classical View

The Classical View of inflation and economic growth is rooted in the works of early economists like Adam Smith, David Ricardo, and John Stuart Mill. The classical school of thought assumes that markets are generally self-correcting and that economies naturally operate at full employment. In this view, inflation is considered a monetary phenomenon, that is, it is primarily caused by an increase in the money supply. According to classical economists, inflation does not have a significant long-term effect on economic growth.

Key Assumptions and Model

1. Quantity Theory of Money: Classical economists adhere to the Quantity Theory of Money, which states that the supply of money in an economy directly determines the price level. This theory can be represented by the Fisher Equation, which is a model for the relationship between money supply, velocity, price level, and output.

$$M \cdot V = P \cdot Y$$

Where:

- M is the money supply

- V is the velocity of money (the rate at which money circulates in the economy)
- P is the price level
- Y is the real output (real GDP)

According to this equation, any increase in the money supply (M) leads to an increase in the price level (P), assuming the velocity of money and real output are constant.

2. **Neutrality of Money:** The classical view assumes the neutrality of money, meaning that changes in the money supply do not affect real economic variables such as real GDP and employment in the long run. In other words, while inflation can influence nominal variables (like nominal GDP or nominal wages), it has no lasting impact on real economic activity in the long term. In this view, inflation may affect nominal wages and prices, but it does not affect the real economy.
3. **Full Employment:** Classical economists argue that the economy always tends towards full employment due to the flexibility of wages and prices. Any inflation caused by an increase in the money supply would be met by an adjustment in wages and prices, restoring the economy to full employment.

Inflation and Growth in the Classical View

In the classical model, inflation does not affect economic growth in the long run. Inflation is viewed as a temporary phenomenon that adjusts relative prices but does not have a lasting effect on real output. For example, a rise in the money supply will lead to higher prices, but it will not increase real GDP or employment in the long run.

- **Growth:** In the classical model, economic growth is primarily determined by the accumulation of capital, labor, and technological progress rather than by inflation.
- **Inflation:** While inflation can have short-term effects on nominal variables, it does not fundamentally alter the long-term growth path of the economy. In the long run, economic growth is driven by capital accumulation and technological progress.

The classical view aligns with the neoclassical growth models, where inflation is seen as a purely nominal issue with no long-term effects on real economic growth.

23.3.2 Keynesian View

The Keynesian View, developed by John Maynard Keynes (1936), presents a different perspective on the relationship between inflation and economic growth. Keynesian economics emphasizes the role of aggregate demand in determining economic output and employment.

Keynesians argue that inflation can have both positive and negative effects on growth, depending on the level of inflation and the phase of the business cycle.

Key Assumptions and Model

1. **Aggregate Demand and Supply:** Keynesians argue that the economy is not always at full employment and that fluctuations in aggregate demand can lead to periods of underemployment or overemployment. Inflation and growth are influenced by changes in aggregate demand, which is determined by consumption, investment, government spending, and net exports.

The Keynesian model of aggregate demand is represented as:

$$AD = C + I + G + (X - M)$$

Where:

- C is consumption
 - I is investment
 - G is government spending
 - X - M is net exports (exports minus imports)
2. **Inflation and Demand-Pull Inflation:** According to Keynesians, inflation is often driven by demand-pull factors. When aggregate demand exceeds aggregate supply at full employment, it leads to demand-pull inflation. In this scenario, inflation is seen as a sign of an overheating economy, where too much demand chases too few goods, driving prices upward.
 3. **Wage-Price Spiral:** Keynesians also emphasize the wage-price spiral, where higher wages increase production costs, leading to higher prices, which in turn lead to demands for higher wages. This process can continue as long as there is excess demand in the economy.
 4. **Short-Term vs Long-Term Effects:** Keynesians argue that in the short-term, inflation can be beneficial for economic growth, as it signals increasing demand and rising economic activity. However, in the long-term, if inflation becomes excessive, it can undermine growth by creating uncertainty and eroding purchasing power.

Inflation and Growth in the Keynesian View

- **Short-Term Growth:** In the short run, moderate inflation can stimulate economic growth by encouraging investment and consumption. As businesses expect rising

prices, they are more likely to invest in increasing production capacity. Consumers, on the other hand, may spend more today rather than wait for prices to rise further.

- **Long-Term Inflation:** However, if inflation becomes too high or persistent, it can harm long-term growth by creating uncertainty. High inflation erodes purchasing power, distorts price signals, and reduces the effectiveness of monetary policy, all of which can depress investment and long-term economic activity.

In the Keynesian view, inflation is closely tied to the business cycle. During periods of high demand and economic growth, moderate inflation is expected, but if inflation gets out of hand, it could lead to economic instability and hinder future growth.

23.3.3 Monetarist View

The Monetarist View, popularized by economist Milton Friedman, argues that inflation is primarily a monetary phenomenon and that it has a detrimental effect on long-term economic growth. Monetarists believe that inflation is caused by an excessive growth in the money supply and that controlling inflation is essential for maintaining economic stability.

Key Assumptions and Model

1. **The Quantity Theory of Money:** Monetarists build upon the classical Quantity Theory of Money, asserting that inflation is caused by an increase in the money supply. The relationship between money supply, inflation, and economic growth is captured by the Fisher Equation (stated above). Monetarists argue that increases in the money supply lead directly to higher prices, with no long-term effect on output. Inflation, therefore, can only lead to higher prices and not to sustained economic growth.
2. **Inflation and Economic Growth:** Monetarists assert that inflation reduces economic growth in the long run. High inflation leads to uncertainty, which discourages investment and long-term planning. Moreover, inflation erodes the value of money, reduces real wages, and distorts the allocation of resources, all of which harm growth.
3. **The Role of Central Banks:** Monetarists emphasize the role of central banks in controlling inflation. They argue that monetary policy should focus on maintaining a steady growth rate of the money supply to ensure price stability. Excessive money supply growth, according to monetarists, leads to inflation and undermines economic growth.
4. **Natural Rate of Unemployment:** Monetarists also introduce the concept of the natural rate of unemployment, which represents the level of unemployment that exists when

the economy is operating at its full potential. They argue that attempts to reduce unemployment below this natural rate through expansionary policies will only lead to higher inflation, without creating sustainable economic growth.

Inflation and Growth in the Monetarist View

- **Short-Term vs Long-Term:** Monetarists believe that in the short-term, there may be a trade-off between inflation and growth, as monetary expansion can temporarily boost demand. However, in the long-term, the growth rate of the money supply is the primary driver of inflation, and inflation leads to slower economic growth.
- **Growth and Price Stability:** For Monetarists, price stability is a key condition for sustainable economic growth. They argue that only by controlling inflation through steady and predictable monetary policy can economies achieve long-term growth.

23.3.4 Structuralist View

The Structuralist View on inflation and economic growth presents a more nuanced perspective, particularly relevant to developing economies. Structuralists argue that inflation is not merely a monetary phenomenon but is influenced by a range of structural factors, including supply shocks, fiscal deficits, and the economic structure of developing countries.

Key Assumptions and Model

1. **Inflation as a Structural Issue:** According to the structuralist view, inflation is often driven by structural imbalances in the economy, such as supply-side shocks, fiscal deficits, and external factors like global commodity prices. For example, inflation may arise when there is a demand-supply mismatch in key sectors of the economy.
2. **Cost-Push Inflation:** Structuralists emphasize cost-push inflation, which occurs when production costs rise due to supply-side factors like rising wages, higher raw material costs, or energy price increases. This type of inflation can be persistent and difficult to control, especially in developing economies reliant on imports for key inputs.
3. **Fiscal Deficits and Inflation:** Structuralists also argue that large fiscal deficits and excessive government borrowing contribute to inflation in developing countries. Governments often resort to printing money to finance budget deficits, leading to an increase in the money supply and inflation.
4. **Developmental Constraints:** In developing economies, inflation is often tied to structural constraints such as low productivity, inefficiency in public sectors, and

dependence on primary exports. Structuralists argue that these economic features create inflationary pressures and hinder long-term growth.

Inflation and Growth in the Structuralist View

- **Impact of Inflation on Growth:** While moderate inflation may be seen as a necessary evil in the early stages of development, structuralists argue that high inflation can hamper growth by distorting investment decisions, eroding savings, and increasing uncertainty in the economy.
- **Structural Reforms:** To control inflation and foster growth, structuralists emphasize the need for comprehensive economic reforms that address supply-side constraints, fiscal discipline, and the efficiency of public sector institutions.

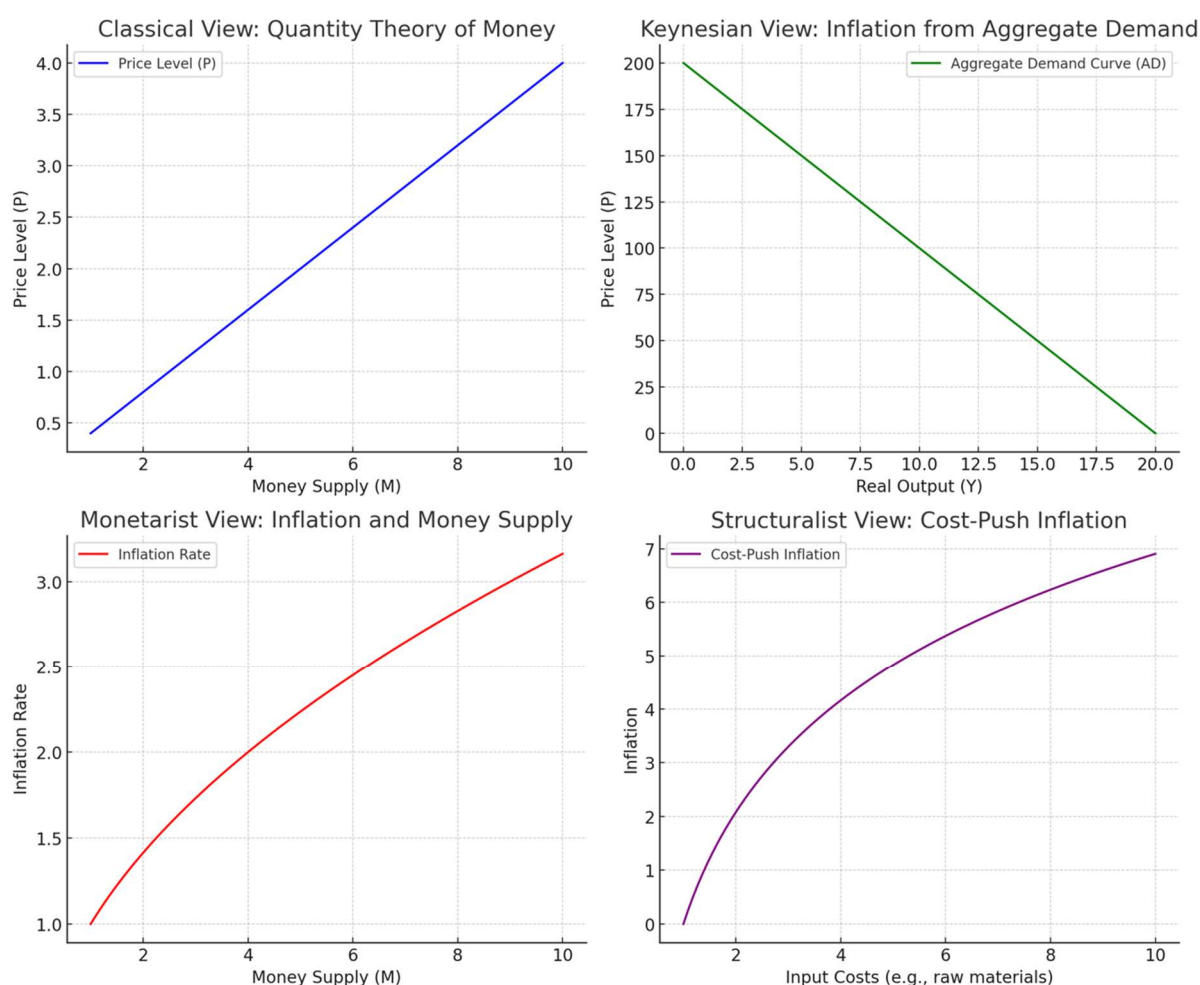


Diagram: Structuralist View: Cost-Push Inflation

Here are four diagrams based on the theoretical perspectives of inflation and economic growth:

1. **Classical View:** This diagram illustrates the Quantity Theory of Money, showing the relationship between the money supply (M) and the price level (P). According to the

classical model, an increase in money supply leads to higher prices without impacting real output in the long term.

2. **Keynesian View:** This plot represents aggregate demand and its effect on inflation. It shows how increases in real output (Y) can lead to rising price levels (P) due to demand-pull inflation. The Keynesian perspective suggests that inflation can stimulate growth in the short term, but it becomes a problem when demand exceeds supply.
3. **Monetarist View:** This chart illustrates the relationship between the money supply (M) and the inflation rate. Monetarists believe that inflation is caused by an increase in the money supply and that controlling the money supply is essential for managing inflation and sustaining economic growth.
4. **Structuralist View:** This diagram shows cost-push inflation, where inflation rises due to increasing input costs, such as raw materials. Structuralists argue that inflation in developing economies often arises from structural imbalances in the economy, which can hinder growth.

Each of the four theoretical perspectives on inflation and economic growth provides valuable insights into the complex relationship between these two factors. The Classical View emphasizes the neutrality of money and long-term economic stability, while the Keynesian View focuses on the role of aggregate demand in driving growth and inflation. The Monetarist View underscores the importance of controlling the money supply to maintain price stability, while the Structuralist View offers a broader understanding of inflation as a product of structural factors, particularly in developing economies.

Understanding these views helps policymakers address the challenges of balancing inflation control and economic growth. Each perspective highlights different mechanisms and provides insights into the tools and strategies required to achieve sustainable growth in the face of inflationary pressures.

23.4 Empirical Evidence of Inflation's Impact on Economic Growth

The relationship between inflation and economic growth has been extensively studied through empirical research that examines data from both developed and developing economies. The empirical evidence helps clarify how inflation affects economic growth in different contexts, with different inflation levels and growth patterns. In this section, we analyze the empirical evidence of inflation's impact on economic growth across developed economies, developing economies, hyperinflation case studies, and cross-country studies.

23.4.1 Inflation and Growth in Developed Economies

In developed economies, inflation typically remains moderate and stable, with central banks actively managing inflation through monetary policies. The relationship between inflation and economic growth in developed countries is generally characterized by low to moderate inflation (typically between 2% to 3% annually), which is seen as conducive to economic growth. However, the effects of inflation on growth can still vary based on the economic environment, policy frameworks, and other external factors.

Key Findings from Developed Economies:

1. **Low Inflation and Growth:** In developed economies, moderate inflation is generally positively correlated with growth. Inflation within a target range (around 2-3%) is seen as a sign of a healthy economy where demand for goods and services is rising. Moderate inflation encourages consumption and investment, as it signals confidence in the economy.

Monetary Policy Framework: Central banks in developed economies, such as the Federal Reserve (USA) and the European Central Bank (ECB), have clear inflation targets, typically around 2%. These institutions use tools such as interest rates and quantitative easing to maintain price stability, which in turn fosters an environment conducive to sustainable economic growth.

Equation of Growth with Inflation: One common way of analyzing the relationship between inflation and growth is through the Phillips Curve, which shows the short-term trade-off between inflation and unemployment:

$$pi_t = \pi_e + \beta(Y_t - Y^*) + \epsilon_t$$

Where:

π_t is the actual inflation rate at time t

π_e is the expected inflation rate

β is a coefficient that measures the sensitivity of inflation to the output gap

Y_t is the actual output

Y^* is the potential or natural output level

ϵ_t is the error term

In this model, a positive output gap (when actual output exceeds potential output) typically leads to higher inflation, which in turn may affect growth if inflation becomes too high.

2. **Moderate Inflation Benefits:** The presence of inflation signals a growing demand for goods and services. In developed economies, moderate inflation encourages business investment by providing incentives for businesses to expand and increase production capacity. This is because businesses can increase prices without fearing drastic consumer backlash. Furthermore, inflation reduces the real burden of debt, which is advantageous for both businesses and consumers in debt-heavy economies.
3. **High Inflation and Growth:** However, high inflation (above 10%) can hurt growth in developed economies. While the Phillips Curve suggests a trade-off between inflation and unemployment in the short run, in the long run, high inflation can lead to higher interest rates, reduce investment, and create economic uncertainty. For instance, in the 1970s and early 1980s, many developed economies (especially in Europe and the USA) faced stagflation, a period of high inflation and low economic growth.

Rational Expectations: The rational expectations hypothesis further emphasizes that when inflation expectations become unanchored, the economy experiences persistent high inflation, which erodes purchasing power and reduces investment. The relationship between inflation and growth weakens as inflation rates exceed certain thresholds.

The period between the 1960s and 1980s in the United States provides a clear example of the relationship between inflation and economic growth in a developed economy. In the 1960s, the U.S. experienced moderate inflation alongside strong economic growth. However, in the 1970s, inflation accelerated sharply due to factors like the oil price shock and expansionary fiscal policies.

The Phillips Curve during this period was tested as the U.S. faced stagflation, where high inflation and high unemployment coexisted. The Monetary Policy Rule was eventually adjusted by the Federal Reserve under Paul Volcker to control inflation by raising interest rates, which led to a severe recession in the early 1980s. This case illustrates how inflation, if uncontrolled, can detract from economic growth and create instability.

United States (1960s-1980s)

23.4.2 Inflation and Growth in Developing Economies

In developing economies, the relationship between inflation and economic growth is often more complicated. Unlike in developed economies, inflation in developing countries is

frequently higher and less predictable due to factors such as political instability, supply-side constraints, poor fiscal management, and reliance on imported goods.

Key Findings from Developing Economies:

1. **High Inflation and Growth Constraints:** High inflation, especially in countries with weak institutions and fiscal imbalances, often stifles growth. It creates uncertainty, reduces investment, and erodes the purchasing power of the population. In countries with high inflation rates, such as Venezuela or Zimbabwe, inflation can quickly spiral out of control, leading to hyperinflation, which results in economic collapse and extreme social consequences.
2. **Cost-Push and Demand-Pull Inflation:** In developing countries, inflation is often driven by cost-push factors (rising raw material and food prices) and demand-pull inflation (rapid growth in domestic demand). Monetary policy may struggle to control these inflationary pressures due to weak central banks and limited policy tools.
3. **Inflation as a Symptom of Structural Issues:** Inflation in developing economies is often a structural problem resulting from poor fiscal policies, such as government deficits financed by money printing. Inflationary pressures can be exacerbated by external shocks like commodity price fluctuations or disruptions in supply chains. For instance, countries that rely heavily on food and energy imports are particularly vulnerable to inflationary pressures from global price volatility.
4. **Inflation and Growth in Emerging Markets:** In contrast to high-inflation countries, some emerging market economies like China, India, and Brazil have experienced rapid growth despite moderate inflation. In these cases, inflation has been more controlled, and monetary policies have focused on targeting inflation within a manageable range. Growth in these countries is often driven by structural reforms, industrialization, and foreign direct investment (FDI), which are not directly tied to inflation but may still be affected by it.
5. **Inflation Targeting and Policy Frameworks:** In the past few decades, many developing countries have adopted inflation targeting frameworks, similar to those in developed economies, to keep inflation within a target range. Countries like Brazil and South Africa have successfully reduced inflation through independent central banks and consistent monetary policies, leading to more stable economic growth.

Zimbabwe experienced one of the most extreme cases of **hyperinflation** in history during the early **2000s**. At its peak, inflation in Zimbabwe reached an astronomical rate of **89.7 billion percent per month** in November 2008. The collapse of the economy was due to several factors, including **political instability**, **land reforms** that hurt agricultural production, and **excessive government spending** financed by printing money.

The Zimbabwean experience is a stark example of how inflation, when left unchecked, can decimate an economy, leading to a loss of confidence in the currency, capital flight, and a deep recession. Hyperinflation wiped out savings, led to massive unemployment, and created a humanitarian crisis. This case demonstrates the critical importance of managing inflation,

Zimbabwe (2000s)

23.4.3 Hyperinflation Case Studies

Hyperinflation is an extreme form of inflation, typically characterized by monthly inflation rates exceeding 50% and often resulting in a complete collapse of the economy. Hyperinflation severely disrupts economic activity, leading to price instability, a loss of currency value, and a collapse of the financial system. Below are notable examples of countries that have experienced hyperinflation:

1. Zimbabwe (2000s)

Background: Zimbabwe's hyperinflation during the late 2000s is one of the most extreme examples of inflationary pressures. The crisis was precipitated by land reforms, which decimated agricultural output, along with political instability and unsustainable fiscal policies. **Consequences:** Hyperinflation reached a peak of 89.7 billion percent in November 2008. The government began printing money to fund expenditures, but this only worsened the inflation. Basic goods like bread and fuel became unaffordable, and people resorted to using foreign currencies like the US dollar for transactions.

Outcome: The government abandoned the Zimbabwean dollar in 2009, and the economy has since been dollarized. The crisis serves as a cautionary tale of how inflation can devastate an economy when monetary policy is ineffective and structural problems are not addressed.

2. Germany (1920s)

Background: After World War I, Germany experienced severe inflation, culminating in hyperinflation in the early 1920s. The Treaty of Versailles imposed heavy reparations on Germany, which led the government to print excessive amounts of currency to meet its obligations.

Consequences: At its peak, the value of the German mark collapsed, and people had to carry wheelbarrows full of money to buy basic goods. The price of bread increased from 250 marks to 200 billion marks between 1922 and 1923.

Outcome: The hyperinflation severely destabilized the German economy, contributing to the rise of extremism and the eventual collapse of the Weimar Republic. The introduction of a new currency, the Rentenmark, in 1923 helped stabilize the economy.

3. Venezuela (2010s)

Background: Venezuela entered a period of hyperinflation in the mid-2010s due to a combination of plummeting oil prices, government mismanagement, and political instability. Venezuela's reliance on oil exports left the economy vulnerable to global oil price fluctuations.

Consequences: Inflation reached an estimated 1,000,000% in 2018. Basic goods became scarce, the currency (the bolívar) lost almost all of its value, and people resorted to using foreign currencies for transactions.

Outcome: The country experienced severe social unrest, massive emigration, and an ongoing humanitarian crisis. Hyperinflation in Venezuela has been one of the most severe in recent history.

Impact of Hyperinflation on Economic Growth

Hyperinflation disrupts the economy in numerous ways:

- **Erosion of Savings:** The value of money declines rapidly, causing the wealth and savings of households and businesses to be wiped out.
- **Loss of Confidence in Currency:** As people lose faith in the local currency, they begin using foreign currencies or barter systems, undermining the economy's functioning.
- **Increase in Poverty:** High inflation erodes real wages, reducing the purchasing power of the population and pushing more people into poverty.
- **Investment Loss:** The uncertainty created by hyperinflation makes long-term investments highly risky, leading to capital flight and reduced foreign investment.

23.4.4 Cross-Country Studies

Cross-country studies provide valuable insights into how inflation affects economic growth across different countries and economic contexts. These studies help identify common patterns and variations in the relationship between inflation and growth. Several influential cross-country studies have focused on the following:

1. **Barro's Cross-Country Study (1995):** Robert Barro's study examined the relationship between inflation and economic growth across a sample of countries. He found that moderate inflation did not negatively impact growth, but high inflation (above 20%) was strongly correlated with lower growth rates. His study concluded that inflation distorts economic decision-making, leading to inefficiencies and lower investment.

Barro's empirical model was based on the following equation:

$$GDPGrowth = \alpha + \beta_1(\text{Inflation}) + \beta_2(\text{Investment}) + \beta_3(\text{Human Capital}) + \epsilon$$

Where:

Inflation is the annual inflation rate

Investment is the investment-to-GDP ratio

Human Capital is measured by the average years of schooling

ϵ is the error term

Barro's findings emphasized that countries with moderate inflation (around 5-10%) typically saw stable growth, but those with higher inflation rates struggled with reduced investment and economic instability.

2. **International Monetary Fund (IMF) Studies (2000s):** The IMF conducted several cross-country studies examining the relationship between inflation and growth in both developed and developing economies. One major finding was that inflation affects developing economies more severely than developed economies. High inflation in low-income countries is often caused by structural imbalances and leads to economic instability.

IMF studies also found that countries with stable inflation and well-managed fiscal and monetary policies experienced sustained economic growth. The IMF emphasized the importance of inflation targeting and credible monetary policy frameworks to anchor expectations and promote growth.

The model used by the IMF often incorporated inflation alongside variables such as:

$$\begin{aligned} \text{GDP Growth} \\ = \alpha + \beta_1(\text{Inflation}) + \beta_2(\text{Fiscal Balance}) + \beta_3(\text{Trade Openness}) + \beta_4(\text{Government Spending}) + \epsilon \end{aligned}$$

3. **World Bank Cross-Country Studies:** The World Bank has consistently found that moderate inflation (less than 10%) does not significantly harm economic growth, especially in developing countries. However, once inflation crosses the double-digit threshold, it can begin to have a negative effect on growth, particularly by affecting investment, labor productivity, and the allocation of resources.

The World Bank's empirical model often involved studying the relationship between inflation and GDP growth, considering other macroeconomic factors such as investment in infrastructure, human capital, and institutional quality. The key findings showed that inflation, when combined with political instability, often hinders growth due to its impact on business confidence and long-term planning.

The empirical evidence across developed and developing economies, hyperinflation case studies, and cross-country analyses indicates that inflation can significantly impact economic growth, but its effects vary depending on the level of inflation, the economic context, and the policies in place. While moderate inflation is generally considered beneficial in driving demand and investment, high inflation and hyperinflation have severe negative consequences for economic stability, growth, and the well-being of citizens.

In developed economies, moderate inflation, when properly managed by central banks, supports economic growth. However, in developing economies, where inflation is often higher and more volatile, it can pose significant risks to growth, especially when inflation exceeds certain thresholds. Hyperinflation, as seen in historical examples like Zimbabwe and Germany in the early 20th century, can completely undermine economic activity, leading to widespread poverty and instability.

Cross-country studies have reinforced these findings, showing that inflation above a certain level is highly detrimental to growth, particularly in economies with weaker institutions. Effective monetary and fiscal policies, including inflation targeting, are essential to managing inflation and ensuring sustainable growth. The relationship between inflation and economic growth remains complex, but empirical evidence continues to highlight the importance of controlling inflation for fostering long-term economic development.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the Classical view on the relationship between inflation and economic growth?
2. How does the Keynesian perspective explain the effects of inflation on economic growth?
3. In the Monetarist view, what is the primary cause of inflation?
4. What is the main argument of the Structuralist view on inflation and economic growth in developing countries?
5. How does moderate inflation impact economic growth in developed economies according to empirical evidence?
6. What role does the central bank play in controlling inflation and fostering growth in developed economies?
7. How did hyperinflation affect economic growth in Zimbabwe in the 2000s?
8. What do cross-country studies suggest about the relationship between inflation and growth in developing economies?

23.5 Mechanisms Through Which Inflation Affects Economic Growth

Inflation, though a common economic phenomenon, has both positive and negative effects on an economy, depending on its magnitude, consistency, and the underlying economic framework. Understanding how inflation impacts economic growth is crucial for policymakers and business leaders alike. The mechanisms through which inflation affects economic growth are multifaceted, involving factors such as inflationary uncertainty, real wages and labor productivity, international trade and competitiveness, and interest rates and investment. This section discusses these mechanisms in detail, supported by equations and theoretical models to illustrate the relationship between inflation and economic growth.

23.5.1 Inflationary Uncertainty

One of the most significant ways inflation impacts economic growth is through inflationary uncertainty. When inflation is volatile or unpredictable, it creates an environment of economic uncertainty that can hamper decision-making processes for

businesses and consumers.

Impact on Investment

Economic growth heavily depends on investments, and investment decisions are often influenced by expectations about future prices and costs. When inflation is uncertain, businesses face difficulty in predicting future prices of goods and services, making it harder for them to set prices, determine production costs, or plan long-term investments. This uncertainty can lead to reduced investment, which in turn can limit economic growth.

For example, if inflation expectations are high and volatile, businesses may delay capital investment projects because they are unsure whether future demand will be strong enough to cover costs and yield a profitable return. This can lead to a deceleration of productivity growth, since investment in infrastructure, technology, and human capital is essential for long-term economic progress.

The Fisher Effect:

To model inflationary uncertainty's effect on investment, the Fisher Equation can be used to understand the relationship between nominal and real interest rates:

$$1 + i = (1 + r) \cdot (1 + \pi)$$

Where:

i is the nominal interest rate

r is the real interest rate

π is the inflation rate

The Fisher effect demonstrates how nominal interest rates adjust to changes in inflation expectations. When inflation is uncertain, nominal interest rates tend to be higher, as lenders demand compensation for the increased risk of holding money that may lose value due to inflation. High interest rates discourage borrowing and investment, thus reducing the overall level of economic activity and growth.

The Role of Inflation Expectations

If businesses and consumers expect inflation to be high or unpredictable in the future, they

will adjust their behavior accordingly. Businesses may raise prices pre-emptively, which leads to cost-push inflation, while workers may demand higher wages to keep up with the rising cost of living. However, these adjustments can be inefficient and further distort the economy.

- **Equation for Inflation Expectations:**

Inflation expectations can be modeled using the adaptive expectations theory:

$$\pi_e(t + 1) = \alpha \cdot \pi(t) + (1 - \alpha) \cdot \pi_e(t)$$

Where:

- $\pi_e(t+1)$ is the expected inflation rate for the next period
- $\pi(t)$ is the actual inflation rate for the current period
- α is a parameter that reflects how much past inflation affects current expectations

This equation shows that inflation expectations are influenced by past inflation, and persistent inflation can lead to a self-fulfilling prophecy, where inflation remains high because businesses and consumers expect it to be high.

Effects on Economic Stability

Inflationary uncertainty can also lead to greater price volatility, reducing the predictability of inflation in the economy. This undermines consumer confidence, slows down investment, and creates uncertainty in markets. For example, hyperinflation, as seen in Venezuela and Zimbabwe, significantly erodes the value of money, causing savings to lose value, income to become unpredictable, and investment to collapse, leading to economic stagnation or contraction.

23.5.2 Real Wages and Labor Productivity

The relationship between inflation, real wages, and labor productivity is another critical mechanism through which inflation affects economic growth. In many cases, inflation reduces the purchasing power of workers' wages, which affects their standard of living and overall consumption. Furthermore, inflation can distort incentives for both workers and employers, influencing productivity.

Real Wages and Inflation

Real wages refer to the wages of workers adjusted for inflation. If inflation is higher than the nominal wage increases, workers experience a reduction in their real income. A drop in real wages can reduce consumption, as workers have less money to spend on goods and services, thus affecting aggregate demand and slowing down economic growth.

The relationship between nominal wages (W) and real wages (W_{real}) can be expressed as:

$$W_{real} = \frac{W}{P}$$

Where:

W is the nominal wage

P is the price level (the inflation rate)

As inflation (P) increases, real wages decrease unless nominal wages rise by a corresponding amount. If workers do not receive wage increases that keep pace with inflation, they experience a decline in living standards, which reduces consumer spending and negatively impacts economic growth.

Inflation, Productivity, and Labor Costs

Inflation can also affect labor productivity and labor costs, influencing how businesses and workers interact. When inflation is high, workers demand higher wages to compensate for the rise in living costs. However, if productivity does not increase at the same rate as wages, businesses face higher labor costs, which can reduce profitability and slow economic growth.

Equation for Labor Productivity:

$$\text{Labor Productivity} = \frac{\text{Output}}{\text{Labor Input}}$$

Where output refers to the total goods and services produced, and labor input refers to the number of hours worked or the number of workers. If inflation leads to higher wages without a corresponding increase in productivity, the overall cost per unit of output rises, which can decrease profitability and slow economic growth.

High inflation may also discourage long-term investment in technology and training,

which are essential for improving labor productivity. In economies where inflation is volatile, businesses are less likely to invest in new technologies or expand their workforce, as they cannot predict future costs effectively.

Wage-Price Spiral

The wage-price spiral is another phenomenon where inflation leads to higher wages, which in turn leads to higher costs for firms, prompting them to raise prices. This creates a cycle of rising wages and prices, which can perpetuate inflation. The wage-price spiral further disrupts economic stability, as it can cause ongoing increases in inflation that are difficult to control.

Equation for Wage-Price Spiral:

$$\Delta P = \alpha \cdot \Delta W$$

Where:

ΔP is the change in the price level

ΔW is the change in wages

α is a coefficient that measures the responsiveness of prices to wage increases

If the wage-price spiral becomes entrenched, it leads to higher costs for businesses and a reduction in the competitiveness of the economy. This in turn can reduce economic growth, as higher prices deter both domestic and international demand for goods and services.

23.5.3 International Trade and Competitiveness

Inflation affects a country's international competitiveness by influencing the relative prices of its goods and services in global markets. When inflation is high relative to trading partners, it leads to worsened trade balances and reduces the competitiveness of domestic industries.

Exchange Rates and Inflation

The exchange rate plays a key role in how inflation affects international trade. If a country

experiences higher inflation than its trading partners, the real exchange rate appreciates, making its goods and services more expensive in foreign markets. As a result, exports decline, and imports increase, leading to a trade deficit.

Real Exchange Rate:

$$E_{real} = E_{nominal} \cdot \frac{P}{P^*}$$

Where:

E_{real} is the real exchange rate

$E_{nominal}$ is the nominal exchange rate

P is the domestic price level

P^* is the foreign price level

When inflation increases in a country, its domestic prices rise relative to the prices of goods in other countries, leading to a real appreciation of its currency. This makes exports less competitive in global markets, which can hinder economic growth.

Trade Balance and Inflation

Inflation affects the trade balance through its impact on the real exchange rate. If a country experiences inflation, the costs of its goods rise, making them less attractive to foreign buyers. On the other hand, imports become cheaper as foreign goods are relatively less expensive. A persistent inflation differential can therefore lead to a trade deficit, which may reduce the country's growth potential.

Trade Balance:

$$TB = X - M$$

Where:

TB is the trade balance

X is exports

M is imports

As inflation increases, exports decrease, and imports increase, leading to a negative trade balance. This can reduce overall economic growth, as exports are a key driver of demand for domestic goods and services.

Competitiveness and Structural Adjustments

To remain competitive, businesses in inflation-prone economies must focus on improving productivity and efficiency. However, if inflation is high and persistent, businesses may be unable to cope with rising input costs, making them less competitive internationally. This can lead to a decline in the share of world exports, further stalling economic growth.

23.5.4 Interest Rates and Investment

Interest rates are a central mechanism through which inflation impacts economic growth. Inflation leads to higher interest rates, which can discourage investment and slow down economic growth.

The Fisher Equation and Interest Rates

The Fisher Equation provides the relationship between nominal interest rates, real interest rates, and expected inflation. It demonstrates that when inflation rises, nominal interest rates must increase to compensate for the loss of purchasing power over time.

$$i = r + \pi_e$$

Where:

i is the nominal interest rate

r is the real interest rate

π_e is the expected inflation rate

Higher inflation expectations lead to higher nominal interest rates, which in turn increases the cost of borrowing for businesses and consumers. As borrowing costs rise, businesses are less likely to invest in new projects or expand existing ones. This can have a significant negative impact on economic growth.

The Impact on Business Investment

High inflation and rising interest rates discourage capital investment, which is essential

for long-term economic growth. When inflation is unpredictable or high, businesses become more cautious and may delay investment in capital goods, infrastructure, and technology. These delays can lead to slower productivity growth and reduced economic performance.

Investment and Inflation:

$$I = f(\pi, r, Y)$$

Where:

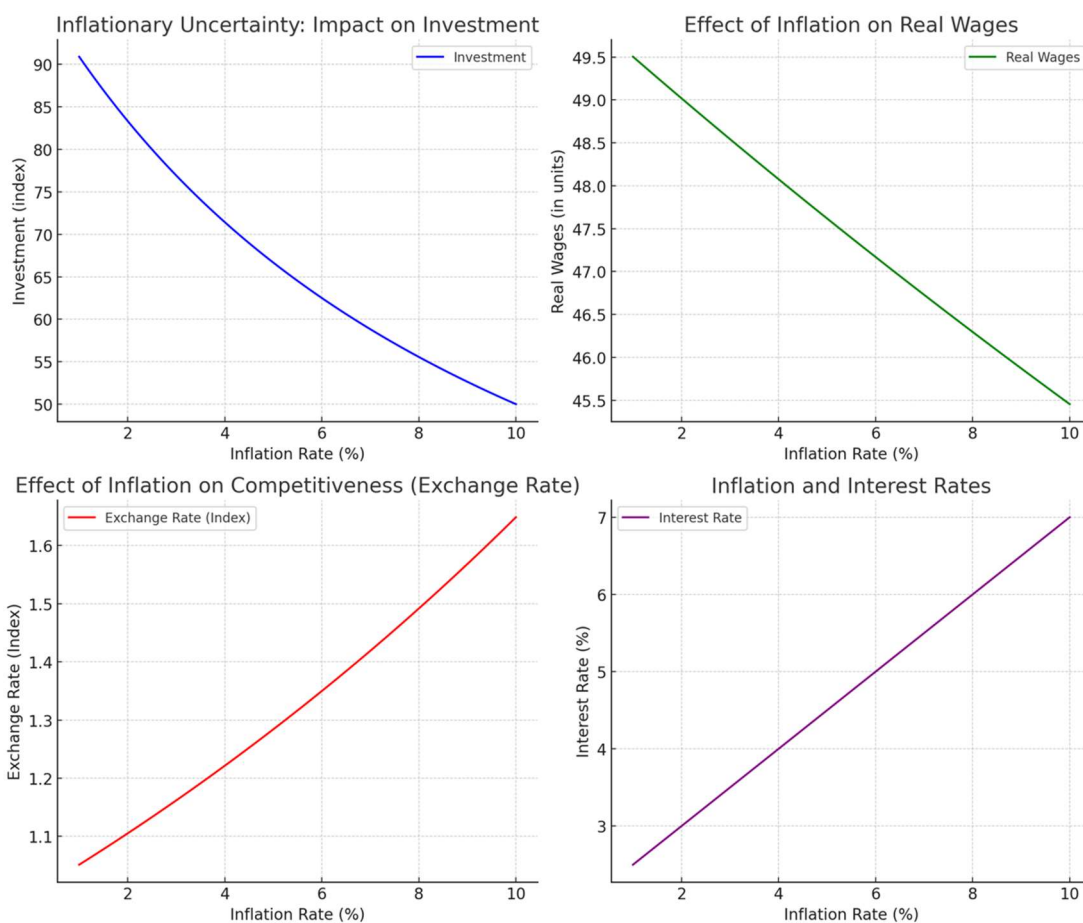
I is investment

π is inflation

r is the real interest rate

Y is income/output

As inflation increases, r (real interest rates) rise, leading to a decrease in investment. Reduced investment, in turn, slows down the rate of economic growth as fewer resources are directed towards increasing productivity.



Inflation and Interest Rates

Here are four diagrams based on the mechanisms through which inflation affects

economic growth:

1. **Inflationary Uncertainty - Impact on Investment:** This diagram shows the hypothetical inverse relationship between inflation and investment. As inflation rises, investment decreases due to increased uncertainty in the economy.
2. **Effect of Inflation on Real Wages:** This plot demonstrates how inflation erodes real wages. As inflation increases, the purchasing power of nominal wages decreases, leading to a reduction in real wages.
3. **Effect of Inflation on Competitiveness (Exchange Rate):** This diagram illustrates how inflation can affect a country's competitiveness through changes in the exchange rate. Higher inflation in a country can lead to a real appreciation of its currency, making its exports less competitive internationally.
4. **Inflation and Interest Rates:** This plot shows the relationship between inflation and interest rates. As inflation increases, central banks typically raise interest rates to control inflation, which can dampen investment and growth.

Investment Uncertainty and Inflation

Uncertainty about future inflation rates makes long-term planning more difficult for businesses. High inflation erodes the value of future cash flows, making it harder to assess the profitability of investments. As a result, businesses are more likely to postpone or reduce their investments, slowing down economic growth.

Inflation affects economic growth through various channels, including uncertainty, real wages, international trade, and investment. High and unpredictable inflation creates a volatile environment, discouraging investment and reducing productivity. In developed economies, moderate inflation is generally seen as a sign of growth, while in developing economies, excessive inflation can significantly hinder economic performance. The mechanisms discussed, inflationary uncertainty, real wages and productivity, international trade and competitiveness, and interest rates and investment, illustrate how inflation can be both a stimulant and a hindrance to economic growth, depending on its level and stability.

For policymakers, managing inflation effectively is essential for maintaining economic stability and fostering sustainable growth. By understanding these mechanisms,

policymakers can design better strategies to control inflation while promoting long-term economic development.

23.6 The Role of Monetary and Fiscal Policies in Controlling Inflation and Supporting Growth

Monetary and fiscal policies play a fundamental role in shaping the trajectory of economic growth and controlling inflation. Both of these policies are used to influence key economic variables such as interest rates, aggregate demand, investment, and price levels. Together, they form the backbone of a country's macroeconomic policy framework, helping stabilize the economy, maintain price stability, and foster long-term growth. In particular, monetary policy focuses on managing the money supply and interest rates, while fiscal policy concerns government spending and taxation.

In addition to these policies, inflation targeting has emerged as an important approach used by many central banks worldwide to manage inflation expectations and maintain price stability. This section will explore the mechanisms of monetary and fiscal policies in controlling inflation and supporting growth, as well as the application and effectiveness of inflation targeting. Various theoretical frameworks and equations will be discussed to provide a clearer understanding of these tools.

23.6.1 Monetary Policy

Monetary policy is the process by which a central bank or monetary authority manages the money supply and interest rates to achieve macroeconomic objectives such as inflation control, economic growth, and employment. The core of monetary policy lies in managing the level of aggregate demand through interest rates and controlling inflation.

Mechanisms of Monetary Policy

Monetary policy influences inflation and economic growth primarily through interest rates, money supply, and credit conditions. By adjusting these variables, central banks influence aggregate demand, investment, and ultimately the level of output in the economy.

Interest Rate Channel:

One of the main tools of monetary policy is the interest rate, specifically the policy interest rate, which is the rate at which central banks lend to commercial banks. Changes

in the policy interest rate affect the cost of borrowing for consumers and businesses, thus impacting investment and consumption levels in the economy.

Monetary Policy and Investment: When interest rates are lowered, the cost of borrowing becomes cheaper, which encourages businesses to take out loans for investment in capital goods, infrastructure, and expansion projects. Conversely, when central banks raise interest rates, borrowing becomes more expensive, reducing investment and cooling down the economy.

Inflationary Pressures: Lower interest rates can lead to increased demand and potential inflation. Higher interest rates, on the other hand, reduce inflationary pressures by reducing demand and investment.

Equation for Monetary Policy and Investment:

$$I = f(i, Y)$$

As interest rates fall (i), investment (I) typically rises, stimulating economic activity. This is one of the core mechanisms by which central banks influence economic growth through monetary policy.

Money Supply and Inflation:

Central banks control the money supply in the economy, typically through open market operations (OMOs). When central banks buy government bonds, they inject money into the economy, increasing the money supply and lowering interest rates. Conversely, when the central bank sells bonds, it withdraws money from the economy, reducing the money supply and increasing interest rates.

Money Supply and Inflation Equation:

The relationship between money supply (M) and inflation can be captured by the Quantity Theory of Money, which states that the amount of money circulating in the economy directly determines the price level.

Exchange Rate Channel:

Another key mechanism of monetary policy is its effect on the exchange rate. When a central bank raises interest rates, it tends to attract foreign capital inflows, leading to an appreciation of the domestic currency. A stronger currency makes imports cheaper, which can help reduce inflation by lowering the cost of foreign goods and services. On the other

hand, when interest rates are lowered, the currency tends to depreciate, making exports cheaper and stimulating economic growth by boosting demand for domestic goods abroad.

23.6.2 Fiscal Policy

Fiscal policy refers to the use of government spending and taxation to influence economic activity. Fiscal policy can be either expansionary or contractionary, depending on the desired economic outcome.

Expansionary Fiscal Policy:

During periods of economic downturn, governments may use expansionary fiscal policy by increasing government spending and/or cutting taxes to boost aggregate demand and stimulate economic growth. The goal is to increase consumption and investment, reduce unemployment, and stimulate economic activity.

Equation for Expansionary Fiscal Policy:

$$AD = C + I + G + (X - M)$$

Where:

AD is aggregate demand

C is consumption

I is investment

G is government spending

X - M is net exports (exports minus imports)

Government spending (G) directly contributes to aggregate demand and can increase short-term growth by stimulating demand in the economy. Tax cuts (T) increase disposable income for consumers and businesses, further boosting consumption and investment.

Contractionary Fiscal Policy:

On the other hand, if inflation is rising too rapidly, governments may use contractionary fiscal policy to reduce aggregate demand. This can be achieved by cutting government spending or raising taxes to cool down an overheating economy.

Equation for Contractionary Fiscal Policy:

$$AD = C - T + I + G - (X - M)$$

Where:

T is taxes

G is government spending

By reducing spending or increasing taxes, contractionary fiscal policy reduces aggregate demand, thus helping to control inflation.

Fiscal Deficits and Debt:

Fiscal deficits occur when government spending exceeds tax revenue, and governments may finance these deficits by borrowing money. Excessive government debt can lead to inflationary pressures, especially if the government resorts to monetary financing, which is when a central bank prints money to finance deficits. This can lead to a worsening of inflation if left unchecked.

Budget Deficit Equation:

$$B = G - T$$

Where:

B is the budget deficit

G is government spending

T is total tax revenue

Persistent budget deficits can lead to a rise in public debt, and if debt grows too large, it can trigger inflationary pressure as the central bank prints money to finance it.

23.6.3 Inflation Targeting

Inflation targeting is a monetary policy framework where a central bank sets an explicit target for the inflation rate and uses policy tools to achieve and maintain that target.

Inflation targeting helps anchor inflation expectations and provides a clear policy

framework for managing inflation over the medium term.

The Mechanism of Inflation Targeting

1. Inflation Expectations:

Inflation targeting is based on the idea that expectations of future inflation influence current inflation. By targeting a specific inflation rate, central banks can reduce uncertainty about future price levels, which helps stabilize the economy.

2. The Role of Central Banks:

Central banks set a publicly announced inflation target, which is typically 2% per year in many countries. They then adjust interest rates and use other monetary policy tools to ensure that actual inflation remains close to the target. This transparent approach increases the credibility of the central bank and helps guide the expectations of businesses, workers, and investors.

3. Forward Guidance:

Central banks often use forward guidance to communicate their intentions regarding future monetary policy. By making it clear how they plan to adjust interest rates and other policies, central banks help shape expectations and reduce inflation uncertainty. This can lead to more predictable behavior by businesses and consumers, which in turn stabilizes prices.

Inflation Targeting Equation:

$$i = r^* + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(Y_t - Y^*)$$

Where:

i is the nominal interest rate

r^* is the real neutral interest rate

π_t is the current inflation rate

π^* is the target inflation rate

Y_t is the current output

Y^* is the potential output

This equation, derived from the *Taylor Rule*, shows how central banks adjust the nominal interest rate based on the difference between current inflation and the inflation target, as well as the output gap.

4. **Benefits of Inflation Targeting:**

Credibility and Transparency: Inflation targeting improves the credibility of central banks by providing a clear and transparent policy framework.

Reduced Inflation Volatility: By anchoring inflation expectations, inflation targeting helps reduce the volatility of inflation, which contributes to overall economic stability.

Promotes Long-Term Growth: Stable inflation fosters a stable economic environment, encouraging investment, long-term planning, and efficient resource allocation.

5. **Challenges of Inflation Targeting:**

External Shocks: Inflation targeting may not always be effective in the face of external shocks, such as oil price increases or supply chain disruptions. In such cases, central banks may face a trade-off between controlling inflation and supporting economic growth.

Inflation Expectations: If inflation expectations are poorly managed, they can become unanchored, leading to higher inflation and destabilizing the economy.

Monetary policy, fiscal policy, and inflation targeting are crucial tools for managing inflation and promoting economic growth. Monetary policy helps control inflation by adjusting interest rates and the money supply, while fiscal policy influences inflation through government spending and taxation. Inflation targeting provides a framework for central banks to manage expectations and stabilize inflation.

Each of these mechanisms has a significant role to play in ensuring that inflation is kept within a manageable range while supporting sustainable growth. While monetary policy focuses on short-term inflation management, fiscal policy addresses long-term economic stability. By using these tools effectively, policymakers can navigate the challenges of inflation and growth, fostering an environment conducive to both price stability and

economic prosperity.

23.7 Empirical Models Used in Inflation and Growth Analysis

The relationship between inflation and economic growth is complex and can be analyzed using a variety of empirical models. These models help to quantify the impact of inflation on growth and provide insights into the dynamics between economic variables. In this section, we will delve into four key models widely used in inflation and growth analysis: the Phillips Curve, Okun's Law, Fischer Equation, and Vector Autoregression (VAR) Models. Each model offers a distinct perspective on the interplay between inflation, output, and other economic factors, and together, they provide a comprehensive framework for understanding the effects of inflation on economic performance.

23.7.1 Phillips Curve

The Phillips Curve is one of the most well-known models used to explain the relationship between inflation and unemployment. The original version of the Phillips Curve, introduced by economist A.W. Phillips in 1958, posited an inverse relationship between inflation and unemployment in the short run. The core idea is that when unemployment is low, inflation tends to rise because wages increase as firms compete for a smaller pool of available workers. Conversely, when unemployment is high, inflation is low, as there is less upward pressure on wages and prices.

Key Assumptions of the Phillips Curve

- **Inverse Relationship Between Inflation and Unemployment:** In the short run, the curve suggests that lower unemployment leads to higher inflation.
- **Trade-Off:** Policymakers could reduce unemployment by accepting higher inflation, and conversely, they could reduce inflation at the cost of higher unemployment.

This short-run trade-off is often referred to as the inflation-unemployment trade-off.

The basic form of the Phillips Curve can be written as:

$$\pi_t = \pi_e + \beta(U_t - U_n) + \epsilon_t$$

Where:

π_t is the actual inflation rate at time t

π_e is the expected inflation rate

β is a constant that measures the sensitivity of inflation to changes in unemployment

U_t is the actual unemployment rate at time t

U_n is the natural rate of unemployment (the rate of unemployment consistent with stable inflation)

ϵ_t is a random error term (captures other factors affecting inflation)

This equation suggests that when unemployment is below its natural rate ($U_t < U_n$), inflation (π_t) increases, and when unemployment exceeds the natural rate ($U_t > U_n$), inflation decreases.

Phillips Curve in the Long Run

In the long run, the relationship between inflation and unemployment is not stable. The expectations-augmented Phillips Curve, developed by Milton Friedman and Edmund Phelps in the 1970s, incorporates the role of inflation expectations, arguing that the long-run relationship between inflation and unemployment is vertical at the natural rate of unemployment. This implies that in the long run, there is no trade-off between inflation and unemployment, attempts to lower unemployment below the natural rate will only lead to higher inflation without any lasting reduction in unemployment.

The expectations-augmented Phillips Curve is expressed as:

$$\pi_t = \pi_e + \beta(U_t - U_n)$$

Where inflation expectations (π_e) adjust over time based on past inflation rates, leading to the natural rate hypothesis, an economy cannot maintain a lower unemployment rate than the natural rate without causing accelerating inflation.

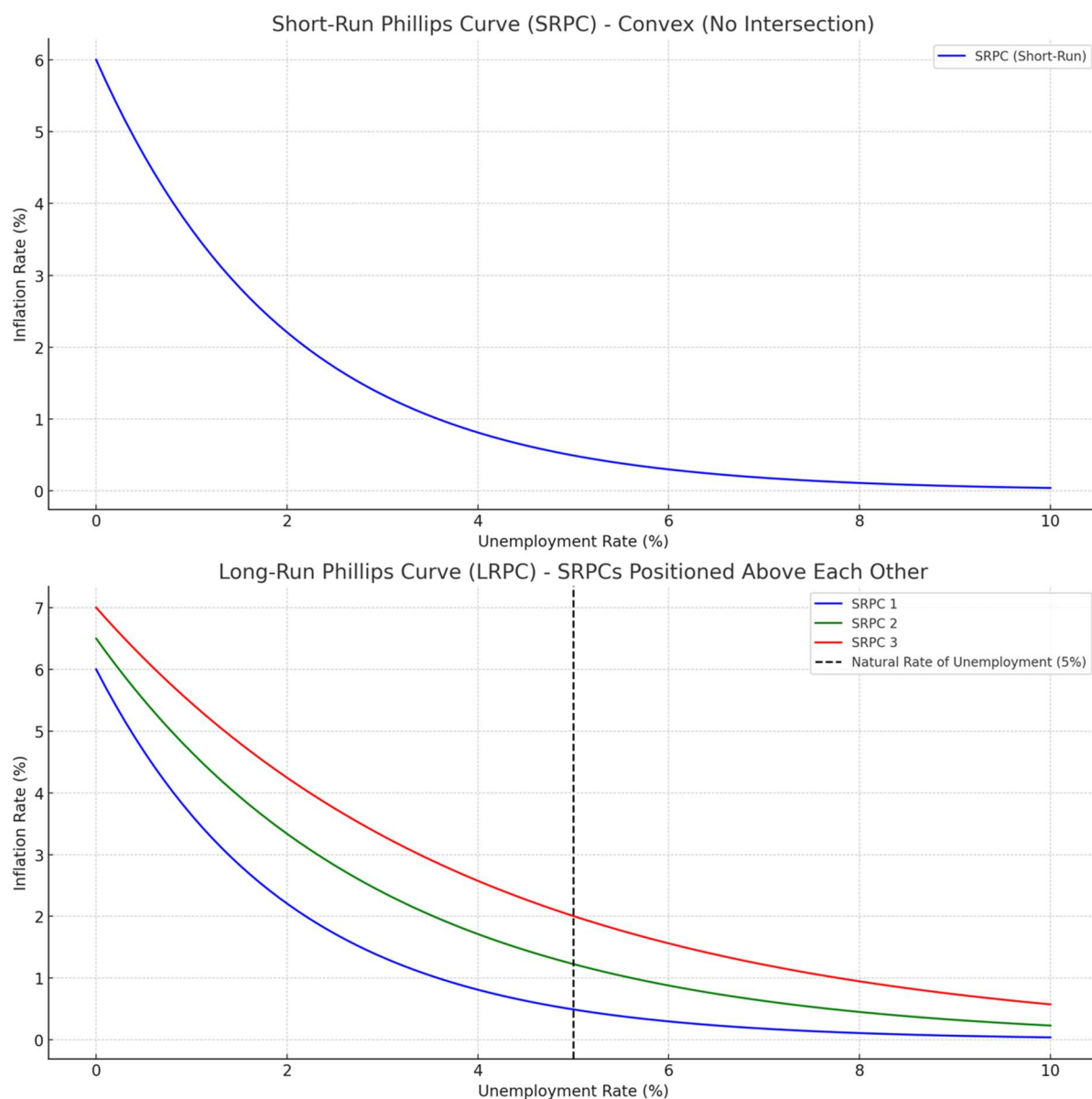


Diagram: SRPC and LRPC

Short-Run Phillips Curve (SRPC)

The Short-Run Phillips Curve (SRPC), represented in the top diagram, illustrates the negative relationship between inflation and unemployment in the short run. It shows a convex curve, which means that the trade-off between inflation and unemployment is not linear. As unemployment decreases, inflation tends to increase, but at a diminishing rate. This non-linear relationship captures the essence of the inflation-unemployment trade-off in the short run.

In the short run, when the economy experiences lower unemployment, demand for goods and services tends to rise. As a result, businesses often increase wages to attract workers,

which leads to higher production costs. To maintain profitability, businesses pass on these higher costs to consumers in the form of higher prices, which leads to inflation. However, as the economy moves closer to full employment, the rate of inflation increases at a slower pace due to diminishing returns. This behavior aligns with the concave shape of the curve, where the effect of reducing unemployment on inflation lessens as the economy nears its capacity limits.

Thus, the SRPC is convex, reflecting how inflation pressures escalate as unemployment falls, but the relationship becomes less pronounced as the labor market tightens. This curve is crucial for understanding the short-term trade-off policymakers face between reducing unemployment and managing inflation.

Long-Run Phillips Curve (LRPC)

The Long-Run Phillips Curve (LRPC), depicted in the bottom diagram, shows the vertical relationship between inflation and unemployment in the long term. Unlike the SRPC, which reflects a dynamic trade-off in the short run, the LRPC emphasizes that in the long run, there is no trade-off between inflation and unemployment. This is because, in the long run, the economy adjusts to the natural rate of unemployment, often referred to as the non-accelerating inflation rate of unemployment (NAIRU).

In the long run, regardless of the level of inflation, the unemployment rate eventually gravitates toward its natural rate, typically represented by the vertical dashed line at 5% unemployment in the diagram. This vertical line indicates that inflation does not affect the natural rate of unemployment. Any attempts to reduce unemployment below this natural level by stimulating the economy with expansionary monetary policies or fiscal policies will only lead to higher inflation without having any long-term impact on the unemployment rate.

The diagram also shows multiple SRPCs positioned above each other. These curves represent different inflationary conditions influenced by changes in inflation expectations. As inflation expectations rise, the entire short-run Phillips curve shifts upwards. However, these short-run shifts do not affect the long-run equilibrium because, in the long run, the economy will return to the natural rate of unemployment regardless of inflationary pressures.

Therefore, the LRPC's vertical nature suggests that in the long run, inflation and

unemployment are independent, and efforts to reduce unemployment below its natural rate will lead to higher inflation without changing the unemployment rate. This insight is central to the expectations-augmented Phillips Curve theory, which posits that in the long run, inflation expectations adjust, and the economy returns to its natural rate of unemployment.

23.7.2 Okun's Law

Okun's Law, formulated by economist Arthur Okun in the early 1960s, is a statistical relationship between unemployment and economic output (GDP). It provides an empirical observation that when unemployment falls, output (GDP) tends to rise. In essence, it expresses the impact of changes in unemployment on the economy's production capacity.

Key Assumptions of Okun's Law

- **Inverse Relationship:** Okun's Law suggests that for every 1% increase in unemployment above the natural rate, a country's GDP will be roughly an additional 2% lower than its potential GDP.
- **Economic Output and Unemployment:** The law shows how fluctuations in unemployment can affect the economy's total output, helping policymakers understand the broader implications of unemployment on economic performance.

The basic form of Okun's Law can be written as:

$$\Delta Y = -c \cdot (\Delta U)$$

Where:

ΔY is the change in real GDP

ΔU is the change in the unemployment rate

c is the coefficient representing the impact of changes in unemployment on GDP (typically around 2)

This equation shows that a 1% increase in the unemployment rate will lead to a 2% decrease in GDP.

Okun's Law in the Context of Inflation

In the context of inflation and economic growth, Okun's Law highlights that high unemployment leads to lower output, which could potentially reduce inflationary pressures. Conversely, when unemployment falls, output increases, which may increase inflation as the economy reaches full capacity. This interlinkage between unemployment, output, and inflation is vital for understanding economic cycles.

23.7.3 The Fischer Equation

The Fischer Equation is a fundamental equation in monetary economics that describes the relationship between nominal interest rates, real interest rates, and inflation. It is central to understanding how inflation expectations affect interest rates and, consequently, investment decisions. Central banks often use this equation to manage inflation and set interest rates that stabilize inflation expectations.

Key Assumptions of the Fischer Equation

- **Nominal vs Real Rates:** The equation distinguishes between nominal interest rates (the rate observed in the market) and real interest rates (the rate adjusted for inflation).
- **Inflation Expectations:** The equation incorporates the role of expected inflation in determining the nominal interest rate. A rise in expected inflation leads to higher nominal interest rates, as lenders demand compensation for the anticipated loss of purchasing power.

Fischer Equation

The Fischer Equation is expressed as:

$$1+i = (1+r) \cdot (1+\pi)$$

Where:

i is the nominal interest rate

r is the real interest rate

π is the expected inflation rate

This equation suggests that the nominal interest rate adjusts based on the expected inflation rate and the real rate of interest. If inflation expectations rise, nominal interest

rates must increase to maintain the real interest rate, thereby affecting consumption, investment, and economic growth.

Implications of the Fischer Equation for Inflation Control

The Fischer Equation has significant implications for monetary policy. Central banks must carefully manage inflation expectations because an increase in expected inflation can lead to higher nominal interest rates, which may reduce investment and slow economic growth. Central banks use tools like interest rate targeting and inflation targeting to influence expectations and maintain stability in both inflation and growth.

23.7.4 Vector Autoregression (VAR) Models

Vector Autoregression (VAR) models are statistical models used to capture the relationship between multiple time-series variables, allowing for the examination of dynamic interactions between variables such as inflation, economic growth, unemployment, and interest rates. VAR models are widely used in empirical analysis to examine the effects of policy changes, external shocks, and other economic factors on inflation and growth.

Key Features of VAR Models

- **Multivariate Analysis:** VAR models allow economists to analyze multiple variables simultaneously, making them ideal for studying complex relationships like those between inflation and economic growth.
- **Lag Structure:** The VAR model incorporates lagged values of the variables to capture the dynamic nature of the relationships. For example, changes in interest rates today may affect inflation and output tomorrow.

VAR Model Structure

A simple VAR model with two variables, inflation (π_t) and output (Y_t), can be written as:

$$\pi_t = \alpha_0 + \alpha_1 \pi_{t-1} + \alpha_2 Y_{t-1} + \epsilon_t$$

$$Y_t = \beta_0 + \beta_1 \pi_{t-1} + \beta_2 Y_{t-1} + v_t$$

Where:

π_t is inflation at time t

Y_t is output (GDP) at time t

$\alpha_0, \alpha_1, \alpha_2, \beta_0, \beta_1, \beta_2$ are parameters to be estimated

ϵ_t and v_t are error terms

In this system of equations, inflation at time t depends on lagged inflation (π_{t-1}) and lagged output (Y_{t-1}), while output at time t depends on lagged inflation and lagged output. These equations allow for the study of the dynamic effects of inflation on output and vice versa.

Implications of VAR for Inflation and Growth

By using VAR models, economists can investigate how shocks to one variable (e.g., an increase in inflation) propagate through the economy and affect other variables over time. For instance, an increase in inflation may lead to higher nominal interest rates, which could reduce investment and slow down economic growth. Alternatively, lower inflation might encourage investment and promote economic expansion.

Impulse Response Function (IRF) and Variance Decomposition are commonly used tools within the VAR framework to analyze the dynamic responses of variables to economic shocks.

- **Impulse Response Function (IRF):** The IRF shows how a variable responds over time to a shock in another variable. For example, it can be used to analyze how inflation responds to a shock in output.

$$IRF(\pi_t) = \sum_{i=0}^{\infty} \alpha_i \cdot Y_{t-i}$$

- **Variance Decomposition:** This technique decomposes the variance of a variable's forecast error into the contributions from various shocks. It helps in understanding the relative importance of different variables in explaining inflation or output.

VAR Applications in Inflation and Growth Analysis

VAR models are particularly useful for policymakers to forecast the effects of different monetary and fiscal policy decisions on inflation and economic growth. By using

historical data, economists can simulate how different policy interventions, such as interest rate changes or fiscal stimulus, would impact inflation and growth over time.

The models discussed in this section, Phillips Curve, Okun's Law, Fischer Equation, and Vector Autoregression (VAR) Models, each offer unique insights into the relationship between inflation and economic growth. The Phillips Curve emphasizes the short-term trade-off between inflation and unemployment, while Okun's Law focuses on the impact of unemployment on output. The Fischer Equation provides a framework for understanding the relationship between nominal interest rates and inflation expectations, and VAR models allow for a comprehensive analysis of dynamic interactions between inflation, output, and other economic variables.

Each of these empirical models plays a crucial role in helping economists, policymakers, and central banks understand the complexities of inflation and growth dynamics. They provide tools to analyze the effects of inflation on economic performance and to design policies that can manage inflation while fostering stable, long-term growth. By integrating these models into policy frameworks, governments and central banks can better navigate the challenges posed by inflation and create environments conducive to sustained economic development.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

1. What is the relationship between inflation and investment according to inflationary uncertainty?
2. How does inflation affect real wages and labor productivity?
3. What role does inflation play in international trade and competitiveness?
4. How does inflation influence interest rates and investment in an economy?
5. What are the main tools used in monetary policy to control inflation?
6. How can fiscal policy help control inflation and promote economic growth?
7. What is inflation targeting and how does it help stabilize an economy?

8. How does the Phillips Curve illustrate the trade-off between inflation and unemployment in the short run?
9. What does Okun's Law tell us about the relationship between unemployment and economic output?
10. How does the Fischer Equation relate inflation to nominal and real interest rates?

27.8 Glossary

- **Inflation:** The rate at which the general level of prices for goods and services rises, eroding purchasing power.
- **Monetary Policy:** The process by which a central bank controls the money supply and interest rates to stabilize the economy.
- **Fiscal Policy:** Government spending and tax policies aimed at influencing economic activity, particularly inflation and growth.
- **Phillips Curve:** A model illustrating the inverse relationship between inflation and unemployment in the short run.
- **Okun's Law:** A statistical relationship suggesting that a 1% increase in unemployment corresponds to a 2% decrease in economic output.
- **Fischer Equation:** A formula that expresses the relationship between nominal interest rates, real interest rates, and expected inflation.
- **Inflation Targeting:** A monetary policy strategy where a central bank sets a specific inflation rate as its primary goal.
- **Natural Rate of Unemployment:** The level of unemployment consistent with stable inflation, not influenced by short-term demand fluctuations.

27.9 Let's Sum Up

- **Inflation and Economic Growth:** Inflation can have both positive and negative effects on growth depending on its level and volatility.
- **Monetary Policy's Role:** Central banks use interest rates and money supply controls

to manage inflation and stabilize the economy.

- **Fiscal Policy and Inflation:** Government spending and taxation decisions can influence inflation and aggregate demand, supporting economic growth.
- **Inflation Targeting:** Setting a target for inflation helps central banks control inflation expectations and stabilize the economy.
- **Phillips Curve:** In the short run, there is a trade-off between inflation and unemployment, but in the long run, inflation has no effect on the natural rate of unemployment.
- **Okun's Law:** The relationship between unemployment and output shows that higher unemployment leads to lower economic output.
- **Fischer Equation:** The equation illustrates how nominal interest rates adjust based on inflation expectations, affecting investment decisions.
- **Long-Run Stability:** In the long run, inflation and unemployment are independent, and the economy gravitates towards the natural rate of unemployment.

27.10 Suggested Readings

- "Inflation Targeting: Lessons from the International Experience", Ben S. Bernanke, Thomas Laubach, Frederic S. Mishkin, and Adam S. Posen, 1999
- "The General Theory of Employment, Interest, and Money", John Maynard Keynes, 1936
- "Monetary Policy, Inflation, and the Business Cycle", Jordi Gali, 2008
- "Principles of Economics", Gregory Mankiw, 2017 (8th Edition)
- "Macroeconomics", Olivier Blanchard, 2017 (6th Edition)
- "The Economics of Inflation", Costantino Bresciani-Turroni, 1937
- "The Economics of Money, Banking, and Financial Markets", Frederic S. Mishkin, 2018 (11th Edition)

27.11 Hints to Check Your Progress

CYP-I

1. What is the Classical view on the relationship between inflation and economic growth?
Refer to Section 23.3.1 for insights into the Classical perspective, which assumes inflation does not affect long-term growth.
2. How does the Keynesian perspective explain the effects of inflation on economic growth?
Explore Section 23.3.2 for an explanation of how moderate inflation can stimulate growth in the short term but harm it if persistent.
3. In the Monetarist view, what is the primary cause of inflation?
Check Section 23.3.3 for the Monetarist view, which attributes inflation to excessive growth in the money supply.
4. What is the main argument of the Structuralist view on inflation and economic growth in developing countries?
Refer to Section 23.3.4 for a discussion on how inflation in developing economies is driven by structural factors.
5. How does moderate inflation impact economic growth in developed economies according to empirical evidence?
See Section 23.4.1 for findings on how moderate inflation supports growth in developed economies through demand and investment.
6. What role does the central bank play in controlling inflation and fostering growth in developed economies?
Check Section 23.6.1 to understand the central bank's role in controlling inflation via monetary policy.
7. How did hyperinflation affect economic growth in Zimbabwe in the 2000s?
Refer to Section 23.4.3 for a case study of Zimbabwe's hyperinflation and its economic consequences.
8. What do cross-country studies suggest about the relationship between inflation and growth in developing economies?
See Section 23.4.4 for cross-country studies that show how inflation affects growth in

developing countries, with emphasis on structural imbalances.

CYP-II

1. What is inflationary uncertainty, and how does it affect investment?
Review Section 23.5.1 for insights on how inflation uncertainty hinders business investment.
2. How does inflation affect real wages and labor productivity?
Refer to Section 23.5.2 to understand how inflation erodes real wages and its impact on productivity.
3. What is the relationship between inflation and international competitiveness?
Check Section 23.5.3 to explore how inflation affects a country's competitiveness through exchange rates and trade balances.
4. How do interest rates and inflation interact to affect investment?
Review Section 23.5.4 for a detailed explanation of how rising inflation leads to higher interest rates, thereby reducing investment.
5. What is the role of monetary policy in controlling inflation and supporting economic growth?
See Section 23.6.1 for the role of central banks in managing inflation and fostering growth through monetary policy.
6. How does fiscal policy influence inflation and economic growth?
Explore Section 23.6.2 for insights on how government spending and taxation policies can impact inflation and growth.
7. What is inflation targeting, and how does it stabilize the economy?
Refer to Section 23.6.3 for an explanation of inflation targeting as a strategy to control inflation and stabilize the economy.
8. How do empirical models like the Phillips Curve and Okun's Law help in analyzing inflation and growth?
Check Section 23.7 for detailed explanations of these empirical models and their role in analyzing inflation and economic growth.

27.12 Examination-Oriented Questions

1. Explain the relationship between inflation and economic growth according to the Classical, Keynesian, Monetarist, and Structuralist views. How do these theories differ in their interpretation of inflation's impact on growth?
 - Start with definitions of the four economic views (Classical, Keynesian, Monetarist, Structuralist).
 - Compare their theories: Discuss how each theory explains inflation and growth.
 - Classical: No long-run trade-off between inflation and growth (natural rate of unemployment).
 - Keynesian: Short-run trade-off, where moderate inflation can stimulate growth through aggregate demand.
 - Monetarist: Inflation is a result of excessive money supply and harms long-term growth.
 - Structuralist: Focuses on inflation in developing economies caused by structural imbalances.
 - Conclusion: Summarize how each view contributes to our understanding of inflation's role in the economy.
2. Discuss the mechanism through which inflationary uncertainty affects investment decisions in an economy.
 - Define inflationary uncertainty and its key implications.
 - Explain the mechanism: Discuss how inflation uncertainty leads to higher interest rates and reduces investment due to increased risk.
 - Include practical examples where businesses delay or cancel investment plans during uncertain inflation periods.
 - Conclude with how maintaining price stability helps foster a more predictable investment climate.

3. Analyze the role of fiscal policy in controlling inflation and supporting economic growth. How can a government use fiscal policy tools to achieve these objectives?
 - Define fiscal policy and its objectives (controlling inflation and stimulating growth).
 - Discuss fiscal tools: Government spending (expansionary/contractionary), taxation (tax cuts/increases).
 - Explain the trade-offs: How expansionary fiscal policy may increase inflation, while contractionary policy can reduce it but slow growth.
 - Provide examples of countries using fiscal policy effectively to control inflation and spur growth.
 - Conclusion: Highlight the importance of balanced fiscal policies for sustainable economic development.
4. What is the Phillips Curve, and how does it represent the trade-off between inflation and unemployment in the short run and the long run?
 - Define the Phillips Curve and its original form.
 - Short-run trade-off: Explain the inverse relationship between inflation and unemployment in the short run, with reference to the original model.
 - Long-run Phillips Curve: Discuss how, in the long run, the Phillips Curve is vertical, meaning inflation doesn't affect the natural rate of unemployment.
 - Provide historical context: How did expectations-augmented Phillips Curve change the original model?
 - Conclude: Emphasize the importance of expectations and natural unemployment in shaping the Phillips Curve's applicability.
5. Evaluate the effectiveness of inflation targeting as a monetary policy strategy. What are the strengths and weaknesses of this approach?
 - Define inflation targeting: Describe its purpose of keeping inflation within a set range.

- Strengths: Discuss how it enhances credibility, anchors inflation expectations, and stabilizes the economy.
- Weaknesses: Mention the challenges, such as its limited flexibility in responding to supply shocks and external factors.
- Real-world examples: Provide examples of countries (e.g., New Zealand, the UK) that have successfully implemented inflation targeting.
- Conclusion: Summarize the overall effectiveness of inflation targeting in achieving long-term price stability and economic growth.

**THE ROLE OF MNC's IN DEVELOPING COUNTRIES & AID
VERSUS TRADE**

STRUCTURE

24.0 Objectives

24.1 Learning Outcomes

24.2 Introduction

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24.5.2 Types of Foreign Aid:

24.5.3 Forms of Foreign Aid:

24.5.4 Which Is Better of the Two?

24.5.5 Why Developed Countries Give Aid

24.5.6 Aid or Trade

24.6 Importance/Advantages/Contribution/Significance/Role of Foreign Capital and Aid in the Economic Development of Underdeveloped Or Developing Countries

24.7 Danger/Disadvantages/Drawbacks/Shortcomings of Foreign Capital and Foreign Aid

24. Lets Sum-up

24.9 Glossary

24.10 Further Readings

24.11 Hints to Check Your Progress

24.12 Self- Assessment Questions

24.0 OBJECTIVES

After going through this lesson, the students should be able to:

- Learn about the Meaning of Foreign Aid
- understand the types of Foreign Aid
- describe the Role of foreign capital and aid in economic development.
- Learn about the aid or trade in the economic development

24.1 Learning Outcomes

After studying this lesson, students will be able to:

1. Understand the meaning and characteristics of MNCs.
2. Explain the role of MNCs in transferring technology to developing countries.
3. Evaluate the benefits and drawbacks of MNC operations in countries like India.
4. Understand the concept, types, and forms of foreign aid.
5. Compare the roles of aid and trade in the economic development of underdeveloped nations.
6. Analyze the importance of foreign capital and its implications for economic development.

24.2 INTRODUCTION

A multinational corporation or MNC is a company or enterprises, or firm with its headquarters in a developed country like U.K, USA, Germany, France, Japan etc. and operates in developed, developing and underdeveloped countries. They are also known as Transnational Corporation (TNC's).

24.3 ROLE OF MNCs IN DEVELOPING COUNTRIES

24.3.1 MNC's INSTRUMENT IN TRANSFER OF TECHNOLOGY

The main instruments of the transfer of technology from developed to the developing countries are the multinational corporations (MNCs). MNCs are huge industrial organizations which extend their industrial and marketing operations in a number of countries through a network of their branches or subsidiaries. They bring with them technical knowledge and equipments, they participate in the industrial development programmes of the developing countries by licensing, patent and know-how agreements. MNCs organise their operations in different countries through any of the following five alternatives : (i) Branches, (ii) Subsidiary countries, (iii) Joint venture countries, (iv) Franchise holders, and (v) Turn-key projects.

- (i) **Branches.** The simplest form of extending business operations is to set up branches in the developing countries. Such branches bring with them the technology of the parent company and are linked up with it.
- (ii) **Subsidiaries.** MNCs also operate by setting up national affiliates as subsidiary countries. A subsidiary in a particular country is established under the laws of the country. Such subsidiary companies take advantage of the financial, managerial and technical skills of the holding company and also benefit by the international reputation that latter enjoys.
- (iii) **Joint Venture Company.** MNCs enter into a joint venture with an indigenous firm or agency. Under this arrangement the MNC makes available machinery, capital goods and technological expertise to the indigenous firm. This form of organisation is adopted in those countries where the law requires control by local nationals.
- (iv) **Franchise Holders.** This is a special kind of arrangement by which an affiliate firm produces or markets the product of a multinational firm after obtaining a licence from that firm. A formal contract is made between the affiliate firm and the multinational firm which specifically mentions the rights that are transferred to the affiliate firm and lays down the compensation (usually in the form of royalties) that it has to pay to the parent firm.
- (v) **Turn-Key Projects.** Under this organizational form, the multinational undertakes to complete the project from scratch to the operational stage. When the project is ready it is handed over to the host country. Generally underdeveloped countries invite tenders for construction of certain projects requiring high technical skill. With their huge resources and managerial and technical expertise the MNCs are most suited to carry out this job.

24.3.2 BASIC CHARACTERISTICS OF TECHNOLOGY TRANSFER

- I. The first basic characteristics of technology transfer are MNCs which either through their subsidiaries or through the contractual transactions made with developing countries bring mechanised processes and equipments not locally available. Very often the terms and conditions are arbitrarily settled under highly imperfect market conditions by the technology supplying MNCs. The monopolistic strength of the technology suppliers emanates from the patents protection for differentiated products and processes, the integration of market for technology with the monopolistic market for technology embodying inputs and the weak bargaining power of buyers who have neither access to information about alternative technologies and their sources nor the necessary infrastructure to evaluate the appropriateness of equipments, intermediates and process.
- II. The second basic characteristic of technology transfer is that the large part of the influx of technology in developing countries is in response to the policy of industrialization through import substitution. In developing countries, due to structural factors and their consequential effects on terms of trade much reliance cannot be placed on exports to transform savings into current investment goods. Thus a deliberate strategy of creating a tariff wall to overcome the foreign exchange difficulties has to be followed, and this provides an incentive to MNCs to move to developing countries with their unaltered plants and technical know-how to manufacture import restricted goods for sale in local elite markets. Whatever be the advantages of this transfer to MNCs, its disadvantages to the recipient countries are quite obvious.

24.3.3 SUITABILITY OF FOREIGN TECHNIQUES

The problem of technological change in UDC cannot be solved by the transfer of modern technology from advanced countries to poor countries. The technology available in the developing countries is not suitable for the circumstances prevailing in UDC. Hence many changes are to be made in this direction. Labour saving advances in technology cannot be useful to these countries. The underdeveloped countries have an advantage of importing developed techniques from advanced countries, but this has created several problems for them. The use of advanced technology requires highly trained manpower with the scientific skill and understanding which is generally lacking in these countries. Hence the underdeveloped countries cannot be much benefited by the advanced technology. There are instances of production equipment which is well suited to the needs of industrialized countries but whose performance fails to measure up to expectations in the industrial environment of underdeveloped countries.

The underdeveloped countries should not try to put themselves on the technological level of industrially advanced countries, The technology which was suited to present day developed countries for some years than a technology century ago would be suitable for underdeveloped countries for today.

Foreign technology is not only unsuitable to circumstances prevailing in underdeveloped countries but is also a waste. The high initial investment required to introduce the highly sophisticated technique causes a severe strain on the financial resources of these countries. Another waste-age involved in the use of advanced technology is that the effective life of the imported expensive equipment in underdeveloped is likely to be much shorter due to the inexperience in handling the equipment, lack of technical skill and lack of proper maintenance. Thus it can be concluded that the mere transfer of modern technology from advanced countries to backward ones cannot solve the problems of development. The problem is not that of transplanting technology available in industrially advanced countries but appropriate technology. It should be evolved by scientists, technologists of developing countries. The efforts should be made on researches and development of technology within these countries during the subsequent periods of stages. Thus it is imperative that these countries should undertake fresh researches in fields in which developed countries are not interested.

24.3.4 PROBLEM OF TECHNOLOGY IN UNDERDEVELOPED COUNTRIES

Technological change in underdeveloped countries is a difficult task. It needs special effort on the part of people and the government. The most difficult task in underdeveloped countries is to raise technological level in order to keep pace with the requirements of the development programme. It becomes difficult for the people of underdeveloped countries to adopt new techniques and to bring change in the aptitudes of the people. Prof. Nurkse observes that, it is much easier to adopt superior consumption habits than improved production methods. The problem of technological change in UDC is not merely a problem of transfer of modern technology from advanced countries to these countries but it also involves the evolution of suitable techniques in under developed countries and the adaptation of imported technology to local conditions. However, transfer of technology poses a serious problems in underdeveloped countries in comparison to advanced countries. A few of them has been listed below

- (1) The foremost difficulty is that there is lack of proper social environment in these countries. People are not enthusiastic to adopt new techniques and they are in a habit to continue with the old and primitive system.

- (2) These countries have divergent conditions like social structure economic environment, political awakening, education system etc. which call for different methods of transfer of technology.
- (3) UDC's are inadequate in skilled human resources who fail to make use of modern sophisticated imported technology.
- (4) Modern imported technology is a costly affair while scarcity of capital is the greatest limiting factor. Moreover there is a problem of technological adjustments with a view to cater to the local needs.
- (5) UDC's have dearth of infrastructures like power, energy etc.
- (6) In the initial stages of economic development, underdeveloped countries face the limitations on demand and supply side. For instance these countries have to depend upto the service of foreign experts who have their own limitations. Similarly, shortage of foreign exchange creates biggest constraint in path of technological transformation.
- (7) For transfer of technology there is a great need of enlightened entrepreneurship and managerial skill but these countries have shortage of these pre-requisites, thus, a big hurdle in the path of transformation.
- (8) Underdeveloped countries have also the problem of intermediate technology. In other words the problem of choice of technique.
- (9) Modern technology is extremely capital intensive which is not suitable for abundant labour and capital for poor underdeveloped countries.
- (10) There is an absence of honest efficient administrative machinery. In other words inefficient planning and wasteful competition was greatly discouraged the transfer of technology.

24.3.5 MEASURES TO ACCELERATE TRANSFER OF TECHNOLOGY

To accelerate the process of transfer of technology in developing countries, suggestions are made as under

1. The successful transfer of technology needs an adoption of liberal trade policy towards manufacturing projects in order to increase latest import capacity.
2. Policy of protection and import substitution may be better for the efficiency of production and quality of goods.
3. Developing countries should design their industrial licensing policy in such away so that it may not hamper transfer of technology.

4. Large international agencies like IMF, World Bank, ITO, IFC, Asia Development Bank, should come forward and encourage foreign technology which is most suitable to these countries.
5. In order to encourage transfer of technology concrete steps should be taken to impart education and training. Moreover there must be special advisory and extension service with a view to promote the use of latest technology in small scale industries.
6. Multinational and international firms have a special role in the dissemination of advanced technology. They should design technology based on indigenous materials.
7. For transfer of technology selected personnel should be sent to advanced countries to learn the technology. Special entrepreneurial class should be created for this purpose.

24.4 MNC's ACTIVITY IN DEVELOPING COUNTRIES

Meaning. The MNCs may be known as a group of companies, operating simultaneously in different countries under the effective control of the corporation. They are huge industrial organisations which extend their industrial and marketing operations through a net work of their branches. Instead of aiming for maximization of their profit from one or two products, the MNCs operate in a number of fields and from this point of view, their business strategy extends over a number of countries.

Definitions

According to International Labour Organization ILO, “the essential of the MNC lies in the fact that its managerial headquarters are located in one country, while the enterprise carries out operations in a number of the other countries.”

According to the Foreign Exchange Regulation Act, 1973 (FERA) of India, “A corporation incorporated in a foreign country or territory shall be deemed to be multinational corporation if such corporation: (a) is a subsidiary or a branch or has place of business in two or more countries or territories, (b) carries on business or otherwise operations in two or more countries or territories.”

24.4.1 CHARACTERISTICS OR FEATURES OF MNCs

- I. Giant in Size.** They are giant in size. Their assets and sales run into billions of dollars and they make supernormal profits.

II. International operations. MNCs operate all over the world. The cooperation has a group of subsidiary companies with their branch network operating in various countries under its effective control and supervision.

III. Oligopolistic structure. They have the oligopolistic structure (few sellers) coupled with their giant size.

IV. Spontaneous Evolution. MNCs usually grow in a spontaneous and unconscious manner.

V. Collective Transfer of resources. An MNC facilitates a multilateral transfer of resources. Usually this transfer takes place in the form of a 'package' which includes technical know-how, equipments and machinery, raw materials, finished product, managerial services and so on.

VI. Multi-National Stock Ownership. The various countries have their share in the total capital of the corporation. The profit of the corporation is also dividend among the countries in proportion of their share capital.

VII. Multi-national Management. They have multi-national management.

VIII. Parent Company. A large part of capital assets of the parent company is owned by the citizens of the company's home country. The absolute majority of the members of the Board of Directors are citizens of the home country. Decisions on new investment and the local objectives are taken by the parent company.

24.4.2 ROLE OF MULTINATIONAL CORPORATIONS IN INDIA

Prior to liberal industrial policy of 1991, Govt.'s prior approval was necessary in respect of all types of foreign investments but Industrial policy 1991 had made the rules and regulations concerning MNCs very liberal. Share capital of MNCs is 51% after 1991 but before 1991 it was 40%. Since 1991, Govt. of India has sanctioned nearly 20,000 foreign collaborations with MNCs. Out of these projects, 60% are related to power, refineries, electrical equipment, chemical industries etc.

The MNCs have a revolutionary effect on the international economic system.

The role of MNCs may be discussed below with special reference to India

I. Transmission of Technology. India is a technologically backward country and has insufficient resources to carry on research and development. From this point of view MNCs have offered a great boon. They have served as agents for the transfer of superior technology. They have provided advanced technological know-how, sophisticated manufacturing processes and improved skills to India.

II. Rapid Industrialization. The people in India have low per- capita income and low level of savings. The MNCs in India present an environment for the rapid industrialization through.

- (i) filling up the gap between the domestic savings and investments
- (ii) supplying the required foreign capital and
- (iii) transferring latest techniques of production.

III. Wide International market and Export promotion. The MNCs produce commodities and services in a huge quantity and of a super quality and very soon capture not only the domestic markets but also the international markets. It naturally increases the exports of the countries where they are established. In India, exports have increased with the help of MNCs.

IV. Large-scale employment. The MNCs also help in creating large- scale employment opportunities by setting up their branches and subsidiaries in the host countries. In this respect, MNCs have largely helped the countries like ours in solving the problem of unemployment.

V. Exploitation of Domestic resources. The latest technology and modern methods of research and management of the MNCs have enabled developing countries like India to exploit and utilize domestic resources fully.

VI. Helpful in Breaking the ‘debt trap’. The developing countries like India are already under the heavy burden of debt services. Further borrowing on their part may only push them into what is called ‘debt trap’. Private investment by MNCs will help necessarily in earning foreign exchange resources without adding anything to the debt servicing burden.

VII. Foreign Capital. The MNCs have helped the developing countries to secure the foreign capital from the developed countries. Thus, they transfer the capital from the countries where it is abundant to countries where it is scarce.

VIII. Linkage Network. The LDCs do not have a sufficient degree of linkage with industrial activities of advanced countries. MNCs through their vast international network or production, marketing and finance, produce linkage effect between parent country and in the countries where they are operating their activities. They promote international trade. They also help in the creation of “linked industries”, Such linkages may be either forward or backward.

IX. HRD in Developing Countries. The MNCs help to build up “knowledge base” and thus serve the development of human resources. They serve as carriers of knowledge, expertise, training of Indian personnel, education and research.

X. National firms learn from MNCs. The MNCs enjoy marketing, organizational financial and technological superiorities over the national firms. The national firms learn from these giant organisations the system of updating the market information system and advertising and sales promotion techniques. In addition to this they also learn the type of technology to be used to

face international competition in the production processes. The domestic firms cannot make success unless they come up to the international standards and quality specifications.

24.4.3 CASE AGAINST MNCs OR DISADVANTAGES

The MNCs are proved to be a powerful instrument of rapid economic growth in the LDCs, though they have been criticized widely in these countries on several grounds which are

I. Drain of Resources. The basic objective of a MNC is profit maximization of host country's resources.

II. Strain of Scarce Foreign Exchange Reserves. In the beginning, the recipient country gets the foreign investments through the MNCs but later on, the country has to repay this amount to the foreign currency in the form of dividends, profits, royalties, interest, technical fees etc. which may sometimes create a big crisis in these countries.

III. Absolute transfer of technology. It has been observed that the MNCs generally do not transfer their advanced technology to the host countries. Technology supplied by MNCs to LDCs is capital intensive which may not suit the real need of these labour surplus countries, like India. The charges of technology dumping are also levelled against MNCs as they bring in their own obsolete technology in LDCs.

IV. Insignificant Employment Potential. The MNCs tend to concentrate more on the technology intensive branches of manufacturing. The sectors in which they invest create relatively few jobs and thus fail to help to eradicate unemployment and poverty, two chronic problems of LDCs. Moreover they are not very enthusiastic in employing local nationals on high cadre of technical and managerial posts.

V. Interference in State's Sovereignty. The MNCs through their working intervene in the sovereignty of a nation. In fact, they are the means of expansion of western colonial capitalism in the LDCs. The rapid growth of MNCs in the developing countries may endanger the political and economic freedom of their nations. They may also play their power game in getting a political party of their own choice elected to the govt. and display a dominating role in influencing and moulding economic policies of these countries in their own interests.

VI. Influence on Culture. MNCs bring their cultural norms and attitudes in the host country and may cause destruction of its original culture in various ways.

VII. High Profit Orientation. MNCs minimize their overall costs of production through economies of scale. They take advantage of national and international market imperfections to maximize their profits. They with their huge capital and modern technology base and wide

network can beat local understandings in the open market competitions and hence, can create, monopoly in the domestic market and eliminate local competitors.

VIII. Exploitation of Poor Consumers. The poor customers of the developing countries are largely exploited by the MNCs as they are charging a very high cost. No doubt the quality of products is always superior than the local products. They suppress domestic entrepreneurship and through extension of oligopolistic practices can harm the host country.

IX. Brain Drainage. They are also accused of cheating “brain drainage” in the LDCs.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What are MNCs and how do they operate in developing countries?

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Q2. List three instruments through which MNCs transfer technology.

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Q3. State two major problems of technology transfer in underdeveloped countries.

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Q4. Mention two measures to accelerate technology transfer in developing countries.

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24.5 ROLE OF AID VERSUS TRADE IN DEVELOPING COUNTRIES

24.5.1 MEANING OF FOREIGN AID

Foreign aid means financial assistance provided by the developed countries and international financial institutions like the world bank, International Development Association (IDA), International Finance Corporation (IFC), International Monetary Fund (IMF) etc. the regional financial institutions, such as, the Asian Development Bank, the African Development Bank, Inter American Development etc. the multinational agencies, such as, Aid India Club. The main feature of foreign aid is that in most of the cases it is not to be returned to the lender country. Foreign aid flows in the form of assistance, outright grants and concessional loans to the underdeveloped and developing countries. Outright grants do not have any obligation, to repay and therefore, have no problems attached to them. On the other hand loans or concessional loans have to be repaid along with interest. In case of any violation at any stage, it can be stopped at any time by the aid giving country.

Definition of Foreign Aid

Foreign Aid occurs when the recipient country receives additional resources in foreign currency over and above the capacity to import generated by exports. In simple words, foreign aid means those additional resources which are used to raise the performance of the recipient country above the existing level. It can be defined as the debt which is given by a country to another country on the concessional rates. The concessional elements may be:

- (a) Lower rates of interest than the prevailing rate of interest in the international commercial money market.
- (b) Longer period for repayments.
- (c) Grants which does not entail the payment of other principal or interest, i.e., a free gift.

A country which gives loan is called donor and the country which receives the loan is called recipient country.

24.5.2 TYPES OF FOREIGN AID:

There are two types of foreign aid, according to their source:

(a) Bilateral Aid: Bilateral aid is the aid which is given from the government of the donor country to the recipient country. It depends upon political and economic relationships of various countries and it also depends on the will of donor country.

(b) Multilateral Aid: Multilateral aid is the aid given by certain financial institutions, agencies or organisations to the government of developing country. It is distributed in a fair manner in order to raise the pace of economic development. So it is better than bilateral aid which is given on the basis of political considerations and the fear of the domination of a donor country is also removed in the case of multilateral aid which may be helpful in raising the pace of economic development.

24.5.3 FORMS OF FOREIGN AID:

Following are the forms of foreign aid:

(a) Financial Aid: The simplest form of capital inflow is the provision of convertible foreign exchange, but very little foreign capital indeed comes to the underdeveloped world so conveniently. Financial aid is further divided into various sub-forms, i.e.:

(i) Tied Aid: Tied aid is of two types:

Nation Tied Aid: is given to the recipient country on the condition that she will spend it in the donor country to solve the BOP problems of that country and to stimulate exports, i.e., if Pakistan is given aid by US and is asked to import raw materials or machinery from US only then it is 'nation tied aid' or 'resource tied aid'.

Project Tied Aid: is given only for specific projects and the recipient country cannot shift it to other projects.

(ii) Untied Aid: Untied aid is the aid which is not tied to any project or nation. It is, in all respects, better than the tied aid because it offers more efficient use of foreign resources. It is much desired because in the case of untied aid the recipient country is not bound to spend the foreign resources on specific projects or in the donor country which may charge higher prices than international market.

(iii) Grants: A grant is that form of foreign aid which does not entail either the payment of principal or interest. It is a free gift from one government to another or from an institution to a government. It is much desired because it increases the internal expenditures and generates income. It is given on the basis of humanitarianism, especially in days of emergencies, earthquakes, floods, wars, etc.

(iv) Loans: It is the borrowing of foreign exchange by the poor country from the rich country to finance short-term or long-term projects. They are further sub-divided into two types:

Hard Loans: Hard loans are also called short-term loans. In order to finance industrial imports they are given usually for a period less than five years, and they are paid in the currency borrowed. It contains no concessional element but interest rate is usually lower than the prevailing rate of interest in the international market.

Soft Loans: Soft loans are also known as long-term loans. Soft loans are made for 10-20 years and it is repaid in the currency of recipient country. Interest on these loans is lesser than hard loans and often these loans involve grace period. Concessional elements are comparatively greater.

(b) Commodity Aid: Commodity aid, in fact, is another type of tied aid, which relates to agriculture products, raw materials and consumer goods. Under commodity aid, the donor country has much political influence on the recipient country, for example, in 1960s, US gave wheat to Pakistan under PL-480 and had much influence on the development policy of Pakistan. Commodity aid may be received in cash form or in the form of food grains:

(i) In Cash Form: If it is received in cash form it may be more helpful because then a country may buy more commodities from cheaper sources.

(ii) In Food Grain Form: It is a special type of commodity aid, which is given in the form of food grains only, for example, US gives food grains to the poor country under Public Law (PL-480) and funds obtained from it are used on American companies and agencies operating in the recipient countries. The rest of the aid is granted.

(c) Food Aid: There is more than enough food produced each year to feed adequately everyone on earth. However, food is so unevenly distributed that malnutrition and hunger exist in the same country or region where food is abundant.

During 1960s, the United States sold a sizable fraction of its agricultural exports under a concessional Public Law 480, where LDC recipients could pay for the exports in inconvertible currency over a long period. During late 1970s, about three-quarters of the food aid went to low-income countries. It was about one-third of their cereal imports. Projections indicate that food deficits are likely to increase in the 1980s and 1990s. In the early 1980s, the United States, which provides the bulk of total food aid, reduced its food assistance.

Critics of food aid argue that it increases dependence, promotes waste, does not reach the most needy and dampens local food production. Nevertheless, the food aid has frequently been highly effective. It plays a vital role in saving human lives during famine or crisis, and if

distributed selectively, reduces malnutrition. Unfortunately, poor transport, storage, administrative services, distribution networks and overall economic complex hinder the success of food aid programmes, but the concept itself is not at fault.

(d) Technical Aid: Technical aid is another form of tied aid and is much useful for the recipient country to increase the pace of economic development by using the modern technology or skill in some specific sectors of the economy. Under this aid programme, training facilities are provided by the donor country's government and it bears all the expenditures involved in the training of advisory technocrats. Technical assistance from the donor's point of view takes two main forms:

(i) Through Recruitment: Technical assistance may be given through recruitment. Selected people of recipient country are recruited in the donor country for service overseas, partly, often largely, at the expense of the donor government.

(ii) Through Scholarships & Training Facilities: The second form of technical assistance is scholarship and training facilities in donor country for foreign students (from recipient country).

(e) Foreign Direct Investment (FDI): It is also included in the category of foreign aid. In Pakistan, the examples of FDI are Lever Brothers, Reckitt and Colman, Bata, Philips, etc. It is often argued that FDI should be run under strict control, like licensing, annual auditing, compulsory treatment of foreign capital as domestic capital, etc.

(f) Double Tied Aid: It is also known as 'procurement tied aid'. It is the aid which is tied both for projects as well as for resources.

24.5.4 WHICH IS BETTER OF THE TWO?

From the point of view of recipient country, untied aid is definitely better as compared to the tied aid for the major reasons given below:

- 1) Tied aid restricts the freedom of the recipient country to use aid in the manner it deems fit.
- 2) Tied aid may distort its allocation of investment resources.
- (3) The granting of tied aid for a particular project may be in a large part illusory since the project actually financed by aid may be quite different from the one to which aid is tied.
- 4) Tied aid is usually costly. It has been estimated that the tied aid increases the cost of the project even by more than 30% of the recipient country. Even the cost of the procurement of tied aid is increased.

- 5) Tied aid may limit the choice of technology used in investment projects and may force the recipient country to adopt a highly capital intensive technology which may be inappropriate to a labour supply economy.
- 6) Tied aid may also increase the risk of interference by the donor country in the domestic affairs of the recipient country.

24.5.4 WHY DEVELOPED COUNTRIES GIVE AID

The motives of the developed countries in giving aid to the developing countries are varied. For simplicity's sake, they can be divided into the following three categories (i) humanitarian (ii) economic and (iii) political

Humanitarian. In times of natural calamities or crises (like floods, drought, earthquakes, etc) many developed countries and international organizations come forward to help the developing countries. Such aid is generally provided in terms of food, medicines, clothing, services of doctors and nurses etc. Cash assistance is mostly in the form of grants (carrying no obligation of repayment). However, in terms of its total magnitude, foreign aid made available on humanitarian grounds is only a small part of total aid.

Economic Motivations. An increasing realization is dawning upon a number of developed countries that unless they share their prosperity with the developing countries, strong barriers will emerge in their own path of progress. This is due to the fact that the international market will fail to expand rapidly if the developing countries continue to languish in a state of poverty. Even otherwise, since a large part of the aid is provided in terms of loans and is tied to the purchase of goods from the donor countries, it benefits the latter as their industrial activity gets a boost up. This leads to an expansion of industrial production and employment opportunities in the developing countries. The favourable impact of foreign aid is still greater in those export production lines where it is possible to obtain external economies.

Political Motivations. The most important factor determining the quantum and type of foreign aid is the political interest of the donor country. As we have noted in this section on Flow of Foreign Aid to Development Countries, the most important donor has been the USA. The guiding interest of this superpower after the Second World War has been to contain the international spread of communism. Those developing countries have been given preferential treatment which are friendly to the USA and/or are strategically important. As noted by Todaro, the successive shifts of US policy from South Asia, to South East Asia to Latin America, the middle east, and back to South East Asia during the 1950s and 1960s and then toward Africa and the Persian Gulf

in the late 1970s and the Caribbean and Central America in the 1980s is an indication of the changes in US strategic and political interests than anything else. Similar interests have guided the foreign assistance programmes of other donor countries like the UK, the erstwhile USSR, France etc.

The most common device adopted by the donor countries to protect and further their political interests is the grant of military aid and economic aid. The distinction between these two types of aid is often blurred because military aid, at times, promotes economic activity. For instance, the setting up of an aircraft manufacturing industry in an underdeveloped country can be both a military proposition and a part of the industrialization programme of that country. As noted by Hans Singer and Javed Ansari, the Americans have the concept of military support aid. The purpose of this aid is to strengthen an ally, not only by direct military aid, but also by economic aid which enables him to carry the recurrent cost of the economic burden of a large military establishment than would otherwise be the case. However, there is no doubt that a considerable part of the aid is meant to serve the military purposes of the Americans. Substantial direct military aid in the form of missiles, fighter bombers, tanks, arms and ammunition etc. has been pumped into the sensitive areas of Asia and Africa by the superpowers to serve their own political ends and destabilize the peace and tranquility of the regions. Massive military aid by the USA to Pakistan is a case in point.

24.5.5 AID OR TRADE

An interesting debate with regard to recent decades over the relative virtues of aid and trade. Though both are means of acquiring external resources in the form of foreign exchange, yet there are significant differences between the two. As we have noted earlier on in this chapter, foreign aid is frequently made available in the form of tied aid. Tied aid has a number of disadvantages for the recipient country because it limits its freedom in a number of ways. The choice of projects and the conditions of purchase of goods under the aid programme are determined by the donor country. The type of technology made available under this aid programme may, at times, be unsuitable to the factor endowments of the recipient country. If aid is country tied, it limits the ability of the recipient country to buy goods in the cheapest markets.

As noted by us in this chapter, aid exposes the recipient country to a number of risks. In the non-economic field, the greatest risk is that of the political interference to the donor country in the domestic affairs of the recipient country. In the economic field, the greatest risk is the burden of debt repayment. At times, the burden can soar to such high limits that the entire export earnings of the country can be absorbed merely to pay off the debts. If this happens, the economic growth of the country is likely to suffer a setback as the capacity to import goods essential for economic

development will dry up. In such circumstances massive new loans will have to be obtained. The way out of this crisis is a substantial expansion in the export earnings of the recipient country. This brings us to trade. Thus even if a country starts its planning process by giving more importance to aid, it must eventually turn its attention to trade. In fact, the very aim of the aid receiving country should be to ensure that its utilization results in the creation of export capacity either directly or indirectly. Thus aid should ultimately lead to more trade.

However, the ability of the developing countries to do this will crucially depend on the attitude of the developed countries. The latter should realize that unless they cut down trade barriers on imports from the developing countries like capacity of these countries to repay loans will remain severely restricted. The developing countries have time and again emphasized this point at international forums (particularly UNCTAD) but the developed countries have turned a deaf ear to them. This has put a number of non oil producing developing countries in dire straits and has forced them to seek debt reschedulings. This is, however, only a short run solution as all debts have to be eventually repaid.

In conclusion, we may state that from the point of view of the developing countries, both aid and trade have important roles to play. Aid provides resources to the developing countries to implement programmes of economic development which otherwise would not have been undertaken. It also fills up the foreign exchange gap and technological gap. However, aid must eventually lead to more export earnings for the developing countries else they would not be able to repay their debts. Thus aid must be accompanied by more trade. For this purpose the developed countries will have to change their selfish narrow outlook and pull down their trade barriers to enable the developing countries to expand export earnings. The slogan Aid or Trade is a misnomer. The approach of both, the developed and the developing countries, should be Aid or Trade.

24.6 IMPORTANCE/ADVANTAGES/CONTRIBUTION/SIGNIFICANCE/ ROLE OF FOREIGN CAPITAL AND AID IN THE ECONOMIC DEVELOPMENT OF UNDERDEVELOPED OR DEVELOPING COUNTRIES

Foreign capital and foreign aid play an important role in the economic development of underdeveloped and developing countries.

These countries are characterized as 'capital poor' or 'low saving' and 'low investment' economies. There is not only an extremely small capital stock but the current rate of capital formation too is also quite low. On an average, gross investment is hardly 5 to 10% of the gross national

income in these economies, whereas in developed countries it is about 15 to 20%. According to Todaro, "Foreign capital is typically seen as a way of filling in gaps between the domestically available supplies of savings, foreign exchange government revenue and skills and the planned level of the resources necessary to achieve development targets." The growing need of foreign capital for pinned economic development has now become an important feature of all the underdeveloped and developing countries. Even in developed countries people feel that poverty anywhere is danger to prosperity everywhere and prosperity anywhere must be shared everywhere." It is the moral duty of developed countries to help the poor countries by providing the requisite amount of capital and aid for their rapid economic development and industrialization. The importance of foreign capital and foreign aid in underdeveloped and developing countries arises mainly because of the following reasons:

(1) Filling up Resource Gap. The existing resources of underdeveloped and developing countries are extremely low due to (i) low savings, (ii) low investment and (iii) vicious circle of poverty. Hence a huge amount of capital is needed for their economic development. Since the current rate of domestic savings too is very low, it is not possible to carry on the development programmes with their domestic resources. Hence foreign capital and foreign aid is the only solution available so as to bridge the gap between the low domestic savings and the huge investment required for rapid economic development.

(2) The technological Gap. The underdeveloped countries have a very low level of technology as compared to the developed countries. However, they possess a strong urge for industrialization to develop their economies and to wriggle out of the low level equilibrium trap in which they are caught. This raises the necessity for importing technology from the developed countries. Such 'technology usually comes with foreign capital when it assumes the form of private foreign investment or foreign collaboration. Technique as helps in filling up the technological gap through the following three ways

(a) provision of expert services; (b) training of the personnel of the under developed countries; and (c) helping the establishment of new, or development of exiting, educational, research and training institutions in the country.

(3) Exploitation of Human and Natural Resources. In underdeveloped countries there is excessive pressure of population on land and there exists disguised unemployment on a large scale. To transfer surplus labour from agriculture and to provide them with work, foreign capital is needed to start secondary and tertiary industries. Besides it is also need to reorganize and modernise agriculture. Thus, it is only with the help of external assistance that the

foundation of heavy industry en belaid and 'natural and human resources exploited. The industrialization of the country and the creation of infrastructure increase employment opportunities and solve the problem of unemployment and disguised unemployment.

(4) Development of Basic Economic Infrastructure. It has been observed that the domestic capital of the underdeveloped countries is often too inadequate to build up the economic infrastructure of the country on its own. Thus they require the assistance of foreign capital to undertake this task. In the latter half of the twentieth century, especially during the last three-four decades, international financial institutions and many governments of developed countries have made substantial capital available to the underdeveloped countries to develop their system of transport and communications, roads, generation and distribution of electricity, development of irrigation facilities etc.

(5) To Correct Adverse Balance of Payments. The foreign aid also solves the problem of adverse balance of payments experienced by the underdeveloped countries in the process of their development. It is experienced that an underdeveloped economy has large import requirements like food grains, pulses, oil seeds, capital, raw materials, technical know-how, machines and equipments, but has a tendency of exports of developed countries to be either almost stagnant or declining. The wide gap between exports and imports leads to adverse balance of payments in such economies. The foreign capital can help solve the foreign exchange crisis and can correct the adverse balance of payments of underdeveloped countries through promoting exports of the country on the one hand and controlling imports on the other.

(6) Undertaking the Initial Risk. Many underdeveloped countries suffer from acute scarcity of private entrepreneurs. This creates obstacles in the programmes of industrialization. An argument advanced in favour of foreign capital (in the form of foreign investment) is that it undertakes the 'risk' of investment in the host countries and thus provides the much needed impetus to the process of industrialization. Once the programme of industrialization gets started with the initiative of foreign capital, domestic industrial activity starts picking up as more and more people of the host country enter the industrial fold.

(7) Raises the Level of Standard of Living, Income and Employment. Foreign capital and aid tends to raise the level of national productivity, income and employment which in turn, leads to higher wage for labour, lower prices for consumers and rise in their standard of living with the inflow of foreign capital and foreign aid local labour becomes skilled, its productivity is increased, thereby raising total real wages of workers. Further, when a number of new industries are established with the assistance of imported latest technology, management, modern

machinery and equipments etc. large quantities of new and quality products at cheap rates are available to consumers along with a sharp rise in employment opportunities.

- (8) Miscellaneous.** (i) breaks the vicious circle of poverty, (ii) Expansion of the market on account of (a) increase in production, (b) creation of new demand and (c) higher standard of living. (iii) increase the rate of capital formation. (iv) helps in mobilization of domestic resources. (v) tends to increase productivity and production on account of (a) rise of latest technology (b) skilled labour.

24.7 DANGER/DISADVANTAGES/DRAWBACKS/SHORTCOMINGS OF FOREIGN CAPITAL AND FOREIGN AID

The main dangers of foreign capital and foreign aid are as follows:

- (1) Undue Dependence on Foreign countries.** The foremost drawback of foreign capital and foreign aid is the undue dependence on the foreign (donor) countries. Such undue dependence may be very fatal for its economic and political freedom. Political strings are generally attached to foreign loans grants and aids which compel the underdeveloped and developing countries to join one or other power blocks.
- (2) Largely Burdensome.** It is argued that the burden of foreign loans is higher as compared to domestic loans. The repayment of such loans including interest is to be made in foreign currency. As a matter of fact, the foreign exchange resources of underdeveloped and developing countries are too meagre to bear the burden of repayment of loans along with interest and servicing charges. As such, the repayment burden of foreign loans may compel these countries to make further borrowings to meet their commitment. In this way, the burden of foreign loans goes on increasing with the result that a situation may arise when it would become almost impossible for the borrower country to discharge the liability of making repayment.
- (3) Adverse Effect on Balance of Payments.** The foreign exchange reserve sources of less developed countries are limited. The repayment of foreign loans may adversely affect the balance of payments of the borrower country. Besides the import of capital goods for development purposes, the payment of servicing charges, interest and installments of foreign debts exercises further pressure on their meagre balance of payments and as such may aggravate the situation further.
- (4) Little Benefit.** Another serious charge against foreign capital is that the benefits from its use have been highly exaggerated. It is contended that the actual advantages are in actually very

small. For example, it is argued that the Interest charged on foreign loans is less as compared 'to domestic loans. This, it is asserted is not a material gain to the borrower country.

(5)**Investment of Wasteful Projects.** Foreign aid is usually utilized for extremely wasteful projects which incur heavy losses year after year. This avoids the national priorities. Further, they absorb more local resources of greater value than their act output when the costs of administration, maintenance and replacement of fixed assets originally donated for the projects are taken into consideration.

(6)**Aid not Real.** According to critics, the so-called foreign aid is not aid in the proper sense of the word. It is so because most of the motivation of the donors is concerned with their self-interest. They have provided tied aid meant to fulfill their selfish ends. There are often political pressures on the recipient countries to follow certain policies which may go against their sovereign status.

(7)**Instrument of Economic Exploitation.** The colonial history reveals the fact that the foreign capital has always been utilized as an instrument of economic, exploitation of the colonial countries. The foreign investments were made available not at least for developing their economies, but for exploiting their vast natural resources for the benefit of the mother country.

(8)**Discriminating Attitude.** The foreign investors discriminate against the nationals of the home country. The responsible and executive jobs are not given to them and thus they are deprived of the opportunity of acquiring business experience and learning technical know-how which is kept as a guarded secret. The Indians were just the hewers of wood and drawers of water.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is foreign aid? How is it different from foreign investment?

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Q2. Name and define two types of foreign aid.

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Q3. What are the key motivations behind developed countries offering aid?

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Q4. Why is “aid versus trade” a misnomer in the context of development?

24.8 Lets Sum-up

It may be argued that many of the old myths are no longer valid. Present day developing countries are not exactly powerless like those of yesteryears nor are the modern MNCs irresponsible and insensitive. They have transformed themselves into modern MNCs which acknowledge their responsibility and moral values to the hostcountries. They basically function on the mutual benefit system. Thus, we can conclude that the role of MNCs in developing countries is appreciable.

24.9 Key words

- **MNC (Multinational Corporation):** A firm operating in multiple countries, with a head office in a developed country.
- **Technology Transfer:** Movement of technical knowledge from developed to developing countries, often via MNCs.
- **Joint Venture:** A business arrangement where an MNC collaborates with a local firm.
- **Turn-Key Project:** A project handled entirely by an MNC until it is ready for operation, then handed over to the host country.

- **Foreign Aid:** Assistance in the form of money, goods, or services provided by developed to developing countries.
- **Bilateral Aid:** Aid given directly from one country's government to another.
- **Multilateral Aid:** Aid provided by international organizations like the IMF or World Bank.
- **Tied Aid:** Foreign aid that must be spent on goods/services from the donor country.
- **Untied Aid:** Aid that can be used by the recipient country without restrictions.
- **Grants:** Aid that does not require repayment.
- **Soft Loan:** Loan with low interest and long repayment time.
- **Hard Loan:** Loan with market-based interest and shorter repayment duration.
- **Technical Aid:** Assistance involving training, scholarships, or expert services.
- **Foreign Direct Investment (FDI):** Investment by a foreign company in the economy of another country.
- **Aid vs. Trade Debate:** Discussion about whether developing countries benefit more from receiving aid or increasing trade.
- **Debt Trap:** Situation where a country needs to borrow more money just to repay existing loans.
- **Import Substitution:** Strategy of replacing foreign imports with domestic production.

24.10 FURTHER READINGS

Agarwal R.C: Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L : The Economics of Development and Planning

Jhingan M.L : Advanced Economic Theory

24.11 Hints to Check your Progress (CYP)

CYP-I

Q1. See sections 24.0 and 24.3.1

Q2. Refer to 24.3.1: Branches, Subsidiaries, Joint Ventures, etc.

Q3. Discussed in 24.3.4 – Problems of Technology in UDCs

Q4. Covered in 24.3.5 – Measures to Accelerate Transfer of Technology

CYP-II

Q1. Defined in section 24.5.1

Q2. Refer to 24.5.2 (Types) and 24.5.3 (Forms)

Q3. See section 24.5.5 – Why Developed Countries Give Aid

Q4. Discussed in detail in 24.5.6 – Aid or Trade

24.12 SELF ASSESSMENT QUESTIONS

Q1. Give the main features of MNCs?

Q2. What is meant by MNC?

Q3. Write three advantages of MNCs for developing countries?

Q4. What do you understand by MNCs? Discuss their distinctive characteristics?

Q5. MNCs are bane but not boon for a developing economy like India.” Discuss?

Q6. How MNCs have helped in the economic development of developing countries like India? Discuss in detail?

Q7. What is meant by Foreign Aid?

Q8. Examine the role of foreign aid in economic development?

Q9. Write a short note on Aid or Trade?

Q10. What is Foreign Aid? Discuss its role of foreign capital and aid in the economic development of underdeveloped countries?

Q11. Briefly explain on flow of foreign aid to developing countries?

IMF AND WORLD BANK POLICIES FOR DEVELOPING COUNTRIES

STRUCTURE

25.0 Objectives

25.1 Learning Outcomes

25.2 Introduction

25.3 International Monetary Fund for Developing Countries

25.3.1 Meaning of International Monetary Fund

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25.4 World Bank for Developing Countries

25.4.1 International Bank for Reconstruction and Development (IBRD)

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25.4.5 Capital Resources of World Bank

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25.5 Lets Sum-up

25.6 Glossary

25.7 Further Readings

25.8 Hints to Check Your Progress

25.9 Self-Assessment Questions

25.0 OBJECTIVES

- Understand the meaning of international monetary fund.
- Describe the constitution, membership and capital of IMF.
- Understand the history and purpose of the World Bank.
- Describe the World Bank's current role and major challenges and opportunities.

25.1 Learning Outcomes

After studying this lesson, students will be able to:

1. Understand the objectives and origin of the International Monetary Fund (IMF) and the World Bank.
2. Explain the constitution, membership structure, and capital resources of IMF and IBRD.
3. Analyze the functions and roles of the IMF in promoting exchange stability and multilateral trade.
4. Examine India's relationship and participation in IMF and World Bank programmes.
5. Evaluate the lending operations and financial assistance of the World Bank to developing countries.
6. Discuss the shortcomings and criticisms of the IMF and the World Bank, especially in the context of developing countries.

25.2 INTRODUCTION

International Monetary Fund started its functioning from 1st March 1947. IMF was established with the motto to increase international liquidity of the member countries to make the balance of payment unfavorable. Thus, the Fund is a pool of central bank reserves and national currencies which are made available to funding member under certain conditions, IMF was established to overcome all trade restrictions and impediments and further to promote multilateral trade. Thus, the Fund is most deliberate

attempt to organize the conduct of international monetary affairs.

25.3 INTERNATIONAL MONETARY FUND FOR DEVELOPING COUNTRIES

25.3.1 MEANING OF INTERNATIONAL MONETARY FUND

The International Monetary Fund was established along with the International Bank for reconstruction and development (also known as World Bank) at the conference of 44 nations held at Bretton Woods, New Hampshire, USA in July 1944. It was created to promote international monetary cooperation, to facilitate the expansion and balanced growth of international trade; to promote exchange stability; to assist in the establishment of a multilateral system of payments to make its general resources temporarily available to its members experiencing balance of payments difficulties under adequate safeguards; and to shorten the duration and lessen the degree of disequilibria in the international balance of payments of members.

The articles of agreement of IMF came into force on December 27, 1945. IMF is the principal international monetary institution established to promote a cooperative and stable global monetary framework. At present 188 nations are members of the IMF. Since the IMF was established, its purposes have remained unchanged but its operations which involve surveillance, financial assistance and technical assistance have developed to meet the changing needs of its member countries in an evolving world economy. India is a founder member of the IMF.

25.3.2 OBJECTIVE OF IMF

According to the second amendment to the articles of agreement of International Monetary Fund, main objects of the IMF are stated below

- 1. International Monetary Co-operation.** The foremost objective of the Fund was to establish monetary co-operation amongst the various member countries. IMF provides the machinery for consultation and collaboration on international monetary problems. During the Second World War, IMF had played a vital role to promote monetary co-operation amongst the different countries of the World.
- 2. To Promote Exchange Stability.** Before the second World War, great instability was prevailing in the foreign exchange rates of different countries which had adversely affected the international trade. Thus, IMF has the objective to promote exchange stability and to avoid the bad effects of depreciation on exchange rates.

- 3. To Eliminate Exchange Control.** Another significant objective of IMF is to eliminate the control over foreign exchange. During war period, almost every country has fixed the exchange rate at a particular level. This has adversely affected the international trade. Hence, it becomes inevitable to remove the control over exchange rate by boosting international trade.
- 4. Establishment of Multilateral Trade and Payment.** IMF aimed at establishing a multilateral trade and payment system in place of old bilateral trade by the elimination of exchange restrictions which hampers the growth of smooth trade relations in the world trade.
- 5. Growth of International Trade.** IMF is useful to promote international trade by removing all obstacles and bottlenecks which had created unnecessary restrictions. In this way, a significant role has been assigned to it so as to accelerate the growth of international trade by maintaining equilibrium in the balance of payment.
- 6. Balanced Economic Growth.** IMF helps the member countries to achieve the balanced economic growth. It facilitates the expansion of balanced growth by the promotion and maintenance of high level of employment as the primary objective of economic policy. For this purpose, IMF helps to exploit natural resources and to put into productive channel.
- 7. To remove the Disequilibrium in the Balance of Payment.** IMF helps the member nations to eliminate the disequilibrium in the balance of payment by selling or lending foreign currencies to the member countries. With its financial assistance and guidance, International Monetary Fund helps to lessen the degree of disequilibrium in the balance of payment of its member nations.
- 8. Expansion of Capital Investment in Underdeveloped Countries.** IMF provides assistance to import capital from the rich countries to the poor countries so that the poor or underdeveloped country get a chance to expand their capital investment on productive activities or social overheads which in turn helps to raise standard of living.
- 9. Generating of Higher Employment and Income.** IMF helps to expand the trade with the significant measures of multilateral trade and balanced economic growth. This in turn generates employment and income.
- 10. To Develop Confidence.** Another objective was assigned to the IMF to create confidence among member Countries by coming up to their rescue at the time of any crisis by providing temporary monetary help. This will provide them an opportunity to correct disequilibrium in the balance of payments.
- 11. Help during Emergency.** The fund will provide short-term monetary help to its member countries during any type of emergency.

12. Shorten the Duration and Lessen the Degree. In accordance with the above, it shortens the duration and lessens the degree of disequilibrium in the international balance of payment of member countries.

25.3.3 CONSTITUTION, MEMBERSHIP AND CAPITAL OF IMF

IMF is controlled and managed by a Board of Governors. Each member country nominates a Governor. All the nominated Governors make the Board of Governors. Each country also nominates the alternate governor who casts his vote in the absence of the Governor. Each governor is allotted a number of votes which is determined by the quota allotted to the respective country in the capital of IMF. Each governor has got the right of 250 votes on the basis of the membership and one additional vote for each SDR 1,00,000 of quota. The addition of these two types of votes becomes the actual voting right of the member country. For example, India's voting is 58956 because India's quota is 5821.5 million SDR. It clearly indicates that the voting right depends on the quantum of quota of a particular country with IMF. That is the reason why the rich and industrialized countries got the higher voting right due to their higher quotas, with the IMF.

The main source of IMF resources is the quotas allotted to member countries. Till 1971, all the amounts of quotas and the assistance provided were denominated in US dollar, but since December 1971 all the quotas and transactions of IMF are expressed in SDR (Special Drawing Right) which is also known as Paper Gold. In 1971, one SDR was assumed equivalent to 1 dollar but due to subsequent decline in dollar value SDR 1 became equivalent to \$ 1.55 by the end of April 1995. Since January 1, 2011 the value of SDR is being determined by the basket of 4 currencies.

Since January 1, 2011 the weight, age to these 4 currencies in SDR price determination was as follows:

Euro	37.4%
Japanese Yen	9.4%
Pound sterling	11.3%
US dollar	<u>41.9%</u>
	<u>100.0%</u>

The currency value of SDR is determined by the IMF each day by summarizing the values in US dollars, based on market exchange rates of basket of four currencies.

The IMF's financial year is from May 1 to April 30. IMF lends to of various facilities (extended fund facility, standby facility, contingent credit lines, compensatory facility etc.) designed to serve specific purpose, but essentially aimed at balance the emergent foreign exchange needs. The poor countries are also helped by funding from Poverty Reduction and Growth Facility.

The quota allotted by the IMF to each member country has to be deposited partly in the member own currency and the remainder in the form of foreign exchange.

25.3.4 INDIA 8TH PLACE IN IMF GENERAL QUOTA

After the recent review of IMF's General Quota, India quota has been raised to 5821.5 million SDR from the existing level of 415.82 crore SDR. (At present 1 SDR= \$1.55= Rs. 79.30). This quota hike raised India vote share from 1.91% to 2.44%.

At present India has been placed at 8th place in IMF's General quota. USA remains the biggest quota holder despite its quota share coming down to 17.69%.

Rank	Country	Quota %
1	USA	17.69
2	Japan	6.56
3	Germany	6.12
4	UK	4.51
5	France	4.51
6	China	4.00
7	Italy	3.31
8	India	2.44
9	Saudi Arabia	2.93
10	Canada	2.67
11	Russia	2.50

25.3.5 INDIA AND IMF

IMF has played an important role in Indian economy. IMF has provided economic assistance from time to time to India and has also provided appropriate consultancy in determination of various policies in the country. India is the founder member of IMF. The Finance Minister is ex-officio Governor in IMF Board of Governors. Till 1970, India was among the first five nations having the highest quota with IMF and due to this status India was allotted a permanent place in Executive Board of Directors.

25.3.6 FINANCIAL TRANSACTION PLAN

India participate in the Financial Transaction Plan of the IMF from 2002. fortytwo countries, including India, now participate in FTP. By participating in FTP, India isallowing IMF to encash its rupee holding as part of our quota contribution, for hardcurrency which is then lent to ther member countries who are debtors to the IMF. From2002 to 13th July, 2009, India has made purchases transactions of SDRs 1194.16 million and four repurchase transactions amount to SDRs 795.95 million.

Enhanced Structural Adjustment Facility (ESAF) was established in 1987 withan amount of SDR 6 billion to help the low income countries with heavy debt burdens indifficult external environment to implement comprehensive macro economic and structuralpolicy programmes aiming at strengthening their balance of payments position and fosteringgrowth. India contributes as donations to subsidy account and made a commitment toprovide grant contributes to the extent ofUS \$ 1 million per year over 15 year for a totalofUS \$ 15 million. India has paid thirteen annual installment to the PRGF trust subsidyaccount amounting to US \$ 1 million (equivalent to Rs. 4,66,70,000) during July 2006.

25.3.7 MODE OF OPERATIONS OR FUNCTIONS OF IMF

The Fund is a store of large capital resources in currencies of different membercountries. It functions in such a manner as to avoid foreign exchange fluctuations andmake efforts to restore the pattern ofmultilateral trading. The salient features of its functioningare as under

- 1. Fixation of par value of currencies in terms of Gold or Dollar.** Every membercountry has to declare the par value of her currency in terms of US Dollars or ingold. The main objective of IMF is to maintain stability in exchange rates of themember countries. In fact, the IMF fixes the maximum or minimum limit of the par values of various countries.
- 2. Alternation of limit within par value.** There is over rigidity in the par values of the currencies of different countries. If Fund finds that there is fundamental disequilibrium in the balance of payments of a country, it can change the par values of its currency, A country is allowed to alter its basic par value within well defined limits *i.e.* upto 10 per cent after making her intention known to the Fund. Under certain circumstances, the Fund itself can make proportionate alterations in par values of all the member countries.
- 3. Loans of foreign currency.** The Fund realizes that a stable exchange is very essential for the proper growth and expansion of the free world trade. Therefore, it takes steps to check the

fluctuations in the par values by eliminating the disequilibrium in the balance of payment of the member countries. A member country can buy foreign currency from the Fund to tide over her temporary balance of payments deficit. The Fund sells currencies to members against their subscriptions for short period to enable them to remove the difficulties of the balance of payment.

4. **Drawing Rights.** A member country during hardships of the balance of payments can buy the required foreign currency from the Fund by offering more of its own currency over and above its original subscription. The Fund provides both maximum and normal limits of financial assistance for a short period. A member country can request for any currency under the credit line of 25 per cent of its quota in one year. This is known as gold tranche or reserve tranche drawing. But the full amount drawn under these drawings should not exceed by 200 per cent of the Fund's holdings of a country's currency quota. The member countries do not borrow more than 150 per cent of quota, because any further borrowing is subject to increasing interference by the Fund.
5. **Stand by Arrangements.** Under the agreement of the Fund guarantee is given to provide a specific sum of money for a given period of time to a member country. Normally, the satisfaction as to the legitimacy and purpose of drawing is considered before a stand by is granted. Since the stand by is a part of the quota, it forms a part of the total drawing power.
6. **Liquidity of Fund's Resources.** If the borrowing countries are buying the currency of other countries, the Fund may accommodate such currencies as are not demanded. In fact, the Fund will not be able to act as a reserve Fund. Thus, it becomes necessary that the Fund should keep its resources in a liquid form so that the borrowing country may repurchase of domestic currency. There are certain rules to maintain the liquidity of resources such as
 - (i) Any member country can buy the currency of any other member country by depositing gold in the Fund.
 - (ii) If the currency of a country with the Fund exceeds its quota, then that country can purchase its own currency in exchange for gold.
 - (iii) Every country, under special circumstances, can buy a part of its own currency from the Fund in exchange for gold or other currency.
7. **Currency in short supply.** It is possible that a country's currency may be in supply. Short supply of a currency in foreign exchange market indicates a favourable balance of payment. If the Fund finds that a particular member country is having a surplus in its balance of payments and its supply of currency is inadequate relative to demand, the Fund may ask the surplus country to revalue its currency. On the contrary when the Fund declares a particular currency as scarce, the member country revalues the currency, thus, raising costs and prices.

- 8. Position of Gold in Fund's Scheme.** Under the Fund's scheme, status was given to gold as every member country has to deposit in gold the Fund upto 25 percent of its quota or 10 per cent of its gold holdings. Under the agreement of the Fund, the par values of currencies of members are expressed in terms of gold, SDR and the US Dollars. In Fund's scheme, gold had been retained as a basis of determination of the par values of member's currencies. A member can deal with the Fund "only through its treasury, central bank, stabilization fund or other similar agency". An alteration in par value is permitted only within limits. If the fund is short of any particular currency, it can purchase the same for gold. The value of gold has been fixed by the Fund at 35 dollars per five ounce. According to Prof. Williams, Fund's Planning is akin to gold standard. But according to Lord Keynes, Under Fund's Planning, a system has been created, by means of international agreement, that is far removed from the old political gold standard system. It is so because : (a) It is not based on gold currency as was gold standard (b) Under Fund's planning, value of the currency is not fixed in terms of gold for ever.
- 9. Facilities during the Transition Period.** The Fund gets all the exchange control removed so that the world trade may flourish smoothly. During the transitional period, the Fund has empowered the member countries to impose such restrictions on imports and foreign exchanges according to its necessity. As the transitional period is over, member countries are supposed to remove the restrictions imposed on international trade and foreign exchanges. Therefore, the member countries can continue with their control to the desirability of the Fund.
- 10. Training.** The Fund also imparts training to the representatives of member-countries. This training is important to the senior officers of the central banks and Finance Departments.

25.3.8 ADVANTAGES TO INDIA FROM THE IMF

- 1. Independence of the Indian Rupee.** Before the establishment of the IMF, the Indian rupee was linked with the British Pound Sterling. But Indian rupee has become independent after the establishment of IMF. Its value is expressed in terms of gold. It is not determined by the Pound Sterling. It means that Indian rupee is easily convertible into the currency of any other country.
- 2. Membership of the World Bank.** India has become a member of the World Bank also by virtue of its membership of the Fund. As a result, India has got several loan facilities from the World Bank for the development purposes.

- 3. Availability of Foreign Currencies.** The Govt. of India has been purchasing foreign currencies from the Fund from time to time to meet the requirements of development activities. The large amount of availability of foreign currencies has greatly promoted the economic development of the country.
- 4. Reputation in International Circle.** India is one of those six countries which have occupied a special place in the Board of Directors of the Fund. Thus, India had played a creditable role in determining the policies of the Fund. This has increased the India's prestige in the international circles. India takes keen interest in the formulation of Fund's policies.
- 5. Guidance and Advice.** Being member of the Fund, India got the expert opinion of the Fund for solving its economic problems. The attitude of the Fund towards India was always remained sympathetic. The Fund has given valuable suggestions to the Government of India with regard to the financing of the Five Year Plans.
- 6. Timely Help.** India has received timely help from the Fund to eliminate the deficit in its balance of payments. The Fund granted India loans to meet the financial difficulties arising out of the Indo—Pak conflict of 1965 and 1971. Otherwise, the fund has given timely help to solve economic crisis.
- 7. Freedom from Sterling.** Indian rupee was convertible into other currencies through the medium of sterling before becoming the member of the fund. With the fixation of par value of the rupee in gold, Indian currency is now freely convertible into any other currency.
- 8. Sale and Purchase of Foreign Exchange.** Fund has entrusted the sale and purchase of foreign exchange worth more than Rs. 2 lakh to Reserve bank of India. The latter cannot enter into any transaction of foreign exchange that is of the value of less than Rs. 2 lakh.
- 9. Economic Consultation.** In the financial management of Five Year Plans, IMF fund has given valuable advice to government of India from time to time. Many Economic Missions were sent to India by the Fund to suggest measures for its economic development.
- 10. Help during Emergency.** India got a large amount of financial assistance from the Fund to solve its economic crisis arising due to natural calamities like floods, earth quake, famines etc. and at the time of Chinese and Pakistani aggressions. In order to meet its balance of trade deficit in the wake of hike in oil prices, India secured a loan amounting out of oil facility. Thus, India got help during the period of any emergency.

To sum up the discussion, we can say that India has gained in many ways by being a member of IMF, e.g. (i) Indian rupee has become an independent currency for international payments (ii) India has received help to correct its balance of payments disequilibrium. (iii) Being member of the Fund, India has also become a member of World Bank. As a result, India has received large financial help (iv) India has also received technical assistance from the Fund. (v) India is always confident of

receiving assistance from the Fund at the time of any emergency. (vi) India has a key role in the policy-making of the Fund. As a result, India has an important place in international economic field. India is also a member of the Committee of 20 member countries.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is the IMF and what are its primary objectives?

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Q2. Explain the quota system and voting rights in IMF.

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Q3. Mention any two ways in which IMF has helped India.

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Q4. Describe two main functions or modes of operations of the IMF.

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25.4 WORLD BANK FOR DEVELOPING COUNTRIES

25.4.1 INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD)

IBRD and its associate institutions as a group are known as the World Bank. The Second World War damaged economies of the most of the countries particularly of those who were directly involved in the war. The globe had completely dislocated the multilateral trade and had caused massive destruction of

life and property. In 1945, it was realized to concentrate on reconstructing this war affected economies. Besides, it was also given a thought to develop underdeveloped economies in a planned way. IBRD was established in December 1945 with the IMF on the basis of the recommendation of the Bretton Wood Conference. That is the reason why IMF and IBRD are called Bretton Wood Twins. IBRD started functioning in June 1946. World Bank and IMF are complementary institutions.

The International Bank for Reconstruction and Development (IBRD) aims to reduce poverty in middle income and credit worthy poorer countries by promoting sustainable development through loans, guarantees, risk management products and analytical and advisory services. Established in 1945 as the original institution of the world bank group, IBRD structured like a cooperative that is owned and operated for the benefit of its 188 member countries.

IBRD raises most of its funds on the world's financial market and has become one of the most established borrowers since issuing its first bond in 1947. The income that IBRD has generated over the years has allowed it to fund development activities and to ensure its financial strength, which enables it to borrow at low cost and offer clients good borrowing terms.

At its annual meeting in September 2006, the World Bank—with the encouragement of its shareholder governments—committed to make further improvements to the services it provides its members. To meet the increasing sophisticated demands of middle income countries, IBRD is overhauling financial and risk management products, broadening the provision of free standing knowledge services and making it easier for clients to deal with the bank.

India is a member of four constituents of the World Bank Group i.e IBRD, IDA, IFC and MIGA (i.e Multilateral Investment Guarantee Agency) but not of its fifth institute ICSID (i.e International Centre for the settlement of the Investment Disputes).

25.4.2 OBJECTIVES OF WORLD BANK

The objectives of the World Bank have been entrusted in Article I of the Agreement areas under

- 1. Development and Reconstruction of Member Countries.** The main function of the Bank is to help in the reconstruction and development of member countries by investing more capital for productive purposes such as
 - (a) reconstruction of economies destroyed by war
 - (b) encouragement to productive resources in less developed countries;
 - (c) reconstruction of productive facilities.

- 2. Encourage the development in H.D.C.** The main objective of the World Bank is to encourage the development of productive resources by supplying them sufficient capital. It also helps in the establishment of various projects of infrastructure like power, transport, communication, irrigation etc. in backward countries which, in turn, accelerate the pace of economic development.
- 3. Promote Private Foreign Investment.** Another objective is to promote foreign investment by means of guarantees/loans. The World Bank makes loans for productive resources out of its own capital or from borrowed funds.
- 4. Maintain Equilibrium in the Balance of Payment.** The World Bank helps to maintain equilibrium in the balance of payment by encouraging investment for development activities and, thus, raising productivity, the standard of living and conditions of workers in the concerned countries.
- 5. Change war Economy into a Peace Time Economy.** Another function of the World Bank is to bring about a change from a war economy to a peaceful economy. It brings by conducting international investment on business conditions of the member countries.
- 6. Supplement Foreign Investment.** It also arranges the loans and guarantees in relation to international loans for the development of more useful and urgent small and large projects at priority level in the member countries.
- 7. Environmental Protection.** Global environmental protection is also an objective of the Bank. To this end, World Bank gives substantial financial assistance to those under-developed countries which are engaged in the task of environmental protection.
- 8. Raise Productivity and Standard of Living.** Another function of the World Bank is to raise the productivity and standard of living of the people of member countries. It makes special programme for the development of productive resources.

25.4.3 IMF VS. WORLD BANK

IMF and the World Bank are Bretton Woods Twins. Both the institutions were established to promote international economic assistance cooperation but a basic difference is found in the nature of economic assistance given by these two institutions. World Bank provides long term loans for promoting balanced economic development, while IMF provides short term loans to member countries for eliminating BOP disequilibrium. Both these institutions are complementary to each other. The eminent world economist George Schultz had suggested in American Economic Association Conference in January 1995, for the merger of IMF and the World Bank.

25.4.4 MEMBERSHIP OF THE WORLD BANK AND THE VOTING RIGHT

Generally every member country of the IMF automatically becomes the member of World Bank. Similarly, any country which quits IMF is automatically expelled from the World Bank's membership. But under a certain provision a country leaving the membership of IMF can continue its membership with World Bank if 75% members of their Bank give their vote in its favour.

Any member country can be debarred from the membership of World Bank on following grounds:

- 1) Any member country can quit the Bank simply by written notice to the Bank, but such country has to repay the granted loans on terms and conditions decided at the time of sanctioning the loan.
- 2) Any country working against the guidelines of Bank can be debarred from membership by the Board of Governors.

Like IMF, World Bank has also two types of members: Founder members and General members. The World Bank has 30 founder members who attained membership by December 31, 1945. India is also among these founder members. The countries joining the world bank after December 31, 1945, come under the category of general members. At the end of Feb. 2008, the total membership of the World Bank is 185. The voting right of member countries is determined on the basis of member country share in the total capital of the Bank. Each member has 250 votes plus one additional vote for each 1,00,000 shares of the capital stock held.

25.4.5 CAPITAL RESOURCES OF WORLD BANK

The initial authorized capital of the World Bank was \$ 10,000 million, which was divided in 1 lakh shares of \$ 1 lakh each. The authorized capital of the bank has been increased from time to time with the approval of member countries. Authorized capital of the world bank has increased from \$ 24 billion to \$ 27 billion. Member countries repay the share amount to the world bank in the following ways:

- 1) 2% of allotted share are repaid in gold, US dollar or SDR.
- 2) Every member country is free to repay 18% of its capital share in its own currency.
- 3) The remaining 80% share is deposited by the member country only on demand by the world bank.

The headquarter of world bank is at Washington D.C.

IDA (established on September 24, 1960) and IFC (established in July 1956) are the two main associate institutions of IBRD. These institutions work under the supervision of world bank. MIGA

is also an associate institution in the world bank group.

25.4.6 LENDING AND BORROWING OPERATIONS OR FUNCTIONS OF THE BANK

The Bank makes medium and long-term loans for specific development projects in the field of agriculture, power, transport and communication, industry, water supply, urban development, education etc. in the member countries. During 1961, the Bank provided loans of 77 million dollars to 24 countries. Asia and middle East receive nearly 8 per cent to 20 per cent of the total loan assistance given by the Bank. The Bank borrowed \$4,721 million by placing 39 issues during 1976-77. The Bank had made total loans of 1,453 amounting to 3,86,097 million dollars for 116 member countries for more than 1,150 projects, with granting 6 loans of 550 million to the International Finance Corporation by ending June 1977. The IBRD has started borrowing. Similarly, the Bank had borrowed in the markets of Germany, Switzerland, United States etc. in US short-term, securities from Sept. 1982. However, the total borrowing of all kinds was of amounting to \$ 10.8 billion. However, its lending and borrowing operations are as under

1. **Lending Procedure.** World Bank advances loans to members in the following three ways

(a) **Loans out of its own fund.** The fund collects capital contribution from its members. This results in the creation of a sizable fund out of which the Bank advances loans to the needy member countries. If the loan is to be given to a member country in terms of the national currency of another country, it is obligatory on the part of the Bank to secure the prior consent of the latter member country.

(b) **Loans out of borrowed Capital.** Sometimes, the Bank borrows funds from another member country for the purpose of giving loans to the needy members. The Bank pays interest to the member country from which it has borrowed funds for a specified period of time.

(c) **Loans through Bank's guarantees.** Sometimes, the Bank encourages the Private investors of a country to lend their funds to another country by guaranteeing the repayment of loan and interest thereon. Before the Bank extends its guarantee, the country has to fulfil certain conditions.

2. **Technical and Advisory help by the Bank.** The Bank sends to the member countries its economic experts to carry out the general survey of their physical resources. The Bank also gives training to the officers from the member countries in the preparation and implementation of development projects. With this objective in view, the Bank established in 1956, an institute as 'The Economic Development Institute'. This institute gives short-term training to the officers and employees from the member countries.

- 3. Loans granted for Productive purposes.** The world bank grants loans to member countries only for productive purposes, particularly for agriculture, irrigation, electric power and transport. Without this infrastructure, no country can develop itself economically. Hence, the Bank has given priority to these enterprises for lending purposes.
- 4. Settlement of Disputes among Member Countries.** The world bank also tries to settle disputes among member countries. The objective is that, after settling their disputes, the member countries may devote their resources to rapid economic development. Some years back, the World Bank successfully settled the Indus river dispute between India and Pakistan. Likewise, the World Bank played a commendable role in settling the financial dispute relating to the Suez canal between the UK and Egypt.
- 5. Medium and Long term loans.** The bank grants medium and long term loans payable over a period of 15-20 years for reconstruction and development purposes to the member countries.
- 6. International Finance Corporation and International Development Association.** The IFC is an affiliate to the World Bank. It was setup in July 1956 to give financial assistance to private enterprises in member countries. The IDA is still another affiliation of the World Bank. It was set up in September 1960, with the objective of encouraging industrial development in backward and underdeveloped countries.
- 7. Holding meetings of Creditor countries to provide Loans to Developing Countries.** The World Bank calls from time to time the meetings of the creditor countries with the object of providing loans to developing countries. For example, the Bank has organized an Aid India Consortium comprising such member as the USA ; the UK, Canada, Germany and Japan for the purpose of providing financial aid for India's development projects.

25.4.7 SHORTCOMINGS OF THE WORLD BANK

The functions of the Bank is not free from criticism. It has been subjected to the following criticism.

- 1. Share of Developing Countries in Bank's Capital highly Inadequate.** The share of developing countries in the capital resources of the World Bank was far from adequate. More than 50 percent of the share capital of the World Bank was controlled by seven countries, namely, the USA, and U.K., Japan, France, Germany, Canada and Italy.
- 2. Inadequate Financial Aid.** The capital and other financial resources of the bank are not adequate to meet the increasing requirements of the member countries. The financial assistance given by the bank to the developing countries is just a drop in the ocean.

3. **Discriminatory Treatment.** The World Bank has been discriminating against the countries of Asia and Africa. It is quite indulgent towards the countries of Europe. The countries of Asia and Africa taken together, have the largest population, vast areas and unexploited resources, while the countries of Western Europe have smaller populations and much smaller areas as compared to the countries of Asia and Africa. This is clearly indefensible. The Bank is a non-political institution, so it should not have discriminatory policies.
4. **High Interest rates and Commission charges.** The World Bank has also been accused of charging high interest and commission from the borrowing countries which mostly happens to the developing countries of Asia and Africa. This practice is highly unjust, inequitable and contrary to the provisions of the Bank's Charter. The Bank is not supposed to be a profit hunting institution. The rate of interest charged by the World Bank on its loans is in between 7.5% to 8.2%. The bank charges commission varying from 1 to 1 -% on the loans guaranteed by Bank. The Bank should voluntarily reduce its interest and commission charges on its loans, particularly when they are guaranteed by the Govt. of the borrowing countries.
5. **Insistence on Repayment Capacity.** The World Bank insists on the presence of repaying capacity before granting loan to a member country. Insistence upon repaying capacity before granting loans discourages the member countries from borrowing from the Bank. If the project is a productive one, the repaying capacity of the borrowing country will automatically be created during the implementation of the project.
6. **Loans for Specific Projects only.** The critics pointed out that the bank provides loans only for specified projects not for the general development of the countries. Actually, Bank should provide unsecured loans which they can put to any use according to their schemes of priorities.
7. **Loans for Agriculture and Allied Occupation.** Another criticism of the Bank was that it had extended loans to developing countries mostly for agriculture and other related occupations, not for heavy and basic industries.
8. **Particularly for Private sector.** The World Bank in its operations has shown a clear bias in favour of the private sector. The bank clearly places greater emphasis on partnerships with the private sector and also giving incentives to private companies.
9. **Insistence in Repayment in Foreign Currencies.** Another criticism against Bank's lending procedure is that it insists upon receiving the repayment of the loan from the borrowing country in the currency in which it was extended to it. The developing countries often find it difficult to comply with this requirement of the Bank.

10. Interference. The Bank has developed conditionality practices to be fulfilled forgetting a loan from the Bank. The Bank does interfere with the policies of its member which makes a mockery of its policy of non-interfering in their internal economic affairs.

11. Domination by Western Countries. The management of the bank was organized in such a manner that during the past 50 years of its existence not a single Asian, African or Latin American was found competent enough to be the president of the bank. There was a convention that an American should head the World Bank and a European the IMF.

25.4.8 INDIA AND THE WORLD BANK

India is one of the founder members of the World Bank. It has been allotted a permanent place in the Board of Executive Directors of the Bank. The Bank has sent several missions to India for assessing the country's development projects and also for conducting field surveys in various sectors of its economy. Several officials of the Bank have visited India for investigation for loan assistance. The bank has also appointed a Resident Representative in New Delhi to maintain close liaison with the Govt. of India in regard to the development plans and projects of the country.

India has been a fairly large borrower of the World Bank. From August 1949 to 30th June 1986 the World Bank approved for India loans (equal to 10,691.9 million dollars which contributed 8.5 percent of the total lending by the World Bank. The Bank charged on these loans interest varying between 3.5 to 8.9 per-cent per annum. The World Bank has given financial assistance for the development of railways, roads, ports, aircrafts, power, multipurpose river valley projects, agriculture, industry etc. The Bank has given loan assistance for the development of coal, power and steel industries in the private sector.

During 1985-86, the World Bank approved for India loans of the value of 1743.2 million Dollars which contributed 13.2 per-cent of the total loans approved by the Bank for that year. As on December 31, 2000, the Bank's lending portfolio of on going projects for India comprised 66 projects amounting to about US \$ 11.5 billion. India is also among the Bank's top borrowing. In year 2000, lending commitments reached about US 1.8 billion dollar for eleven projects. The sectoral allocation of the existing portfolio is concentrated in rural development 23% education and health 23% and infrastructure including energy 20%. India got disaster assistance from bank a number of times i.e in 1996 for Andhra Pradesh after a devastating cyclone, in September 1994 for Maharashtra as rehabilitation assistance following an earth quake, a disaster mitigation package for Gujarat etc.

The world bank has lent to India the services of its technical experts from time to time. These experts

have given valuable suggestions to the government for the formulation and effective implementation of its development plans.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What are the objectives of the World Bank (IBRD)?

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Q2. How is the World Bank different from the IMF?

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Q3. Mention any two functions of the World Bank.

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Q4. State two criticisms of the World Bank from the perspective of developing countries.

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25.5 Lets Sum-up

The IMF is playing an expanding role in the global monetary system. The IMF's key roles are the following:

- * To promote international monetary cooperation.

- * To facilitate the expansion and balanced growth of international trade.
- * To promote exchange stability.
- * To assist in the establishment of a multilateral system of payments.
- * To give confidence to members by making the IMF's general resources temporarily available to them under adequate safeguards.
- * To shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

The World Bank consists of two main bodies, the IBRD and the International Development Association (IDA).

The World Bank Group includes the following interrelated institutions:

IBRD, which makes loans to countries with the purpose of building economies and reducing poverty

IDA, which typically provides interest-free loans to countries with sovereign guarantees

International Finance Corporation (IFC), which provides loans, equity, risk-management tools, and structured finance with the goal of facilitating sustainable development by improving investments in the private sector

Multilateral Investment Guarantee Agency (MIGA), which focuses on improving the foreign direct investment of the developing countries

International Centre for Settlement of Investment Disputes (ICSID), which provides a means for dispute resolution between governments and private investors, with the end goal of enhancing the flow of capital.

25.6 Key words

- IMF (International Monetary Fund): A global financial institution established to ensure exchange rate stability, promote international trade, and provide financial assistance to member countries.
- Quota (IMF): The financial contribution by a member country to the IMF; determines voting power and borrowing capacity.
- SDR (Special Drawing Rights): An international reserve asset created by the IMF, valued based on a basket of major currencies.
- Bretton Woods Twins: Refers to the IMF and the World Bank, both established in 1944 at the Bretton Woods Conference.
- Par Value: The officially fixed value of a currency in terms of gold or other currency.

- Financial Transaction Plan (FTP): A framework under which countries allow the IMF to use their currency holdings to help other members.
- World Bank (IBRD): A financial institution providing long-term loans and support for development projects in member countries.
- IDA (International Development Association): Part of the World Bank that provides interest-free loans to low-income countries.
- IFC (International Finance Corporation): Promotes private sector investment in developing countries.
- MIGA: Multilateral Investment Guarantee Agency that supports foreign direct investment in developing countries.
- ICSID: International Centre for Settlement of Investment Disputes—handles investment disputes between governments and investors.
- Standby Arrangements (IMF): A line of credit offered by the IMF to member countries for emergency needs.
- Structural Adjustment Facility (SAF): IMF program aimed at economic reform and policy adjustment in low-income countries.
- Balance of Payments Disequilibrium: A condition where a country's foreign exchange earnings are insufficient to meet its external obligations.
- Reconstruction and Development: Refers to the World Bank's mission to help rebuild post-war economies and develop infrastructure in underdeveloped nations.

25.7 FURTHER READINGS

Agarwal R.C: Economics of Development and Planning [Theory and Practice]

Dewett K.K : Modern Economic Theory

Jhingan M.L : The Economics of Development and Planning

Jhingan M.L : Advanced Economic Theory

25.8 Hints to Check your Progress (CYP)

CYP-I

Q1: Covered in 25.3.1 and 25.3.2

Q2: See 25.3.3 – Constitution, Membership and Capital

Q3: Refer to 25.3.5 and 25.3.8 – India and IMF

Q4: Discussed in 25.3.7 – Modes of Operation

CYP-II

Q1: See 25.4.2 – Objectives of World Bank

Q2: Refer to 25.4.3 – IMF vs. World Bank

Q3: Covered in 25.4.6 – Lending and Borrowing Functions

Q4: Refer to 25.4.7 – Shortcomings of the World Bank

25.9 SELFASSESSMENT EXERCISES

- 1) Explain the objectives of IMF. Give its procedure of organization and management?
- 2) What is IMF. Point out its main functions?
- 3) Critical examine the main failures of IMF?
- 4) What is IBRD? Write its main functions?
- 5) Evaluate beneficial effects enjoyed by India from IBRD?
- 6) Write any three functions of IBRD?
- 7) Point out the shortcomings of IBRD?

**Need for Investment Criteria and Alternative Investment
Criteria & Project Evaluation, Cost Benefit Analysis**

STRUCTURE

26.0 Objectives

26.1 learning outcomes

26.2 Introduction

26.3 The Capital-Turnover Criterion

26.3.1 Limitations of Capital Turnover Criterion

26.4 The Social Marginal Productivity Criterion

26.4.1 Limitations of the Social Marginal Productivity Criterion

26.5 The Reinvestment Criterion

26.5.1 Criticism of Reinvestment Criterion

26.6 The Time Series Criterion

26.6.1 Limitations of Time Series Criterion

26.7 Meaning of Project Evaluation

26.7.1 Stages of Project Evaluation

26.8 Methods of Evaluation

- 26.8.1 Cost Benefit Analysis
 - Criteria for Cost-Benefit Analysis
- 26.8.2 The Net Present Value Criterion
- 26.8.3 The Internal Rate of Return Criterion
- 26.8.4 Relation between NPV and IRR
- 26.9 The Social Rate or Discount
 - 26.9 (a) Evaluation on the basis of benefits
 - 26.9 (b) Evaluation on the basis of costs
 - 26.9 (c) Importance of data for evaluation
- 26.10 Limitations of Cost-Benefit Analysis
- 26.11 Use of Cost-Benefit in Developing Countries
- 26.12 Use of Cost-Benefit Analysis in India
- 26.13 Lets Sum-up
- 26.14 Glossary
- 26.15 Further Readings
- 26.16 Hints to Check Your Progress
- 26.17 Self- Assessment Exercise

26.0 OBJECTIVES

1. Understand the capital-turnover criterion
2. Describe the capital turnover criterion & its criticism
3. Understand the Re-investment criterion
4. Describe the time series criterion
5. Learn about the Meaning of Project Evaluation
6. understand the methods of project evaluation
7. describe the Role of cost benefit analysis in Economic Development
8. understand the relationship between NPV and IRR
9. Learn about the Meaning of shadow prices
10. Understand the role of shadow prices in economic development

26.1 LEARNING OUTCOMES

After completing this lesson, students will be able to:

1. Understand the concept and purpose of investment criteria in underdeveloped economies.
2. Explain the capital-turnover, social marginal productivity, reinvestment, and time series criteria and their respective limitations.
3. Describe the process and importance of project evaluation in development planning.
4. Apply cost-benefit analysis, NPV, and IRR methods in evaluating projects.

26.2 Introduction

The problem of investment criteria involves the principles underlying the allocation of scarce investment resources in a rational manner so as to maximize the national income in an underdeveloped economy. It is a commonly known fact that private enterprise in such economies

is motivated by profit maximization. Very often private investment decisions are for projects that are not conducive to economic development. It is, therefore, felt that only a public authority can make decisions to scarce investment resources and to influence the direction of private investment towards development-oriented projects. For this, the choice before the public authorities are between techniques of a higher or lower intensity. Project evaluation as a technique of development planning has grown rapidly in application in recent years. In fact, it has now become a method of economic planning on its own. In this chapter we propose to discuss the main elements of what is now being considered a standard approach to public investment analysis. The public investment analysis involves treatment of a number of important aspects of which appraisal of the economic costs and benefits of the project is perhaps the most important. Keeping in view this fact, we intend to concentrate in this chapter on this particular aspect of the investment planning.

26.3 THE CAPITAL-TURNOVER CRITERION

The capital turnover criterion is known by various names viz., rate of turnover criterion, the maximization of output per unit of capital criterion or the ratio of output to capital criterion (minimum capital intensity or minimum capital-output ratio criterion). This criterion is attributed to J.J Polak and N.S. Buchanan. The logic involved is that since capital is scarce in underdeveloped countries, that technique should be chosen which yields the maximum output per unit of capital employed. In other words, for maximizing output, investment projects with a high rate of capital turnover (i.e. of a low capital output ratio) should be selected. Quick-yielding projects with a low capital intensity make it possible for scarce capital resources to be realized soon enough for reinvestment into other projects. Such projects also provide maximum employment per resource in underdeveloped countries. Here the capital employment absorption criterion merges into the capital turnover

criterion. This criterion is particularly useful, according to Chenery, in choosing among projects within a given sector.

26.3.1 LIMITATIONS OF CAPITAL TURNOVER CRITERION

There are, however, certain limitations of this criterion.

First, it ignores the element of time. Quick-yielding projects having a low capital-output ratio in the short run may have a high ratio in the long run.

Secondly, this criterion ignores the supplementary benefits flowing from an investment project. It is possible that projects with a high capital ratio may confer certain supplementary benefits on the economy thereby outweighing extra costs involved in them. On this count, notes a UN Study, a project with a high capital-output ratio should not necessarily be accorded a lower priority.

Thirdly, in certain industries like agriculture, a low capital-output ratio may appear outwardly. If working capital like fertilizers is also included in the fixed capital investment, the ratio may in fact be high.

Fourthly, the higher the rate of turnover, the higher may be the rate of depreciation of capital and rate of output may not be high. Therefore, Dr K.N. Prasad suggests the net rate of turnover criterion instead.

Fifthly, the maximization of employment argument implied in this concept may hold good only in the short run. A capital-intensive project may absorb little labour to start with, but may maximize the amount of labour per unit of investment in the long run.

Sixthly, it does not necessarily follow that with increased employment there will be an addition to total output. Labour-intensive and capital-saving investments may keep productivity of labour low as usual, without making any addition to total output.

Seventhly, the use of labour-intensive techniques may even reduce output thus necessitating a

greater use of capital thereby raising the capital-output ratio.

Lastly, such techniques often produce sub-standard products. Such products are often subsidized by the government and entail high social costs. For example, the production of cotton textiles with handlooms.

26.4 THE SOCIAL MARGINAL PRODUCTIVITY CRITERION

The social marginal productivity (SMP) criterion was first put forward by A.E. Kahn and later Hollis B. Chenery improved upon it. It is based on the conventional marginal productivity approach. As more and more capital is employed in any project in combination with given amounts of other inputs, its marginal product will after a time start falling till the marginal productivity of capital in different uses is equalized. The aim is to allocate limited investment resources in such a way as to maximize the national output. In other words, they should be utilized in the most productive projects. Kahn states that this criterion takes "into account the total net contribution of the marginal unit to national product and not merely that portion of contribution (or of its costs) which may accrue to the private investor". Thus, it is applicable to the economy as a whole and not to individual investment projects.

Chenery evolves a formula for the quantitative measurement of the SMP concept. He ranks investment projects according to their social value and studies their effects on national income, balance of payments and the cost of domestic and imported materials used therein. The selection of projects depends on their rank, and their number on their cost and funds at the disposal.

Taking the balance of payments to be in equilibrium, the Chenery equation is:

$$\text{SMP} = \frac{X + E - L - M - O}{K}$$

where X represents increased market value of the output, E the added value of output due to external net economies, L cost of labour, M cost of materials. O overhead costs including depreciation, and K is capital funds invested. The equation can be simplified as $(V - C)/K$ where

V the social value added domestically equals (X+E) and C the total cost of factors equals (L+M+O).

Since in underdeveloped countries foreign exchange is more valuable than domestic currency, there is a large difference between the actual and official value of the foreign currency in terms of the local currency. Chenery represents this difference by r . A zero r means equilibrium in the balance of payments, a positive r represents a surplus and a negative r , a deficit in the balance of payments of the country. Accordingly, the refined formulation is:

$$SMP = \frac{V-C}{K} + \frac{r(aB_1+B_2)}{K}$$

The other elements being the same, aB_1 is the annual authorized impact on the balance of payments of servicing in it borrowings from abroad and B_2 the annual effect of the project's operation on the balance of payments. If B is negative, it means an import and if is positive it is an export. To simplify the formula still further $r(aB_1+B_2)$ is represented by Br , the combined balance of payments effect and the final formula is:

$$SMP = \frac{V-C}{K} + \frac{Br}{K}$$

With the help of this formula Chenery has calculated the SMP of a number of investment projects in Italy and Greece. According to him, the use of this formula may help in improving upon the method of using funds in a piecemeal manner on major projects.

26.4.1 LIMITATIONS OF THE SOCIAL MARGINAL PRODUCTIVITY CRITERION

Despite this, the practical usefulness of the (SMP) criterion is limited due to a number of considerations.

First, it is not correct to say that the marginal productivity of capital exactly equal in all uses. It can be at the most nearly equal, for investment may be either too large or too small due to technical reasons.

Secondly, marginal productivity of capital in the case of different projects is equalized on the basis of a particular technology which may not necessitate the reallocation of investible funds. But it might be useful to devote larger doses of capital to particular projects if it leads to the use of a better technology.

Thirdly, the SMP criterion considers only the effects of the present. Factor productivity in different uses depends on the relationship between costs and prices of the products produced and these in turn depend upon supply and demand conditions. In the short run, resources are adjusted to prevailing supply and demand conditions, while in the long run they are themselves influenced by present investment. Similarly, cost conditions may also be changed over time with the acquisition of more knowledge, skill and experience by entrepreneur and workers. Thus, it is difficult to calculate the productivity of resources when the time period is long.

Fourthly, the SMP criterion is vague and indefinite. For it is difficult to have a correct assessment of the benefits and costs of different Projects both in the present and future. Market prices are not a correct guide to resource allocation. There is a wide disparity in underdeveloped countries between the equilibrium and the market rates of interest, wages and foreign exchange. Likewise, the benefits accruing from social investments like education and public health services can at best be assigned an arbitrary monetary valuation. There are also idle resources like the underemployed and the unemployed manpower whose market value is not capable of measurement. Chenery himself admits that such imperfections in the market forces will "greatly reduce the social value of investment unless an attempt is made to offset them."

Finally, one of the major defects of the SMP criterion is that it is concerned with once-for-all effect of investment on the national income and neglects the multiplier effect of present investment on future income. Moreover, it does not consider the indirect effect of the present investment on

population saving and consumption in the future. It is possible that the present investment may increase the national income but may make the distribution of income unequal. Similarly, investment in some project may raise the per capita consumption in the present as compared with other projects which may raise it over the long period. Therefore, the SMP criterion is at best a value concept.

26.5 THE REINVESTMENT CRITERION

The reinvestment criterion is advanced by Galenson and Leibensteth. It is also known as the rate of surplus criterion or the marginal per capita investment quotient. The latter is defined as the "net productivity per worker minus consumption per worker." Galenson and Leibenstein emphasize the maximization of per capita output in the future rather than in the present. This is possible when the rate of savings is maximized leading to the reinvestment of income. Assuming that national income is divided into wages and profits, the former are spent on consumption and the latter are saved for the purpose of investment. The larger the volume of profits, the higher will be rate of savings, as a result the larger will be the amount of capital available per head and the higher will be the growth rate of output which will lead to increased output per head in the future. In the early phase of development, a "critical minimum effort" is required on the part of underdeveloped countries to increase the proportion of profits to national income and to restrict consumption per head. Given the quality and quantity of labour force, it is the capital-labour ratio that determines per capita output. Galenson and Leibenstein use the following formula to determine the rate of investible surplus (r)

$$r = \frac{p - e.w}{c}$$

where p is the product per machine, e the number of men per machine, w real wage rate, and c the cost of machine, r can be increased by raising p and depressing $e.w$ in proportion to c .

In order to raise the proportion of capital to labour, the per capita output potential and the per capita investible surplus, Galenson and Leiben stein favour capital-intensive techniques even in those countries where capital is scarce and labour abundant. Production processes havings a high ratio of capital to labour share of income going into profits and a small share into wages. Thus, a large proportion of the initial income is available for investment through profits.

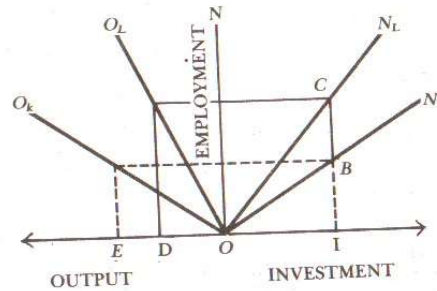


Figure 26.1

The larger the profits, the higher will be the savings. As a result, more capital will be available for investment and the greater will be the increase in output. This is illustrated in Figure 26.1 where in the north-east quadrant the relationship between new investment and resulting changes in employment N is represented. NK shows this relationship when a capital-intensive technique is used, and NL when a labour-intensive technique is used. The north-west quadrant represents the relationship between employment and output. OK shows this relationship with a capital-intensive technique, and OL when a labor-intensive technique is used. Assuming the same amount of new investment OI , the capital-intensive technique creates IB employment while the labour-intensive technique creates IC employment. But the labour-intensive technique creates only OD output while the capital-intensive technique creates larger output OE . Thus, the capital-intensive technique creates less employment but more output while the labour-intensive technique creates more employment but less output.

26.5.1 CRITICISM OF REINVESTMENT CRITERION

There are, however, certain objections to this criterion.

First, the reinvestment quotient is based on the assumption that consumption remains constant overtime. But this is untenable. For as pointed by A.K. Sen, with additional employment the total consumption of the community is likely to increase and unless the increase in output as a result of additional employment is greater than the increase in consumption resulting from it, the volume of investable surplus will fall. This will adversely affect the growth rate of the economy.

Secondly, this criterion rests on the assumption that whatever is received as wages is spent on consumption and whatever is not paid to labour is reinvested. In fact, there are likely to be leakages in the wage-stream and profit-stream flowing into consumption and investment channels respectively. With the increase in real total output, workers might feel better off than before even at the same wage rate and may save something. The doctrine makes no allowance for capital depreciation either, which is sure to reduce the investable surplus.

Thus, the authors fail to discuss the problems which may ensure wages to be spent exclusively on consumption and thereafter the surplus to be reinvested.

Thirdly, it goes against the principle of marginal productivity of capital. As the amount of capital is increased in successive doses after a point its productivity starts declining. This implies a fall in output per capita and in the reinvestment quotient.

Fourthly, the contention that highly capital-intensive processes have a large reinvestment potential does not appear to be correct. A highly capital-intensive industry like the iron and steel will not yield output until several years have elapsed. On the other hand, modern in all enterprises possess a high reinvestment coefficient and thus use more capital and more labour per unit of output than large factories)

Fifthly, the concentration upon large scale capital-intensive industries is beset with a number of practical difficulties in underdeveloped countries. Due to lack of skilled labour and entrepreneurial ability, the efficient management of large undertakings is difficult. Further, due to the non-availability of sufficient capital for small enterprises, consumer goods industries are unable to develop, thereby leading to inflationary pressures in the economy.

Sixthly, the investment criterion is lopsided, for it does not study the effect of balance of payments on investment. In an underdeveloped economy there is a scarcity of capital goods which have to be imported and they worsen the already tight balance of payments position.

Seventhly, Otto Eckstein is of the view that instead of depending on the reinvestment criterion for planned investment, it may be better to use fiscal measures to attain an income distribution which will yield sufficient savings for the purpose of investment.

Eighthly, the reinvestment criterion neglects the importance of consumption, rather it advocates its curtailment. But current consumption may be more important than future consumption and the reinvestible surplus may have to be cut down in the interest of the community. Neglecting the consumer goods sector in favour of the capital goods sector is wrought with serious consequences both for the economy and for the state. It is bound to lead to scarcity of essential commodities and to inflation and social unrest in an underdeveloped economy wedded to democracy.

Conclusion. Despite these limitations, the reinvestment criterion is useful as a first approximation towards accelerating the rate of income growth in an underdeveloped economy. It is more realistic than the social marginal productivity criterion, for it takes into consideration the effects of population growth on the rate of investment in the future.

26.6 THE TIME SERIES CRITERION

A.K. Sen has put forward the "time series" criterion. The criterion seeks to maximize output within a given period of time. Given the capital-output ratio and the rate of savings, the time-path of (say) two techniques (capital-intensive and labour-intensive) can be drawn and it can be found out which of the techniques yields the highest returns over the time-horizon. Suppose that there are two projects H (capital intensive) and L (labour-intensive) and time horizon in ten years, at the end of which total returns in each case are 100 million. This is shown in Table 1.

Table 1

Period (in year)	Project I (Capital Intensive) H (Returns in millions)	Project II (Labour Intensive) L (Returns in millions)
1	4.0	6.0
2	5.0	7.0
3	6.0	8.0
4	7.5	9.0
5	9.0	10.0
6	10.5	11.0
7	12.0	11.5
8	13.5	12.0
9	15.0 (a)	12.5
10	17.5	12.0
	100.0	100.0

(a) excess over L $58.0 - 49.0 = 9.0$

(b) excess over H $51.0 - 42.0 = 9.0$

The returns of the H project are less (42 million) in comparison to those of the project L (51 million) over the first six years while in the remaining four years the returns of the project rise more than that of the L project. The returns rise from 42m to 58m in the case of project L.

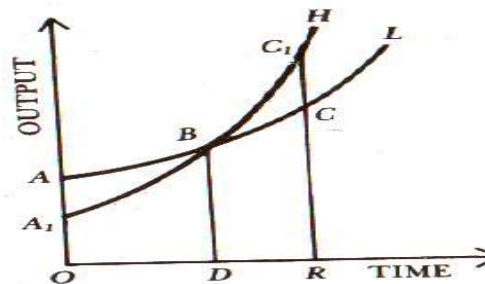


Figure 26.2

H and fall from 51 m to 49 m in project L. Since the total returns are the same (i.e. 100 million) from both the projects, the overall position is one of indifference. The important point is as to whether the initial loss in output by adopting a capital-intensive project is recovered within the time period of ten years or not. The time taken by the capital-intensive technique to overcome its initial deficiency in output the labour-intensive technique is called by Sen "the period of recovery". This is explained with the help of the diagram above reproduced from Sen.

Thus, for any pair of techniques a period of recovery can be found out. In choosing between the techniques the period of recovery should be compared with the period we are ready to take into account. If it is found that the period of recovery is longer, that is, if within the time-horizon, the loss in output, by adopting technique H is not recovered by the excess of output we should choose technique L. If reverse is the case, technique H may be chosen. To the extent real wages are within control and the taxation system is capable of providing any rate of saving, the quantitative importance of the conflict between the maximization of immediate output and the future growth rate is less. But so long as there is some conflict between the present and future, the choice will depend on the time discounted use. To say, therefore, according to Professor Sen, "that overpopulated countries should always prefer labour-intensive methods conceals an implicit preference for present over future, and represents a very short planning horizon. On the longer planning horizon, the more we calculate the future rate of growth over the present level of consumption and employment, the more we should favour capital intensive methods which are capable of yielding a larger surplus of output over wage costs for a given capital outlay' and so make possible a higher rate of reinvestment for the future."

This criterion by taking into consideration the element of time for determining production techniques in an underdeveloped economy becomes more realistic than the other criteria discussed above.

26.6.1 LIMITATIONS OF TIME SERIES CRITERION

But Sen himself points out three limitations of his concept.

First, the taking up of a particular time-horizon, say of ten years, is arbitrary.

Secondly, it is not possible to derive the time series for all times to come. Therefore, the planning period has to be definitely fixed. But this creates some serious problems. When the time limit is about to end, labour-intensive technique might be selected in order to inflate the quality of output and thus capital formation is neglected. As a result, investment will fructify after the time limit and it might not be possible to compensate for the depreciation of machinery.

Thirdly, factors like technological change, wage rate, propensity to consume, etc., on which the study of time series depends may all be changing and make the forecasting of future investment and output not only difficult but also erroneous.

Lastly, Professor Prasad is, however, of the view that there is nothing novel about this criterion. If the period of recovery is very short, this criterion in practice becomes the net rate of turnover criterion and if the period of recovery is very long, it corresponds to the reinvestment criterion. In the end we are left with the question, what criterion is there for the choice of a time period

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is the capital-turnover criterion and why is it significant in underdeveloped economies?

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Q2. Explain the limitations of the social marginal productivity criterion.

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Q3. What is the reinvestment criterion and how does it differ from other criteria?

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Q4. State two main limitations of the time series criterion as proposed by A.K. Sen.

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26.7 MEANING OF PROJECT EVALUATION

Project evaluation is the most specialized planning process which involves systematic, objective and comprehensive appraisal of development programmes for individual commodities and projects. It implies an appraisal or assessment of a project as to its operational efficiency technically, economically, financially and managerially. It involves a probe by a group of outside experts into the working of a project to find out its achievements and weaknesses, and to suggest ways and means of overcoming the weaknesses to improve its operation. Project 'evaluation thus refers to the procedures of fact-finding about the results of planned social action which in turn move the spiral of planning over upward. It is the proper methodological accompaniment of rational action."

Project evaluation is an integral part of any development programme in order to assess its success or failure and to point out further lines of improvement. It is a process to evaluate the rate of

return on a project, its social profitability and its side effects on the growth rate of population, on employment labour and management training and on rate of reinvestment. Further it helps to assess the impact of the new project on the people of the area especially on their social and economic conditions. "Evaluation is, therefore, an essential aid to policy. It may be considered to be a branch of research which is oriented primarily to the needs of an action programme."

Project evaluation utilizes principles similar to those for the evaluation of industrial sectors, but it requires more extensive study of individual elements. Whereas sector analysis is applied only to the typical cost and demand conditions in the industry, project analysis takes into account a variety of supply and demand factors that are peculiar to the commodities and production technique under consideration."

26.7.1 STAGES OF PROJECT EVALUATION

It involves four stages: to review the situation before the project actually started; to make appraisal when the project is in operation in order to find out how much has been accomplished and what remains to be accomplished to suggest ways and means to improve its operation further and to plug loopholes; and lastly, to evaluate the ends achieved by the project when it is complete and is in full operation.

26.8 METHODS OF EVALUATION

In the methods of project evaluation, the usual stages are: (a) the technical and economic characteristics of each project; (b) the estimation of the influence of the project on the economy, both during the construction period as well as during the operational period, when the investment is completed and the newly productive capacity is in operation; (c) the evaluation of the consequences of the project which may be direct or indirect. The direct effects consist of the immediate contributions to production within the sector of the project while the indirect effects are those in sectors vertically connected with the sector, either preceding or following, because of their direct technological links; and (d) the formulation of the criterion for the selection of the projects.

26.8.1 COST BENEFIT ANALYSIS

In appraising projects from the national view point the most appropriate and popular method is the cost-benefit analysis. The analysis is the most scientific and useful criterion for project evaluation. It helps the planning authority in making correct investment decisions to achieve optimum resource allocation by maximizing the difference between the present value of benefits and costs of a project. It involves the enumeration, comparison and evaluation of benefits and costs. This implies weighing of the returns against the costs involved in a project. Thus, the cost-benefit analysis "purports to describe and quantify the social advantages and disadvantages of a policy

in terms of a common monetary unit." Its objective function is the establishment of net social benefit. This objective function can be expressed as $NSB = \text{Benefit} - \text{Costs}$, where benefits and costs are measured in terms of shadow or 'accounting' prices of inputs and outputs instead of in actual market prices.

CRITERIA FOR COST-BENEFIT ANALYSIS

There are four benefit-cost criteria discussed by the US Sub Committee on Benefits and Costs. They are $B-C$, $B-C/I$, $\Delta B/\Delta C$ and B/C , where B and C refer to benefits and Costs respectively, I relates to direct investment and A is incremental or marginal.

Of these, the formula $B-C/I$ is for determining the total annual returns on a particular investment to the economy as a whole irrespective of to whom these accrue. "Here It does not include the private investment that may have to be incurred by the beneficiaries of the project, such as the cultivators from an irrigation project. If the private investment happens to be very large, even a high value of $B-C/I$ may be less beneficial to the economy. Thus, this criterion would not give satisfactory results. The second criterion of $\Delta B/\Delta C=1$ is meant to determine the size of a project that has already been elected and is not for selecting a project. The adoption of the $B-C$ criterion would always favour a large project, and make small and medium size projects less beneficial. Thus, this

criterion can only help in determining the scale of the project on the basis of the maximization of the difference between B and C. But the best and the most reliable criterion for project evaluation is B/C. In this criterion, the benefit-cost ratio is the measure for the evaluation of a project. If $B/C = 1$, the project is marginal. It is just covering its costs. If $B/C > 1$, the benefits are more than costs and it is beneficial to undertake the project. If $B/C < 1$, the benefits are less than costs and the project cannot be undertaken. The higher the benefit-cost ratio, the higher will be the priority attached to a project. Since capital and other investible resources are scarce in underdeveloped countries, it can maximize output by using them on a project so that its benefit-cost ratio is higher than that of the next alternative project.

The above formula does not take into account the 'time horizon' of the project. As a matter of fact, future benefits and costs cannot be treated at par with present benefits and costs. Therefore, the appraisal rules for project evaluation require discounting of future benefits and costs because society prefers the present to the future. For this purpose, economists have devised a number of decision rules or criteria.

26.8.2 THE NET PRESENT VALUE CRITERION

It is an important criterion used for project evaluation. Net Present value (NPV) is equal to the present value of benefits minus the present value of operating and maintenance costs minus initial outlay. This criterion is also expressed as the net present value of benefits criterion so that $\text{Net Present Value of Benefits} = \text{Gross Present Value of Benefits} - \text{Gross Present Value of Costs}$. A project is socially profitable if the $\text{NPV} > 0$. If there are a number of mutually exclusive projects, the project with the highest net present value at benefits will be chosen.

But the explanation of the NPV criterion in terms of benefits and costs is not a correct method for project evaluation because it neglects the time horizon. Capital investments give benefits after a lapse of so much time. Therefore, future benefits and costs cannot be equated with present benefits and costs. Since society gives preference to the present over the future, it becomes essential to discount future benefits and costs of projects. The discount factor is expressed as

$$D = \frac{1}{(1+i)^t}$$

Where i is the social discount rate and t is the time period.

Thus

$$NPV = \frac{B_1}{(1+i)} + \frac{B_2}{(1+i)^2} + \dots + \frac{B_n}{(1+i)^n} - \frac{C_1}{(1+i)} - \frac{C_2}{(1+i)^2} - \dots - \frac{C_n}{(1+i)^n}$$

where B1, B2... Bn, are series of gross present benefits in years 1, 2, ... n:
C1, C2.....Cn are series of gross present costs in years 1, 2 n; i is the social rate of discount for annual compounding.

In making a choice among projects either of the two rules may be followed.

1. Only those projects should be selected in which the present value of benefit exceeds the present value of costs, Where symbolically

$$\frac{B_1}{(1+i)} + \frac{B_2}{(1+i)^2} + \dots + \frac{B_n}{(1+i)^n} > \frac{C_1}{(1+i)} + \frac{C_2}{(1+i)^2} + \dots + \frac{C_n}{(1+i)^n}$$

2. All projects where the ratio of the present value of benefits to the present value of costs is greater than one. Expressed symbolically

$$\frac{B_1}{(1+i)} + \frac{B_2}{(1+i)^2} + \dots + \frac{B_n}{(1+i)^n}$$

$$\frac{C_1}{(1+i)} + \frac{C_2}{(1+i)^2} + \dots + \frac{C_n}{(1+i)^n}$$

NPV criterion is considered as the most appropriate rule for project evaluation.

26.8.3 THE INTERNAL RATE OF RETURN CRITERION

This criterion refers to the percentage rate of return implicit in the flows of benefits and costs of projects. Marglin defines the internal rate of return (IRR) as the discount rate at which the present value of return minus costs is zero. The formula for the calculation of IRR is

$$\frac{B_1 - C_1}{(1+r)} + \frac{B_2 - C_2}{(1+r)^2} + \dots + \frac{B_n - C_n}{(1+r)^n} = 0$$

where r is the internal rate of return. In the case of mutually exclusive projects that project should be selected which has the highest rate of return.

But this criterion has certain limitations.

First, once a rate of return is assumed for the calculation of the profitability of a project, it is not possible to change it.

Secondly, it is difficult to calculate the rate of return on a long gestation project which does not yield benefits for a number of years.

Thirdly, if projects are mutually extensive, this criterion favours that project which has a lower capital cost than others. Thus, it cannot be applied to highly capital-intensive projects.

Fourth, the use of IRR for public investment does not lead to correct decisions because the definition of IRR implies that intermediate receipts and outlays are also discounted at the internal rate. But it is not possible to discount intermediate benefits and costs of public investment at the internal rate of return.

Fifth, there are often such projects on which the entire investment outlay cannot be made in the first period. It becomes difficult to calculate IRR in all such cases.

Sixth, the IRR criterion is suitable for such investment projects which are wholly independent of others. The different projects can then be ranked according to their internal rates of return and the project with the highest IRR is chosen first and the other projects with lower IRR are selected according to their ranks. But the fact is that public investments are not independent of each other. Often, they are alternatives. Therefore, it is difficult to make a choice between two alternative investments on the basis of their alternative internal rates of return.

Seventh, Layard points out the problem of capital rationing where projects cannot be selected on the basis of ranking in order of rate of return. Such projects can only be selected on the basis of their net present value.

In fact, IRR depends on the social rate of discount. If the net present values of two alternative projects are given, the choice of the project will depend on the discount rate. This is illustrated in Figure 26.2 where the rate of discount is measured along the horizontal axis and NPV on the vertical axis. The curve AA' depicts investment of project A and the curve BB' of the project B. The IRR of project B is higher than that of project A because the discount rate Or is higher than Or' . At Or_2 , the IRR of both the projects is equal. But if the discount rate falls below Or_2 project A will be chosen because its NPV is higher by ba . Making a choice between two projects on the basis of

changes in the discount rate is called switching and reswitching.

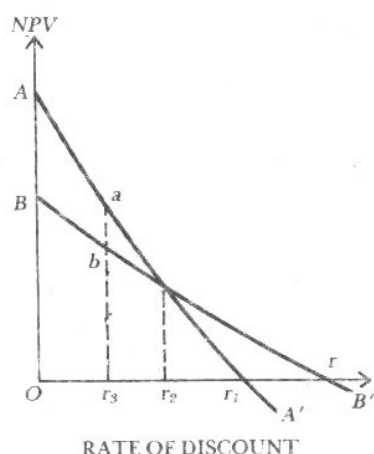


Fig. 26.3

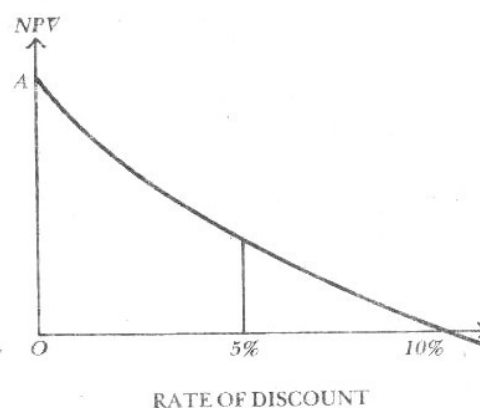


Fig. 26.4

26.8.4 RELATION BETWEEN NPV AND IRR

The relation between NPV and IRR is depicted in figure 26.4. As NPV falls, the discount rate increases and a situation arises when NPV becomes negative. The rate at which NPV changes from positive to negative is the IRR. That project will be selected whose IRR is higher than its discount rate. So the right criterion for the choice of a project is $r > i$. This is illustrated in Figure 26.4 where IRR is taken as 10 percent and discount rate as 5 percent in the case of project A. This project will be selected for development so long as its $NPV > 0$ and $r (10\%) > i (5\%)$. If two projects are complex, these two criteria can give different results. But for the majority of projects, they are interchangeable. However, difficulties arise when two or more projects have to be compared and their lengths of life and capital investments differ. Of the two criteria, NPV is more commonly used for project evaluation in private and public sectors. But the NPV criterion is technically superior, since the IRR can give an incorrect result in special circumstances.

26.9 THE SOCIAL RATE OR DISCOUNT

Whether the planners use the NPV or IRR criterion, a rate of discount is needed for discounting all costs and benefits. There is considerable controversy over the choice of such a rate. The controversy arises because the discount rate is required to solve two problems: first, proper allocation of resources between the public and private sectors; and second the allocation of resources between the provision of present and future goods and services. The rate used to solve the second problem is called the social discount rate or social time preference rate.

The social discount rate is premium which the society puts for preferring the present consumption to

future consumption. This is explained in terms of figure 26.5 where the present consumption C_1 is taken on the horizontal axis and the future consumption C_2 on the vertical axis.

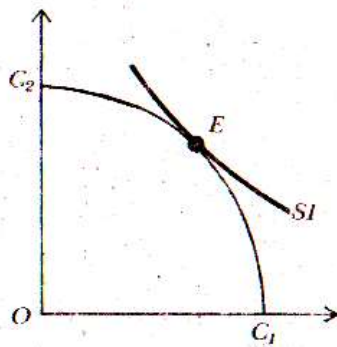


Figure 26.5

C_1C_2 is the transformation frontier or the investment possibility curve. It consists of a series of projects arranged from right to left in order of their rate of return—the cost is the sacrifice of present consumption and the return is the gain of consumption in the future. The society will choose from the various investment possibilities so as to reach its highest social indifference curve SI . The society reaches an optimal position with regard to its sacrifice or present consumption and invests it for gain in the future consumption when its transformation curve C_1C_2 equals its social indifference curve SI at point E . It is to be noted that the slope of the transformation curve represents the rate of return on investment and the social indifference curve represents the rate of time preference. So, the social discount rate is determined with the equality of the rate of return on investment and the rate of time preference at point E .

The social rate of discount is a constant rate over time. The choice of a discount rate affects the projects to be undertaken. "A discount rate of 5 per cent might well lead to twice as much investment as one of 10 per cent, together with equivalent reduction in consumption."

Pigou, followed by Dobb, regards the use of social time preference rate as pure myopia. He alleges that people are victims of defective telescopic faculty that is why they prefer present consumption to future consumption. They have risk-of-death time preference. ³⁶⁰ Pigou and Dobb reject this view on the ground that society is a continuous entity and it has a collective responsibility for future generations. So, they favour a zero social time preference rate because the present and future should have equal weights in the estimation of the society.

But economists do not accept Pigou-Dobb view. According to Marglin this view is an "authoritarian

rejection of individual preferences." Sen and Eckstein point out that a rational fear of death is sufficient for people to have a positive social time preference rate.

Hirschleifer and others use the concept of social opportunity cost to measure the social discount rate. "The social opportunity cost is a measure of the value to society of the next best alternative use to which funds employed in the public project might otherwise have been put". The next best alternative use of funds is investment in the private sector. If they earn a rate of 6 per cent, the public investment must also earn a rate of 6 per cent or more. Thus, the social discount rate is 6 per cent. Any other rate than this would lead to misallocations of resources. If a public project earns 4 per cent, it should not be undertaken.

The social opportunity cost method of calculating the social discount rate is not free from certain limitations. To depend on the estimates of the private sector is misleading because different industries adopt different methods for estimating their rates of return. Thus, it is difficult to find a rate of return which may measure the social opportunity cost of funds. According to Feldstein, the social opportunity cost depends on the sources of particular funds, it must also reflect the social time preference function. He, therefore, suggests a method of combining the two. The procedure is to allow for the social opportunity cost of funds directly by placing a shadow price on the funds used in the project and to make all intertemporal comparisons with a social time performance rate.

Marglin and other economists have argued for a synthetic discount rate. They move on this presumption that the social time preference rate is less than the social opportunity cost rate. Therefore, there will be under investment in the economy which requires a synthetic discount rate for public investment. The synthetic discount rate is some weighted average of the social time preference rate and the social opportunity cost rate.

Baumol does not agree with Marglin that there should be a synthesis of the two rates. He regards the choice of rates as indeterminate because of the existence of risk and institutional barriers which will prevent the two rates to be in equilibrium. On the other hand, Pearce suggests that the correct answer to the choice of a social discount rate does not lie in the selection of a single rate, but in the use of both the social time preference and the social opportunity cost rates according to (a) the type of benefits yielded, and (b) the type of forgone expenditure. In Figure 26.5, the social time preference rate is in equilibrium with the social opportunity cost rate at point E. Pearce concludes that it will not matter which rate is chosen. If equilibrium conditions prevail, the necessity for the estimation of a synthetic discount rate disappears.

26.9(a) EVALUATION ON THE BASIS OF BENEFITS.

A project is evaluated on the basis of the benefits accruing from it. Benefits refer to the addition to the flow of national output accruing from a project. A project is beneficial to the extent it tends to increase the income of the people, increase in income being measured by the actual increase in production and consumption. Benefits may be real or nominal and direct or indirect.

Real Benefits. In cost-benefit analysis we are concerned with the real benefits rather than with the nominal benefits flowing from a project. A river valley project may increase irrigational facilities to the cultivators, but if at the same time the state levies heavy betterment levy on them, the benefit is nominal. For, whatever benefit accrues from the project it goes to the treasury. But if the same project, besides increasing irrigational facilities, raises the productivity of land per acre and leads to a number of other external economies whereby the level of real income of the farmers rises, then it is said to lead to real benefits.

Direct and Indirect Benefits. Direct benefits are those benefits which are immediately and directly obtainable from a project. They are the values of the immediate products and services for which direct costs are incurred. A number of direct and immediate benefits flow from a multipurpose river valley project such as flood control, irrigation, and navigation facilities, the development of fisheries, power, etc. A multipurpose project may also lead to certain indirect benefits or side-effects. Indirect or secondary benefits are the values added to the direct benefits as a result of the activities stemming from or induced by the project. For instance, the construction of the Bhakra Nanga Project has provided employment opportunities to thousands of people. It has led to the construction of a new railway line connecting Nangal township and the Bhakra Dam with the rest of the country. New roads have been laid. A new town, Nangal, has come up. A fertilizer factory has been started there which is the harbinger of more factories. The Bhakra Nangal Dam has been developed into a tourist-resort, thereby augmenting income. Besides, as pointed out by Professor Bruton, project evaluation should take into account the effects of a project on the rate of investment, on the growth rate of population, on the acquisition of skills and managerial talents by the people. All these are indirect benefits or side-effects which are more or less incidental to the direct benefits.

Tangible and Intangible Benefits. A project may also lead to tangible or intangible benefits. Tangible benefits are those which can be computed and measured in terms of money while intangible benefits cannot be measured in monetary terms. For example, benefits flowing from the Bhakra-Nangal Project are tangible and can be computed. Intangible benefits enter into individual valuations, for which there is neither a market nor a price. They may be positive or negative. The former are the scenic beauty and recreational value of the Bhakra Dam while the latter refer to the

uprooting of the people as a result of the Dam.

26.9 (b) EVALUATION ON THE BASIS OF COSTS.

Just as there are various forms of benefits, so there are various types of costs.

Project Costs. They are the value of the resources used in constructing, maintaining and operating the project. They relate to the cost of labour, capital, intermediate goods, natural resources, foreign exchange. etc. including allowances for induced adverse effects.

Associated Costs. They are the value of goods and services needed beyond those included in the cost of a project to make the immediate products or services of the project available for use or sale. For example, the farmer's cost of producing their irrigated crop, other than any charge for water, would be his associated costs of producing that crop.

Real and Nominal Costs. Costs may be real or nominal. If a block Samiti borrows from the people of the area for digging a canal, it is a case of nominal costs. For no real sacrifice is involved on the part of the people, money having been transferred to the Block Samiti from the people. But if the people of the block are asked to dig the canal themselves, it would be real cost for them.

Primary or Direct Costs. In cost-benefit analysis, we are concerned more with primary or direct costs. These are costs properly incurred for the construction, maintenance and execution of a project. And to make immediate products of the project available for use or sale.

Indirect or Secondary Costs. They are the value of goods and services incurred to provide indirect benefits of a project, viz., houses, school, hospital, etc., for the people working at the project site. They also include the costs of processing the immediate products of the project.

26.9 (c) IMPORTANCE OF DATA FOR EVALUATION.

In project evaluation detailed data extending over a long period are required which may be divided into "an investment or gestation period" and "an operation or production period." The project is completed in the first period and is used in the second period when production starts. The data describe the number of workers and other personnel involved, the number of raw materials required and the quantity of the products expected to be produced, etc. These data are compared with similar projects elsewhere in terms of their costs and benefits. The data are also used to calculate the contribution of the project to national output, to the employment of labour, and to the health of the workers.

26.10 LIMITATIONS OF COST-BENEFIT ANALYSIS

However, limitations arise in cost-benefit analysis of measuring the present and future benefits from

a project and costs incurred in obtaining these benefits.

1. Difficulties in Cost-Assessment. Cost assessment of project is however comparatively easy than benefit assessment. Cost estimates are made on the basis of the choice of techniques, locations and prices of factor services used. But market prices, particularly those of factors of production, from an imperfect guide to resource allocation in underdeveloped economies, because there exist fundamental disequilibria which are reflected in the existence of massive underemployment at present level of wages; the deficiency of funds at prevailing interest rates and the shortage of more exchange at current rates of exchange. The equilibrium level of wage rates will be considerably lower than market wages, while equilibrium interest rates will probably be much higher than market rates. To remove these difficulties, the use of "shadow" or "accounting" prices has been suggested by J. Tinbergen and H.B. Chenery and

K.S. Kretchmer. These "shadow prices" reflect intrinsic values of factors of production. Like shadow prices, the concept of "shadow costs" has also been introduced to calculate the real costs of a particular project to society. Nowadays economists use shadow prices and costs in evaluating projects and determining which are worth undertaking and which are not.

2. Difficulties in Benefit Assessment. The assessment of benefits is, however, still more difficult due to the presence of the element of uncertainty in a new project as to the correct estimation of future price, demand and supply of its product. Another difficulty of measuring the benefit is the assessment of external economies. If the presence of external economies leads to the selling of the product at marginal costs rather than at average costs, a deficit will accrue. Efforts to cover this deficit through a levy on the consumer or the government budget make the assessment of benefits more vague.

3. Arbitrary Discount Rate. The assumed social rate of discount for any project is likely to be arbitrary. If an arbitrarily large discount rate is applied to calculate the net present value of benefits, it is not possible to effectively calculate the long-run results of a project. This equally applies to the internal rate of return of a project.

4. Neglects Joint Benefits and Costs. The above analysis of cost benefit ignores the problems of joint benefits and joint costs arising from a project. We have seen above that a number of direct and indirect benefits flow from a river valley project. It is difficult to evaluate and calculate such benefits separately. Similarly, they involve joint costs which cannot be separated and hence, calculated benefit-wise.

5. Ignores Opportunity Costs. The cost-benefit analysis also ignores the problem of opportunity cost. Griffin and Enos have found a way out when they state that if all prices reflected opportunity

costs, all projects for which $B/C < 1$ would be chosen.

6. Adjustment for Risk and Uncertainty. The problem of adjustment for risk and uncertainty involved in the project also arises. This is done in three ways at the time of calculating the length of project life, the discount rate, and by making due allowance in benefits and costs. It is better to use the Government borrowing rate. The Research Programme Committee of the Indian Planning Commission suggests 5 per cent as the productivity rate and 10 per cent as capital scarcity rate.

7. The Problem of Externalities. The side effects of a project are difficult to calculate in this analysis. There may be technological and pecuniary spill overs (or externalities) of a river valley project, such as the effects of flood control measures or a storage dam on the productivity of land at other places in the vicinity. It is difficult to calculate such external effects of a project.

26.11 USE OF COST-BENEFIT IN DEVELOPING COUNTRIES

The cost-benefit analysis was developed in the United States for the appraisal of investments in irrigation and transportation projects. In LDCs, projects are often selected on an ad hoc basis and sufficient attention is not given to their evaluation in terms of costs and benefits. Since all public projects are related to the objectives of

growth, they aim at maximizing social welfare. Stephen Marglin points toward three merits of cost-benefit analysis for such countries.

First, it helps in reducing differences in the marginal effectiveness of alternative measures for accomplishing such objectives as between irrigation and other means of raising agricultural production.

Second, it helps in assessing the costs of fulfilling one objective in terms of benefits sacrificed with respect to others.

Third, it has a political advantage in that, "it would be difficult for any particular group to distort project plans to serve its own interests if its consent, along with the consent of other relevant sections of the community, were obtained at the time of setting the criteria in advance of planning specific projects."

Again, the cost-benefit analysis is "a practical way of assessing the desirability of projects, where it is important to take a long view (in the sense of looking at repercussions in the future, as well as the nearer future) and a wide view (in the sense of allowing for side effects of many kinds on many persons, industries, regions, etc.)." As such, it is a highly useful tool for project evaluation in developing countries.

Despite these merits, the use of cost-benefit analysis is beset with a number of difficulties in LDCs.

They are discussed below. -

- a) **Based on Conditions of Developed Countries.** This technique is based on the basic assumption that investment is made in a framework at economic stability and steady growth in a predominantly, capitalist competitive economy where prices are constant, wages are flexible, and factors are perfectly mobile and fully employed. Thus, the need for state action is assumed away in it. Under the assumptions, direct benefits of the project valued at market prices reflect its social benefits. But these assumptions make the application of cost-benefit analysis as a method of project evaluation unrealistic to underdeveloped countries. In such economies the assumptions of constancy of prices, the existence of full employment, perfect mobility of factors and flexibility of wages are unwarranted. Rather the aim of public investment is to start those development projects which aim at reducing unemployment, and underemployment and increasing factor mobility so that structural disequilibrium in the economy is set right. Though efforts have been made to modify this analysis by including indirect benefits accruing from a project and imputing benefits and costs in terms of shadow prices, yet there is arbitrariness in choosing between the various indirect benefits. Eckstein and McKean, therefore, favour the use of macroeconomic planning methods instead of the cost-benefit technique for the evaluation of projects. But these methods cannot be applied to underdeveloped countries due to the lack of statistical data.
- b) **Difficulty of Obtaining Data.** In underdeveloped countries the task of obtaining data is one of the biggest hurdles. It is, therefore, not possible to distinguish the benefits accruing to the people with and without the project. The element of uncertainty and the difficulties of assessing externalities as noticed above, also stand in the way of correct assessment of benefits from a project. In certain cases, both tangible and intangible benefits are difficult to assess. To what extent the supply of drinking water will benefit the residents of a town from a drinking water project or the building of an embankment to control floods cannot be measured accurately.
- c) **Difficulties in Cost Assessment.** Assessing the cost of a project is by no means easy either. Preliminary estimates of costs are prepared but they are either overestimated or underestimated. Rise in prices, shortage of raw materials and foreign exchange difficulties often stand in the way of accurate cost assessment. In the case of certain projects where Shramdan (voluntary labour) is made use of, the measurement of labour cost becomes still more difficult. In India, so many projects have been started hastily that it is not possible to assess their viability.

26.12 USE OF COST-BENEFIT ANALYSIS IN INDIA

The first systematic attempt in India was made by D.R. Gadgil by conducting a survey of the Godavari and Pravara canal systems in Maharashtra. This was followed by a study of the benefits and costs of the

Hirakund Dam Project on the Mahanadi by Sovani and Nilkanth Rath. In 1958, the Planning Commission Research Programmes Committee headed by D.R. Gadgil initiated the study of the benefit cost ratios of six irrigation projects: (i) The Sarda Canal in UP; (ii) The Tribani Canal in Bihar; (iii) The Damodar Canal in West Bengal; (iv) The Gang Canal in Rajasthan; (v) The Cauvery Methur Project in Tamil Nadu; and (vi) The Nizam Sagar Project in Andhra Pradesh. Similar surveys had been conducted by Baljit Singh for the Sarda Canal Project in UP, by K.N. Raj for the Bhakra Nangal Project in Punjab, by A.S. Charan for the West Banas Project in Rajasthan and by Ram Narain of the Jui Lift Irrigation Project in Haryana. But there is no uniformity in the application of cost-benefit techniques in these studies. These studies have been made either on the basis of the 'before and after' technique or the with and without technique. The before and after technique takes into account the benefits and costs before the introduction of the projects and compares the same with the benefits and costs that have resulted after the introduction of the project. The with and without technique makes a comparative study of the same area being benefited with irrigation facilities and without such facilities.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is cost-benefit analysis and what are its main criteria?

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Q2. Explain the difference between Net Present Value (NPV) and Internal Rate of Return (IRR).

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26.13 Lets Sum-up

The various investment criteria discussed above are not different in their ultimate objective, that of the maximization of national output. Only the approach routes differ. The different components of

national income (consumption saving and investment) are used by economists to maximize the total output by giving more or less importance to one or the other. Some investment criteria aim at maximizing total output at a point of time while others over a period of time. But all criteria are incomplete because they neglect the influence of such factors as population growth, tastes, technical progress, market conditions, distribution of income, price changes, balance of payments and social and cultural conditions on the level of investment in one way or the other. Contrary, they also fail to study the impact of investment on these factors. Even the use of input technique and the concept of shadow prices and costs have failed to solve this problem satisfactorily. But despite these apparent theoretical and practical limitations, the various investment criteria are being increasingly made use of in the programme of resource allocation in almost all the developing countries of the world including India. It is, however, essential that they must be in keeping with the social and economic objectives of the developing country.

In order to arrive at the aggregate direct costs and benefits, first, data are collected and calculated on the physical quantities of goods and services produced; then secondly, on the physical quantities of goods and services consumed, thirdly, the money value of these goods and services is computed on the basis of price indices in different markets giving weights to inflationary and deflationary situations. Lastly, in calculating annual costs, due regard is to be taken of the durability of capital assets and their depreciation. Annual costs are calculated by dividing the total costs by the expected life of capital assets. Similarly, annual benefits are calculated by computing the money value of direct benefits flowing from the projects and deducting from it associated costs of the project.

26.14 Key words

- **Investment Criteria:** Guidelines used to select the most efficient allocation of scarce investment resources in an economy.
- **Capital-Turnover Criterion:** Selects projects that yield the maximum output per unit of capital invested.
- **Social Marginal Productivity (SMP):** Measures the additional output from an investment, accounting for both private and social costs/benefits.
- **Reinvestment Criterion:** Focuses on maximizing future output by promoting savings and reinvestment of profits.
- **Time Series Criterion:** Evaluates projects based on the timing of their output returns over a planning horizon.

- **Project Evaluation:** A systematic assessment of the costs, benefits, and impacts of a development project.
- **Cost-Benefit Analysis (CBA):** Compares the present value of benefits and costs to determine project viability.
- **Net Present Value (NPV):** Present value of all net benefits (benefits minus costs) of a project, discounted over time.
- **Internal Rate of Return (IRR):** The discount rate that makes the net present value of a project equal to zero.
- **Social Discount Rate:** The rate at which society is willing to trade off present for future benefits.
- **Real vs. Nominal Costs/Benefits:** Real refers to actual resource use/impact; nominal refers to monetary values that may be distorted by taxes, subsidies, etc.
- **Direct vs. Indirect Benefits:** Direct benefits arise from immediate project outcomes; indirect benefits include spillovers like job creation or infrastructure development.
- **Tangible vs. Intangible Benefits:** Tangible can be measured in monetary terms; intangible includes social or environmental improvements.
- **Partial Equilibrium Method:** Estimates shadow prices for specific markets (capital, labor, foreign exchange) independently.
- **Opportunity Cost:** The value of the next best alternative use of resources.
- **Externalities:** Side effects (positive or negative) of a project not reflected in its cost-benefit accounting.

26.15 FURTHER READINGS

- Agarwal R.C : Economics of Development and Planning
[Theory and Practice]
- Dewett K.K : Modern Economic Theory
- Jhingan M.L : The Economics of Development and Planning
- Jhingan M.L : Advanced Economic Theory

26.16 Hints to Check your Progress (CYP)

CYP-I

Q1: Refer to Section 26.3

Q2: Discussed in 26.4.1

Q3: Covered in 26.5

Q4: Explained in 26.6.1

CYP-II

Q1: Refer to Section 26.8.1

Q2: See Sections 26.8.2 and 26.8.3

Q3: Defined in 26.13.2; Need explained in 26.13.4

Q4: Limitations discussed in 26.13.6

26.17 SELF ASSESSMENT EXERCISE

Q1. What is meant by Time Series Criterion? Discuss its criticism in economic development?

Q2. Define Reinvestment criterion. Explain the limitations of reinvestment criterion in economic development?

Q3. Briefly explain the social marginal productivity criterion?

Q4. What are the limitations of The Capita Turnover Criterion?

STRUCTURE

27.0 Objectives

27.1 Learning Outcomes

27.2 Introduction

27.3 Shadow Prices: Concept and Definition

27.4 Approaches to Calculate Shadow Prices

- 27.4.1 Linear Programming Approach
- 27.4.2 Dual Variables in Optimization
- 27.4.3 Economic Models and Calculations

27.5 Shadow Prices in Resource Allocation

- 27.5.1 Role in Resource Allocation
- 27.5.2 Market Failure and Shadow Prices
- 27.5.3 Example in Production Optimization

27.6 Applications of Shadow Prices

- 27.6.1 Cost-Benefit Analysis
- 27.6.2 Environmental Economics
- 27.6.3 Public Policy

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27.7 Advantages and Limitations of Shadow Prices

27.8 Glossary

27.9 Let's Sum Up

27.10 Suggested Readings

27.11 Hints to Check Your Progress

27.12 Examination-Oriented Questions

27.0 Objectives

By the end of this lesson, you should be able to:

- Understand the concept of shadow prices and their role in economics.
- Learn how shadow prices reflect the opportunity cost of resource allocation.
- Explore the different methods to calculate shadow prices in economic models.
- Analyze the application of shadow prices in linear programming and optimization problems.
- Examine the use of shadow prices in cost-benefit analysis for non-market goods and services.
- Understand how shadow prices are applied in environmental economics and resource valuation.
- Evaluate the relationship between shadow prices and market prices in different economic settings.

27.1 Learning Outcomes

- Define shadow prices and describe their significance in economics.
- Demonstrate how to calculate shadow prices using various methods and models.
- Apply shadow prices in optimization problems and decision-making scenarios.
- Compare the role of shadow prices in both market-based and non-market-based economies.
- Analyze the use of shadow prices in resource allocation and production optimization.
- Identify the advantages and limitations of shadow prices in practical applications.
- Assess how shadow prices contribute to policy evaluation and economic decision-making.

27.2 Introduction

In economics, shadow prices play a crucial role in evaluating the true cost or value of resources, particularly when market prices are not available or do not reflect the full social or economic cost. Shadow prices are the implicit or "hidden" prices that reflect the opportunity cost of using a resource in a particular way. These prices are particularly useful in resource allocation, cost-benefit analysis, and optimization models, where they help in making informed decisions when traditional market prices cannot be observed or do not reflect externalities.

Shadow prices are often associated with situations where market failure occurs. For example, in the case of public goods or environmental resources, such as clean air or water, market prices might not exist, or they may fail to capture the full social value or cost of using these resources. In such cases, shadow prices are used to estimate the value of these non-market goods, helping policymakers and economists make decisions that are in the best interest of society as a whole.

One of the key applications of shadow prices is in linear programming models and other optimization techniques. In these models, shadow prices represent the marginal value of relaxing a constraint. For instance, if a business faces resource constraints such as limited capital or labor, shadow prices tell the business how much the objective function (e.g., profit) would improve if the available resources were increased by one unit. This makes shadow prices extremely valuable in resource management and production optimization, as they guide firms and governments on how to allocate scarce resources efficiently.

Another important application of shadow prices is in cost-benefit analysis (CBA). When evaluating a project or policy intervention, shadow prices can be used to estimate the economic value of outcomes that are not directly traded in markets, such as environmental impacts, social benefits, or public health outcomes. By incorporating shadow prices, economists can assess the full costs and benefits of a decision, even if some of the variables do not have observable market prices.

In environmental economics, shadow prices are used to value resources that are not bought or sold in markets, such as natural capital (e.g., forests, water, biodiversity) or the costs of pollution. Here, shadow prices help estimate the true cost of environmental damage, guiding decisions on resource conservation and pollution control.

Overall, shadow prices provide a method to incorporate hidden costs and values into economic decision-making, making them indispensable for achieving efficient and socially optimal outcomes, especially in cases where market prices alone do not reflect the true worth of resources. They are used in both theoretical models and real-world applications, making them a key tool in economics, environmental studies, public policy, and optimization.

Understanding shadow prices and their uses helps³⁶⁰ policymakers, businesses, and economists make better, more informed decisions about resource allocation, investment, and policy.

27.3 Shadow Prices: Concept and Definition

Shadow prices are fundamental in economic theory and practice, especially when market prices are unavailable or distorted. They represent the implicit value of a resource in the context of optimization problems, public policy, and resource allocation decisions. Shadow prices indicate the marginal value of relaxing a constraint in an economic model or the opportunity cost associated with using a resource in a particular manner.

The concept of shadow prices is closely tied to optimization techniques, particularly in fields like linear programming, cost-benefit analysis, and environmental economics. They are crucial in situations where market prices fail to reflect the true social or economic cost of resources, such as in the case of public goods, environmental resources, and externalities. Understanding shadow prices allows economists and policymakers to make informed decisions, especially in cases where market mechanisms are inadequate or do not exist. In this section, we will define shadow prices in various contexts and explain their significance in economic theory and practice. The definitions will be followed by a discussion of their applications and relevance in real-world economic analysis.

1. Definition 1: "The implicit value of a constraint in an optimization problem"

"A shadow price is the rate at which the objective function of a linear programming model would change if the availability of a resource were increased by one unit."

(Dantzig, 1963)

This definition by George Dantzig, the creator of linear programming, emphasizes the role of shadow prices in optimization problems. In the context of linear programming, shadow prices represent the marginal value of relaxing a constraint. They indicate how much the objective function (e.g., profit, utility, or cost) would improve or worsen if one additional unit of a constrained resource were available.

For example, consider a business that is constrained by a limited number of workers or machines. If the shadow price of labor is \$50, it means that by adding one more unit of labor (i.e., hiring one more worker), the firm's profit would increase by \$50. If the shadow price is zero, it indicates that adding more labor will not affect the firm's objective function, implying that the firm is operating at its optimal resource allocation.

This definition is essential in resource management and production optimization, as it helps firms understand the value of resources they are constrained by and provides a method to prioritize investments in additional resources. Shadow prices are used to guide decision-making, helping businesses allocate resources efficiently and maximize output.

2. Definition 2: "The opportunity cost of using a resource"

"Shadow prices represent the opportunity cost of using a resource in a particular way when market prices are unavailable or distorted." (Friedman, 1983)

Milton Friedman, in his works on public policy and economic theory, emphasizes the opportunity cost aspect of shadow prices. In situations where market prices do not exist or are distorted due to market failures, shadow prices help economists and policymakers assess the true economic value of a resource or service.

For instance, when valuing environmental resources, such as clean air or water, shadow prices can help estimate the cost of polluting or using these resources in a way that is not captured by market transactions. These prices reflect what society is willing to give up or the trade-off involved in utilizing resources in a non-market setting.

In the context of environmental economics, shadow prices are critical for determining the economic value of preserving natural resources. For example, a government may assign a shadow price to carbon emissions to estimate the societal cost of pollution and guide policy on emissions reduction. This definition of shadow prices highlights their role in making socially optimal decisions, especially when direct market prices are unavailable.

3. Definition 3: "A price used in non-market valuation methods, such as cost-benefit analysis"

"In non-market valuation, shadow prices are used to estimate the value of goods and services that are not traded in markets." (Pearce, 1998)

In this definition, David Pearce, a prominent economist in environmental economics, explains that shadow prices are used in non-market valuation methods. These include techniques like cost-benefit analysis (CBA) and contingent valuation, where traditional market prices do not exist for the goods or services being evaluated. For instance, shadow prices are used to value public goods, such as clean air, biodiversity, or education, which are not bought or sold in markets.

In cost-benefit analysis, shadow prices help evaluate the economic worth of a policy or project, where outcomes are difficult to price in ³⁶⁰market terms. For example, a government might use shadow prices to estimate the social value of reducing pollution or preserving a natural park. By assigning shadow prices to these outcomes, policymakers can make decisions based on their economic value, even in the absence of market prices.

This definition highlights the role of shadow prices in providing a quantitative measure of non-market goods and services. These values are essential for policy evaluation, especially

when governments or organizations need to decide on the allocation of resources to projects that benefit society as a whole but lack direct market transactions.

4. Definition 4: "A price reflecting the social or economic cost of a resource"

"A shadow price is a price that reflects the social or economic cost of using a resource, especially in situations where market prices do not exist or fail to capture the full value." (Stern, 1997)

This definition by Sir Nicholas Stern, known for his work on climate change economics, highlights the broader role of shadow prices in reflecting the social cost of resources. In many cases, market prices do not accurately capture the social externalities associated with resource use. For instance, a market price for fossil fuels may not include the environmental damage caused by pollution or climate change.

In such contexts, shadow prices are used to estimate the full social cost of using a resource, incorporating environmental, social, and future economic costs. For example, a government may use shadow prices to measure the cost of carbon emissions, which are not reflected in the market price of carbon. This ensures that economic decisions account for broader societal impacts.

This definition is particularly relevant in sustainability and environmental economics, where shadow prices help integrate externalities into economic analysis, enabling policymakers to make decisions that promote long-term well-being and environmental health.

5. Definition 5: "The marginal value of a resource when the market does not provide a price"

"Shadow prices represent the marginal value of a resource, indicating the price at which the resource would be traded if it had a market value." (Dasgupta, 2001)

In this definition, Partha Dasgupta, a renowned economist in the field of environmental economics, emphasizes the marginal value aspect of shadow prices. The marginal value refers to the benefit derived from using an additional unit of a resource. In cases where a market price does not exist, such as for environmental or public goods, shadow prices provide a way to quantify this marginal value.

For example, if a country is considering a project that involves deforestation, shadow prices can help calculate the marginal loss of biodiversity and ecosystem services. These values, though not directly observable in markets, help policymakers assess the full value of

environmental resources. By considering the marginal value, shadow prices ensure that decisions reflect the true economic cost of using resources.

This definition underscores the concept of marginal utility in economics, where shadow prices represent the marginal value of a resource in a context where market prices are absent or inadequate. It is an important tool in resource management and policy analysis, especially in fields like natural resource management and climate policy.

Shadow prices are essential tools in economic analysis, particularly in situations where market prices are unavailable, incomplete, or distorted. They offer a way to represent the economic and social value of resources, providing insights into optimal resource allocation and policy evaluation. By defining shadow prices in various ways, ranging from representing the opportunity cost of a resource to reflecting its marginal value or social cost, we can better understand how they are applied across different areas of economics.

Whether through linear programming models, cost-benefit analysis, or environmental valuation, shadow prices are crucial for guiding decision-making and ensuring that economic resources are used efficiently and equitably. Their ability to reflect the true value of non-market goods and services, while considering externalities and societal impacts, makes them indispensable in modern economic policy and resource management.

27.4 Approaches to Calculate Shadow Prices

In economics, **shadow prices** play a crucial role in optimizing resource allocation, cost-benefit analysis, and determining the true value of non-market goods and services. Shadow prices help determine the opportunity cost of using resources in one way rather than another, and their calculation can be done using different approaches, depending on the context and the nature of the problem. In this section, we will explore three main approaches for calculating shadow prices:

1. Linear Programming Approach
2. Dual Variables in Optimization
3. Economic Models and Calculations

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Each of these methods provides a way to calculate and interpret shadow prices, and their application varies across different economic, environmental, and resource management scenarios.

27.4.1 Linear Programming Approach

Linear programming (LP) is a mathematical technique used to optimize a linear objective function, subject to a set of linear constraints. The Linear Programming Approach is one of the most common ways to calculate shadow prices, especially in resource allocation problems. In LP models, shadow prices are derived from the dual problem, which is the maximization or minimization problem associated with the constraints of the original problem.

The Structure of a Linear Programming Model

A typical **linear programming problem** consists of:

- An objective function that needs to be optimized (maximized or minimized).
- A set of constraints that limit the feasible values for the decision variables.

The general form of a linear programming problem is:

$$\text{Maximize } Z = c_1x_1 + c_2x_2 + \cdots + c_nx_n$$

subject to:

$$\begin{aligned} a_{11}x_1 + a_{12}x_2 + \cdots + a_{1n}x_n &\leq b_1 \\ a_{21}x_1 + a_{22}x_2 + \cdots + a_{2n}x_n &\leq b_2 \\ &\vdots \\ a_{m1}x_1 + a_{m2}x_2 + \cdots + a_{mn}x_n &\leq b_m \end{aligned}$$

Where:

- Z is the objective function to be maximized.
- $c_1, c_2, \dots, c_n$ are the coefficients of the objective function.
- $x_1, x_2, \dots, x_n$ are the decision variables.
- a_{ij} represents the coefficients of the constraints.
- $b_1, b_2, \dots, b_m$ are the right-hand side values of the constraints.

How Shadow Prices Are Derived in LP

In linear programming, shadow prices are associated with the constraints. These prices represent the marginal value of relaxing a constraint by one unit. If a constraint is not binding (i.e., it does not limit the solution), its shadow price is zero. If the constraint is binding (i.e., it exactly limits the optimal solution), its shadow price is positive, indicating that relaxing the constraint will improve the objective function.

To illustrate this, consider the following simple LP problem:

Maximize:

$$Z = 5x_1 + 4x_2$$

Subject to:

$$2x_1 + x_2 \leq 6$$

$$x_1 + 3x_2 \leq 8$$

$$x_1, x_2 \geq 0$$

We can solve this LP problem using the Simplex method or any optimization solver. The shadow prices associated with each constraint represent the rate at which the objective function (Z) changes if we increase the right-hand side of the constraint by one unit.

For example, if the shadow price of the first constraint is 2, it means that for every additional unit available for x_1 and x_2 , the objective function (Z) will increase by 2 units. If the shadow price is zero, increasing the right-hand side of the constraint will not change the optimal value of the objective function.

Example of Shadow Prices in Resource Allocation

Consider a production optimization problem where a company is trying to maximize profit subject to constraints on the availability of labor and materials:

Maximize profit:

$$Z = 100x_1 + 150x_2$$

Subject to:

$$2x_1 + 3x_2 \leq 100 \text{ (labor constraint)}$$

$$4x_1 + 2x_2 \leq 80 \text{ (material constraint)}$$

$$x_1, x_2 \geq 0$$

The shadow prices for the labor and material constraints tell us how much the profit will increase if we increase the available labor or material by one unit.

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Example: Profit Maximization in a Factory

Consider a factory that produces two products, P1 and P2, using labor and raw materials as inputs. The factory wants to maximize its profit by determining the optimal quantities of P1 and P2 to produce, subject to labor and material constraints.

Objective Function:

Maximize $Z = 40P_1 + 30P_2$

Subject to:

$2P_1 + 3P_2 \leq 100$ (labor hours constraint)

$4P_1 + 2P_2 \leq 80$ (raw material constraint)

$P_1, P_2 \geq 0$

The solution to this LP problem yields the shadow prices for labor and materials. If the shadow price for labor is \$5 and the shadow price for materials is \$3, it means that increasing the labor hours by one unit will increase the total profit by \$5, while increasing raw materials by one unit will increase the profit by \$3.

Example: Resource Allocation in Agriculture

A farmer is trying to decide how much land to allocate to corn and wheat. Each crop requires different amounts of land and labor. The goal is to maximize profit, considering the constraints on land and labor.

Objective Function:

Maximize profit = $100 \cdot \text{Corn} + 120 \cdot \text{Wheat}$

Constraints:

$2 \cdot \text{Corn} + 3 \cdot \text{Wheat} \leq 60$ (land constraint)

$4 \cdot \text{Corn} + 3 \cdot \text{Wheat} \leq 80$ (labor constraint)

Using the Simplex Method, we can find the shadow prices for land and labor. Suppose the shadow price for land is \$10 and the shadow price for labor is \$8. This means that for every additional unit of land or labor, the farmer's profit would increase by \$10 and \$8, respectively.

27.4.2 Dual Variables in Optimization 360

The Dual Variables Approach is a method used to find the shadow prices by solving the dual of an optimization problem. In linear programming, every primal problem has an associated dual problem. The solution to the dual problem provides the shadow prices corresponding to the constraints of the primal problem.

Understanding the Dual Problem

The dual problem is derived from the primal linear programming problem by associating dual variables with the constraints. The dual variables represent the shadow prices of the corresponding constraints. These variables indicate the change in the objective function of the primal problem if the right-hand side of a constraint is altered.

For a given primal linear program:

Primal Problem:

$$\text{Maximize } Z = c_1x_1 + c_2x_2 + \cdots + c_nx_n$$

subject to:

$$Ax \leq b$$

Where:

A is the matrix of coefficients of the constraints.

b is the right-hand side vector of the constraints.

x is the vector of decision variables.

c is the vector of coefficients of the objective function.

The dual problem is formulated as:

Dual Problem:

$$\text{Minimize } W = b_1y_1 + b_2y_2 + \cdots + b_my_m$$

subject to:

$$A^T y \geq c$$

Where:

- y are the dual variables (shadow prices).
- A^T is the transpose of the matrix A.

The dual variables provide the shadow prices for each of the constraints in the primal problem. These prices represent the marginal change in the objective function (profit, cost, etc.) for a unit change in the availability of resources.

Example of Dual Variables in Optimization

Consider the primal problem of maximizing profit:

Maximize:

$$Z = 50x_1 + 40x_2$$

Subject to:

$$2x_1 + 3x_2 \leq 120 \text{ (labor constraint)}$$

$$3x_1 + x_2 \leq 90 \text{ (material constraint)}$$

The dual problem involves minimizing the total cost associated with the constraints. The solution to the dual problem will provide the shadow prices of labor and material constraints.

Example : Supply Chain Optimization

In a supply chain optimization problem, a company wants to minimize its transportation costs while satisfying supply and demand constraints.

Objective Function (Minimize cost):

$$\text{Minimize Cost} = 4x_1 + 3x_2$$

Constraints:

$$x_1 + x_2 \geq 5 \text{ (demand constraint at warehouse 1)}$$

$$x_1 \leq 6 \text{ (supply constraint from factory 1)}$$

$$x_2 \leq 8 \text{ (supply constraint from factory 2)}$$

The dual variables (shadow prices) associated with these constraints provide the marginal cost of relaxing the supply and demand constraints. For example, if the dual variable associated with the demand constraint is \$2, it implies that relaxing the demand constraint by 1 unit will reduce transportation costs by \$2.

27.4.3 Economic Models and Calculations

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In addition to linear programming and dual variables, shadow prices can be calculated using various economic models, particularly in non-market settings. These models are used when there is no explicit market price for resources or goods, but we still need to determine their value for economic decisions.

Cost-Benefit Analysis (CBA) and Shadow Prices

Cost-benefit analysis is a popular method for evaluating the economic value of public policies or projects, especially when they involve non-market goods like public goods or environmental resources. Shadow prices in CBA represent the social value of non-market goods or services.

For example, when calculating the shadow price of carbon in a cost-benefit analysis of an environmental policy, economists use shadow prices to account for the externalities associated with carbon emissions. The shadow price of carbon reflects the marginal cost of adding an additional unit of carbon to the environment and helps policymakers quantify the benefits of reducing emissions.

Example: Environmental Valuation using Shadow Prices

Consider a government considering the construction of a new highway. The construction will have both economic benefits (e.g., improved transport efficiency) and environmental costs (e.g., increased carbon emissions). The government can calculate the shadow price of carbon emissions using the following approach:

Objective:

Maximize net social benefit = Benefit from reduced travel time – Cost of increased emissions

The shadow price of carbon is used to calculate the cost of the additional carbon emitted. If the shadow price is \$50 per ton of carbon, and the project is expected to generate 10,000 tons of additional carbon, the cost to society from the emissions will be:

$$\text{Cost of emissions} = 50 \times 10,000 = 500,000\text{USD}$$

The shadow price helps quantify the environmental cost of the project, allowing policymakers to make an informed decision about the trade-off between economic and environmental objectives.

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Example: Environmental Valuation Using Shadow Prices

Suppose a government is considering a project that will increase the level of carbon emissions. The goal is to estimate the shadow price of carbon, which reflects the marginal cost of additional carbon emissions to society.

In this context, the government might use the Social Cost of Carbon (SCC), which is essentially a shadow price that represents the long-term economic damage caused by emitting one additional ton of carbon dioxide.

For example, if the SCC is \$50 per ton of CO₂, it implies that each additional ton of CO₂ emitted will impose an economic cost of \$50. This shadow price can then be incorporated into the cost-benefit analysis of the proposed project, helping policymakers weigh the economic benefits against the environmental costs.

Example: Cost-Benefit Analysis for a Public Infrastructure Project

Consider a government evaluating a new public transportation project. The project involves both monetary and non-monetary benefits, such as reduced traffic congestion, lower air pollution, and improved public health. Since there are no direct market prices for these benefits, shadow prices are used to assign a monetary value to the non-market goods.

In this case, the shadow price of time saved due to faster transportation, the reduction in healthcare costs due to improved air quality, and the value of reducing traffic accidents are all calculated using shadow prices. These values help the government determine whether the benefits of the project outweigh its costs.

For example, if the shadow price of a time saved is \$10 per hour and the project saves 100,000 hours of commuting time per year, the total value of time saved is \$1 million.

In this section, we have explored three main approaches to calculating shadow prices: the Linear Programming Approach, the Dual Variables in Optimization, and Economic Models and Calculations. Each of these methods provides a powerful tool for understanding the value of resources in the absence of market prices or in situations where market prices fail to reflect the true social or economic costs.

- The Linear Programming Approach is particularly useful in optimization problems, where shadow prices help determine the value of relaxing constraints and making resource allocation decisions.
- Dual Variables in optimization problems³⁶⁰ provide a direct way to calculate shadow prices by solving the dual problem.
- Economic Models and Calculations, such as cost-benefit analysis, are essential for calculating shadow prices in non-market settings, especially when dealing with externalities like pollution or public goods.

By understanding these approaches, policymakers, businesses, and economists can make better-informed decisions about resource allocation, environmental valuation, and optimization in various economic and policy contexts.

Check your Progress - I

Based on your understanding of the previous section, answer these questions in your own words:

1. What are shadow prices and why are they important in economics?
2. How are shadow prices used in linear programming to optimize resource allocation?
3. What is the role of dual variables in calculating shadow prices?
4. How do shadow prices reflect the opportunity cost of using a resource?
5. Explain how shadow prices are used in cost-benefit analysis for non-market goods.
6. What is the connection between shadow prices and marginal utility in economic models?
7. Give an example of how shadow prices are applied in environmental economics.
8. How does the shadow price of carbon help in policy-making for environmental protection?

27.5 Shadow Prices in Resource Allocation

Shadow prices are a critical concept in economics, particularly when it comes to the optimal allocation of resources in both market and non-market economies. A shadow price represents the marginal value of a resource or the opportunity cost of using a resource in a particular manner when market prices are unavailable or do not reflect the true social cost. In this section, we will explore the role of shadow prices in resource allocation, their significance in addressing market failure, and how they are used in production optimization.

27.5.1 Role in Resource Allocation

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The role of shadow prices in resource allocation is essential because they provide a way to measure the value of resources when market prices are unavailable or fail to reflect their true social value. Shadow prices reflect the marginal cost or marginal benefit of an additional unit of a resource. They help decision-makers understand how scarce resources should be

allocated in an efficient manner, especially in situations where market mechanisms cannot do so directly.

Resource Allocation in Economics

In an ideal market economy, prices are determined by supply and demand, and they provide signals for resource allocation. However, in many cases, market failures occur, and market prices are either absent or distorted. Shadow prices help bridge this gap by providing a mechanism for evaluating resource use in situations where market prices do not exist. They ensure that resources are allocated in such a way that their value to society is maximized, taking into account both the direct and indirect costs of resource use.

Understanding the Value of Resources

In any resource allocation problem, whether in production, public policy, or environmental management, shadow prices help to answer the fundamental question: How much is the next unit of a resource worth? If resources are constrained (e.g., limited land, labor, or raw materials), shadow prices provide a clear indication of how much better or worse society would be if an additional unit of that resource became available.

For example, in a production environment, shadow prices are used to determine how valuable an additional unit of labor or capital is to the firm. If the shadow price of labor is high, it indicates that increasing the labor force would significantly increase production and profits. On the other hand, if the shadow price of labor is low, it suggests that additional labor would not have much impact on the firm's output.

Optimization in Resource Allocation

Resource allocation problems are typically solved using optimization techniques such as linear programming or dynamic programming, where shadow prices are calculated. These models identify the most efficient way to allocate resources across various competing uses.

For example, in a farm setting where land, labor, and capital are limited, an optimization model would help allocate these resources in a way that maximizes the farm's total profit.

In such models, shadow prices represent the marginal value of each resource constraint. If the shadow price of land is high, it suggests that land is a scarce resource, and its additional use should be carefully considered to maximize overall economic benefit.

Example: Efficient Use of Land, Labor, and Capital

Imagine a farmer who is producing wheat and corn. The farmer has limited resources: 100 acres of land, 200 labor hours, and \$1,000 worth of capital. The goal is to maximize the farm's profit. The farmer can use linear programming to allocate resources in a way that maximizes the profit from wheat and corn production.

In this case, the shadow price of land tells the farmer how much additional profit they would make if they had one more acre of land. If the shadow price of land is \$500, the farmer knows that acquiring one additional acre of land would increase the profit by \$500. Similarly, the shadow prices of labor and capital will provide insights into how much profit could be gained by hiring more workers or investing in additional machinery.

Through this process, shadow prices guide the optimal allocation of resources, ensuring that each resource is used where it contributes most to the overall goal of maximizing profits.

27.5.2 Market Failure and Shadow Prices

One of the most significant roles of shadow prices is their ability to address **market failure**. Market failure occurs when the free market does not allocate resources efficiently, often due to externalities, public goods, or information asymmetries. In these situations, shadow prices provide a way to measure the true social cost or benefit of resource use, which the market fails to capture.

Types of Market Failures

There are several types of market failures where shadow prices are essential in allocating resources efficiently:

1. **Public Goods:** Public goods are non-excludable and non-rivalrous, meaning that people can benefit from them without directly paying for them. Examples include clean air, national defence, and public parks. The market fails to provide these goods efficiently because there is no price mechanism to allocate them. Shadow prices can be used to estimate the value of public goods and guide decisions on how much of these goods should be provided.
2. **Externalities:** Externalities occur when the actions of individuals or firms affect others who are not involved in the transaction. Negative externalities, such as pollution, impose costs on society that are not reflected in market prices. Similarly, positive externalities, such as education, benefit society beyond the individual receiving the education. Shadow prices help internalize these externalities by assigning a value to the societal costs or benefits of these activities.

3. **Information Asymmetry:** In cases where there is incomplete or imperfect information, markets may not function efficiently. For example, consumers may not have full knowledge of the environmental impacts of a product, leading to overconsumption or underproduction of environmentally friendly products. Shadow prices can be used to correct this imbalance by assigning values to factors that are not adequately priced in the market.
4. **Monopoly Power:** When a single seller controls a market, they may set prices above the equilibrium level, leading to inefficient resource allocation. Shadow prices can be used to assess the social cost of monopoly power and guide regulatory decisions to address these inefficiencies.

Shadow Prices and Environmental Market Failure

A key example of market failure where shadow prices are used is in environmental economics. Consider a factory that emits pollution into the air. The factory may not bear the full social cost of the pollution, and the market does not reflect the negative impact of this pollution on public health and the environment.

In such cases, shadow prices can be used to estimate the social cost of pollution, such as the cost of illness or environmental degradation caused by emissions. These shadow prices help governments and policymakers design taxes or regulations to internalize the costs of pollution, ensuring that the firm takes the full social cost into account when making decisions about production.

For example, the shadow price of carbon can be used to estimate the cost of carbon emissions in terms of climate change. If the shadow price of carbon is \$50 per ton, it implies that the societal cost of emitting one ton of carbon is \$50. This shadow price can be used to design policies, such as carbon taxes or emissions trading schemes, to reduce carbon emissions and address the market failure caused by pollution.

27.5.3 Examples in Production Optimization

Production optimization is an essential application³⁶⁰ of shadow prices, especially when firms face constraints in their resources (e.g., labor, capital, or raw materials). By calculating shadow prices, businesses can make informed decisions on how to allocate resources in a way that maximizes profits or minimizes costs. Below are a series of numerical and theoretical examples that demonstrate the use of shadow prices in different production optimization scenarios.

Example: Maximizing Profit in a Manufacturing Firm

Problem Setup:

A firm produces two products, A and B, using labor and raw materials. The firm aims to maximize its profit given the following:

- Profit per unit of A = \$50
- Profit per unit of B = \$40
- Labor required for 1 unit of A = 3 hours
- Labor required for 1 unit of B = 2 hours
- Material required for 1 unit of A = 4 units
- Material required for 1 unit of B = 3 units
- Total available labor = 120 hours
- Total available material = 150 units

Objective Function:

The objective function is to maximize profit, which can be written as:

$$\text{Maximize Profit} = 50A + 40B$$

Subject to the constraints:

$$3A + 2B \leq 120 \text{ (Labor constraint)}$$

$$4A + 3B \leq 150 \text{ (Material constraint)}$$

$$A, B \geq 0$$

Shadow Price Calculation:

1. Solve the LP problem using the Simplex method or any optimization solver.
2. Assume the optimal solution is:
 - A = 20 units
 - B = 30 units
3. The shadow price of labor is calculated by examining how the optimal profit changes if the labor constraint is increased by one unit. If the shadow price of labor is \$10, it means that increasing the labor constraint by one hour would increase the total profit by \$10. 360
4. Similarly, the shadow price of material can be calculated. If the shadow price of material is \$8, it means that increasing the material constraint by one unit would increase the total profit by \$8.

Example: Resource Allocation in a Farm

Problem Setup:

A farm grows two crops, corn and wheat. The farm needs to allocate resources (land and labor) to maximize its profit. The following data is given:

- Profit per acre of corn = \$200
- Profit per acre of wheat = \$150
- Land required for 1 acre of corn = 2 acres
- Land required for 1 acre of wheat = 1 acre
- Labor required for 1 acre of corn = 10 hours
- Labor required for 1 acre of wheat = 8 hours
- Total available land = 100 acres
- Total available labor = 900 hours

Objective Function:

The objective function is to **maximize profit**, which can be written as:

$$\text{Maximize Profit} = 200C + 150W$$

Subject to the constraints:

$$2C + W \leq 100 \text{ (Land constraint)}$$

$$10C + 8W \leq 900 \text{ (Labor constraint)}$$

$$C, W \geq 0$$

Shadow Price Calculation:

1. Solve the LP problem to find the optimal solution. Assume the optimal solution is:
 - $C = 30$ acres of corn
 - $W = 40$ acres of wheat
2. The shadow price of land is found by determining how the total profit changes when the land constraint is increased by one acre. If the shadow price of land is \$50, it means that by gaining one additional acre of land, the profit will increase by \$50.
3. Similarly, the shadow price of labor can be calculated. If the shadow price of labor is \$20, it means that increasing labor availability by one hour will increase the total profit by \$20.

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Example: Optimizing Production in a Factory with Limited Resources**Problem Setup:**

A factory manufactures two types of products, X and Y, with the following production requirements:

- Profit per unit of X = \$30

- Profit per unit of Y = \$40
- Labor required for 1 unit of X = 2 hours
- Labor required for 1 unit of Y = 3 hours
- Material required for 1 unit of X = 4 units
- Material required for 1 unit of Y = 2 units
- Available labor = 120 hours
- Available material = 100 units

Objective Function:

The objective function is to maximize profit:

$$\text{Maximize Profit} = 30X + 40Y$$

Subject to the constraints:

$$2X + 3Y \leq 120 \text{ (Labor constraint)}$$

$$4X + 2Y \leq 100 \text{ (Material constraint)}$$

$$X, Y \geq 0$$

Shadow Price Calculation:

1. Solve the LP problem using a solver. Suppose the optimal solution is:
 - $X = 20$ units
 - $Y = 15$ units
2. The shadow price of labor is calculated by determining how much profit will increase if the labor constraint is increased by one unit. If the shadow price is \$10, it implies that relaxing the labor constraint by 1 hour increases profit by \$10.
3. The shadow price of material is calculated similarly. If the shadow price is \$12, it means that by increasing the material availability by one unit, the profit would increase by \$12.

Example: Non-Market Valuation in Environmental Economics

Problem Setup:

Consider a government project that aims to build a new highway. The highway will have both economic benefits (e.g., reduced transportation time³⁶⁰) and environmental costs (e.g., carbon emissions). The government wants to calculate the shadow price of carbon to determine the cost of carbon emissions and incorporate it into the project's cost-benefit analysis.

- Benefit of reduced travel time = \$100,000
- Cost of carbon emissions = \$50 per ton of CO₂ emitted
- Estimated carbon emissions = 2,000 tons per year for the next 10 years

Objective Function:

The objective is to maximize net social benefit, which can be written as:

$$\text{Net Benefit} = \text{Benefit of Reduced Travel Time} - \text{Cost of Carbon Emissions}$$

Constraints:

The shadow price of carbon is derived from the cost of carbon emissions, which is determined by multiplying the cost per ton of CO₂ by the estimated emissions.

$$\text{Cost of Carbon Emissions} = 50 \times 2,000 = 100,000 \text{ (total cost of emissions)}$$

Thus, the shadow price of carbon is \$50 per ton. This helps in understanding how much the government needs to consider in terms of environmental cost when evaluating the project.

Example: Shadow Prices in Public Goods Provision**Problem Setup:**

A government is planning to build a public park and wants to know the shadow price of open space in an urban environment. The park is expected to generate various benefits, including recreation, environmental benefits, and improved property values. However, the government must decide how much land to allocate for the park given limited space.

- Benefit of the park: \$500,000
- Cost of land: \$100 per square meter
- Available land: 10,000 square meters

Objective Function:

Maximize the social benefit of the park:

$$\text{Maximize Social Benefit} = \text{Benefit from Park} - \text{Cost of Land}$$

Constraints:

If the shadow price of land is \$10 per square meter, it implies that for every additional square meter of land allocated to the park, the social benefit increases by \$10. This allows the government to decide the optimal amount of land to allocate to the park.

The concept of shadow prices is critical in production optimization, especially when resources are constrained. In the examples above, shadow prices provided insights into how firms and governments can make optimal decisions regarding resource allocation in a variety

of settings, including manufacturing, agriculture, environmental projects, and public goods provision. Whether in linear programming, cost-benefit analysis, or resource management, shadow prices guide decision-making by helping identify the marginal value of resources and their contribution to the overall objective.

These examples demonstrate how shadow prices can be used in both theoretical models and real-world applications, providing valuable tools for businesses, policymakers, and economists to allocate resources efficiently and make better economic decisions.

Optimization and Resource Allocation

The company can use the shadow prices to make informed decisions about resource allocation. For instance, if the company is considering hiring more workers or purchasing additional materials, the shadow prices help the company evaluate how much these changes would affect its profitability. If the shadow price of labor is high, it suggests that increasing the labor force would have a significant impact on profit, making it a good investment. Conversely, if the shadow price of labor is low, the company may want to focus on other resource allocations.

Scenario Analysis with Shadow Prices

Let's assume that the company has the option to increase its labor constraint by 10 units. The shadow price of labor is **\$5**, so the company knows that increasing the labor constraint by 10 units would increase its profit by \$50.

Similarly, if the company can increase the material constraint by 5 units, and the shadow price of material is **\$3**, the company knows that this would increase its profit by \$15.

Through the use of shadow prices, the company can evaluate the marginal benefit of each potential change in resource constraints and make optimal decisions about how to allocate labor, material, and other resources.

Shadow prices are essential in understanding resource allocation and optimizing economic decision-making, especially in cases where market³⁶⁰ prices do not exist or fail to reflect the true social cost. By assigning shadow prices to constraints in optimization models, we can measure the marginal value of additional resources, internalize the social costs of market failures, and make informed decisions in a variety of economic contexts.

In this section, we explored the role of shadow prices in:

1. **Resource Allocation:** Helping businesses and policymakers allocate scarce resources efficiently.
2. **Market Failure:** Addressing situations where market prices fail to capture the true cost of resources, such as in environmental economics.
3. **Production Optimization:** Using shadow prices in business decisions to optimize production and maximize profit.

These approaches demonstrate the broad applicability of shadow prices in economics and underscore their importance in ensuring that resources are allocated efficiently and equitably, even in the absence of market prices. Whether in production, public policy, or environmental management, shadow prices provide a powerful tool for guiding decision-making in an uncertain world.

27.6 Applications of Shadow Prices

Shadow prices play a critical role in a variety of economic and policy applications, especially when market prices do not reflect the true social or economic costs. These prices help quantify the hidden or implicit costs and values associated with non-market goods, externalities, and resource allocation in environments where market failures exist. This section elaborates on three major applications of shadow prices in economics:

1. **Cost-Benefit Analysis (CBA):** The application of shadow prices in cost-benefit analysis (CBA) is particularly important when evaluating projects or policies that involve non-market goods such as public health, environmental protection, or public goods. CBA helps in comparing the total benefits of a project or policy to its total costs, and shadow prices are used to quantify the value of outcomes that do not have market prices.
2. **Environmental Economics:** Shadow prices are extensively used in environmental economics to value resources that are not traded in markets, such as clean air, water, biodiversity, or the costs of pollution. By assigning shadow prices to environmental goods and services, economists can estimate the true social cost of environmental degradation and provide recommendations for sustainable resource use.
3. **Public Policy:** In public policy, shadow prices are used to guide decisions about how to allocate limited resources effectively. Whether for the provision of public goods, the regulation of externalities, or the distribution of subsidies, shadow prices help policymakers understand the economic implications of their decisions.

27.6.1 Cost-Benefit Analysis

Cost-Benefit Analysis (CBA) is a powerful tool for evaluating projects or policies that have both market and non-market components. The basic principle of CBA is that an action should be undertaken if the total benefits outweigh the total costs. In this process, shadow prices play an essential role in assigning values to goods and services that are not bought or sold in traditional markets, such as public goods, environmental resources, or social outcomes like improved public health.

The Role of Shadow Prices in CBA

In a typical market-based transaction, the price at which goods and services are exchanged reflects their opportunity cost. However, for non-market goods, such as clean air, biodiversity, or time saved due to reduced congestion, market prices do not exist. Shadow prices are used to estimate the economic value of these goods.

For example, consider a project that involves building a new highway. While the benefits of improved transportation efficiency can be measured in terms of time saved and reduced transportation costs, the environmental costs of carbon emissions and air pollution do not have direct market prices. Here, shadow prices for carbon emissions or air quality improvement can be used to quantify these impacts. If the shadow price of carbon is estimated at \$50 per ton of CO₂, and the project is expected to generate 10,000 tons of additional carbon emissions per year, the cost to society from these emissions can be calculated as:

$$\text{Cost of Emissions} = \text{Shadow Price of Carbon} \times \text{Emissions}$$

$$\text{Cost of Emissions} = 50 \times 10,000 = 500,000 \text{ dollars}$$

By incorporating shadow prices into the CBA, policymakers can make decisions that weigh both the tangible and intangible impacts of a project.

Cost-Benefit Analysis (CBA) is a key tool in evaluating the economic viability and social impact of projects, policies, or investments. It assesses whether the benefits of an action outweigh its costs, often by comparing the present value of future benefits and costs. Shadow prices are instrumental in CBA, especially for non-market goods, which do not have observable prices in markets but nonetheless have significant social value.

In CBA, shadow prices are used to value non-market goods and services, such as clean air, education, and health improvements, which are central to policy decisions and large-scale projects. These goods are not traded in typical markets, and therefore, market prices do not capture their economic worth. Economists like David Pearce and Nicholas Stern have emphasized the importance of using shadow prices to reflect the broader social costs and benefits of such goods.

For example, Pearce (1998) argued that "shadow prices are central to cost-benefit analysis, particularly when we are dealing with non-market goods, like environmental goods, that require non-market valuation methods." This perspective is crucial because traditional market pricing methods fail to account for many essential services, particularly in the environment and public health sectors, where the impacts are far-reaching and can affect the entire economy.

William Nordhaus, a pioneer in environmental economics, highlights the application of shadow prices in environmental economics by advocating for the Social Cost of Carbon (SCC). This represents the shadow price of carbon emissions, quantifying the economic damage caused by the emission of one ton of CO₂. The SCC is used in CBA to account for the full economic costs of carbon emissions, such as adverse effects on health, ecosystems, and global warming. By incorporating the SCC into cost-benefit analyses, policymakers can better understand the trade-offs of policy decisions.

Discounting and Future Value

A crucial aspect of CBA is how to account for future costs and benefits. Richard Musgrave (1959), in his work on public finance, discussed the concept of time preference and the discounting of future benefits and costs. In environmental policy, this becomes important when evaluating the long-term benefits of conservation projects or the costs of environmental degradation. When shadow prices are applied in CBA, they are often adjusted for time using a discount rate, reflecting the time value of money and the preference for immediate benefits over future ones.

For example, in the evaluation of a long-term ³⁶⁰environmental policy (such as carbon emission reductions), economists use a discount rate to bring future costs and benefits to present value. The choice of discount rate directly influences the shadow price of future environmental impacts, with lower discount rates giving higher weight to long-term environmental benefits, which can influence policy decisions related to climate change.

Estimating Non-Market Value through Contingent Valuation

In the context of valuing non-market goods, Randal, K. and Brookshire (2002) discuss Contingent Valuation Methods (CVM), which often rely on the use of shadow prices to estimate people's willingness to pay for environmental goods. This approach involves asking individuals directly how much they would be willing to pay for environmental benefits (like the preservation of natural parks) or how much compensation they would require to accept environmental damage. The resulting values serve as shadow prices for non-market goods, influencing cost-benefit analyses of environmental policies and projects.

27.6.2 Environmental Economics

Environmental economics applies economic theory to the study of environmental policies and the management of natural resources. A core challenge in this field is to assign value to natural resources and environmental services that are not traded in the market. Shadow prices offer a way to reflect these values and help in the allocation of resources when market prices do not exist.

Valuing Environmental Goods and Services

Economists like Partha Dasgupta and Robert Solow have contributed significantly to the theory of environmental valuation. Dasgupta's "capital approach" to environmental economics suggests that natural resources should be treated as capital assets that provide services to society. The depletion of these resources is seen as a reduction in society's capital stock, and the shadow price of these resources reflects their marginal contribution to well-being. In this framework, the shadow price helps account for the lost value when resources like biodiversity, forests, or fisheries are overexploited.

Solow (1993), in his influential work, emphasized the importance of sustainability and the role of natural capital in economic growth. The shadow price of environmental goods, according to Solow, can be used to assess whether the consumption of natural resources today undermines future well-being, creating a critical link between economic growth and environmental conservation. By assigning shadow³⁶⁰ prices to environmental services, policymakers can incorporate the long-term costs of resource depletion into economic decision-making.

The Use of Shadow Prices in Environmental Externalities

One of the key applications of shadow prices in environmental economics is in the evaluation of externalities, which are costs or benefits that affect third parties and are not reflected in market transactions. For example, the pollution emitted by a factory imposes health costs on the surrounding population that are not reflected in the market price of the factory's products. Shadow prices help to quantify these costs, allowing for the internalization of the externality. The economist Arthur Pigou, in his work on externalities, first suggested the idea of Pigovian taxes to correct market failures caused by negative externalities like pollution. A Pigovian tax is set equal to the shadow price of the externality (e.g., the marginal cost of pollution). By applying such taxes, governments can raise the cost of polluting to reflect the social harm caused, encouraging firms to reduce their emissions.

In practice, this principle has been extended through mechanisms like carbon pricing, which assigns a shadow price to the emission of carbon dioxide. As noted earlier, Nordhaus (1993) has advocated for incorporating a shadow price of carbon in climate policy. His research on climate change economics argues that assigning a price to carbon emissions (via taxes or trading systems) reflects the true social cost of climate change, thus guiding better policy decisions.

The Role of Shadow Prices in Sustainable Development

Sustainable development, as defined by the Brundtland Commission (1987), is development that "meets the needs of the present without compromising the ability of future generations to meet their own needs." The concept of shadow prices in the context of sustainability captures the essence of this definition by placing a value on resources that are essential for long-term development but may be underpriced or overexploited.

Shadow prices help evaluate whether current economic activities are compatible with the needs of future generations. For instance, when considering policies for deforestation, shadow prices can estimate the long-term economic loss due to the depletion of forests, which provide essential ecological services like carbon sequestration and biodiversity conservation. By incorporating shadow prices into environmental policies, governments can make decisions that not only address current needs but also safeguard resources for future generations.

27.6.3 Public Policy

Public policy involves the use of government authority to address various social, economic, and environmental issues. Shadow prices play a vital role in guiding policy decisions,

particularly when allocating scarce resources, regulating externalities, or providing public goods.

Valuing Public Goods through Shadow Prices

Public goods are a fundamental challenge in public policy because they are non-rivalrous and non-excludable, making it difficult for markets to provide them efficiently. Examples include public health, national defence, and clean air. The lack of market prices for these goods makes it necessary to rely on shadow prices to estimate their value.

James Buchanan (1965) in his work on the theory of public goods discussed the need for government intervention in the provision of goods that the market fails to supply. Buchanan argued that for government intervention to be justified, the benefits of providing a public good must exceed the costs, and the shadow price of a public good provides the necessary tool for this evaluation. By estimating the marginal value of public goods through shadow prices, policymakers can determine the appropriate level of provision and the funding needed to support it.

Regulation of Externalities

Shadow prices are also critical in the regulation of externalities. For example, when imposing a tax on pollution, the government needs to estimate the social cost of pollution, which is typically done by calculating the shadow price of the externality. Pigou's work on externalities provided the foundation for this type of regulation, where the government adjusts market prices (through taxes or subsidies) to reflect the social costs or benefits of economic activities.

In recent years, economists have proposed various mechanisms for internalizing environmental externalities. These mechanisms, such as cap-and-trade systems for carbon emissions, are designed to create a market-based incentive for firms to reduce pollution. The success of such policies depends on the accurate estimation of shadow prices, which reflect the marginal social cost of pollution.

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Optimal Resource Allocation and Public Investment

Governments often face the challenge of allocating limited resources across competing needs, whether in education, healthcare, infrastructure, or welfare programs. Shadow prices help policymakers make these decisions by providing a clear picture of the marginal benefit of

each resource allocation. By assigning shadow prices to different projects, governments can prioritize investments that maximize social welfare.

Milton Friedman (1962) argued that government intervention in the economy should be limited, and resources should be allocated efficiently. Shadow prices help achieve this by providing an economic measure of value that guides policy decisions in the most efficient manner possible, ensuring that public investments generate the highest return in terms of societal welfare.

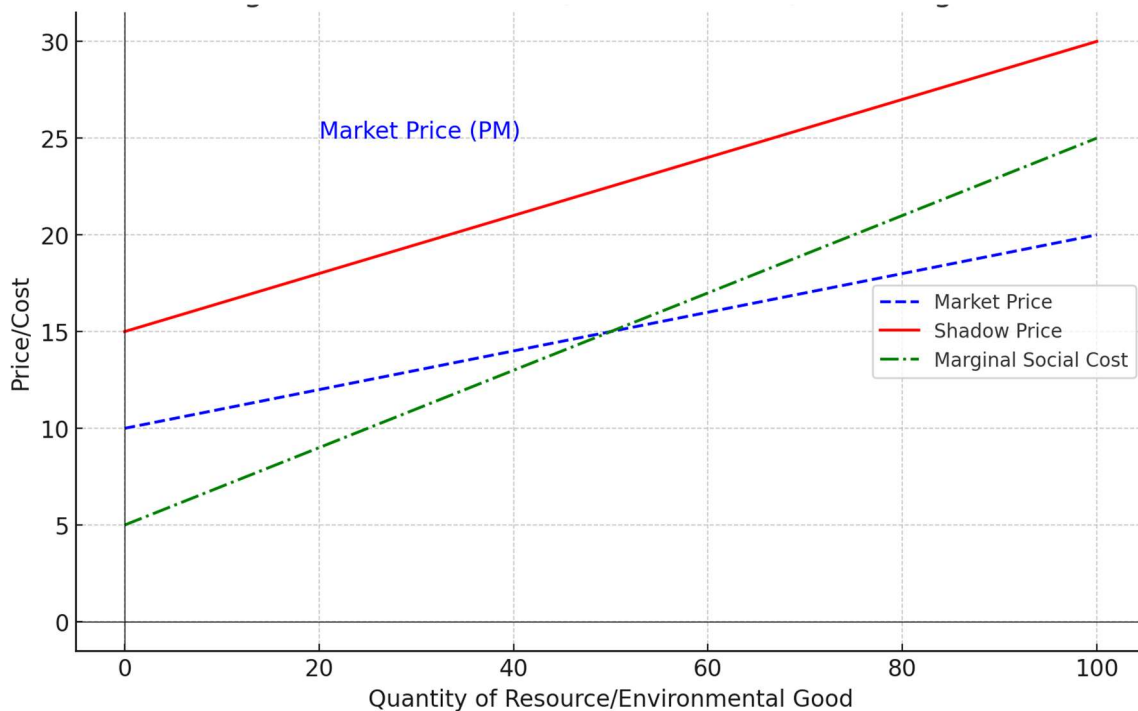


Diagram: Market Price, Shadow Price, and Marginal Social Cost (MSC).

The diagram above illustrates the relationship between Market Price, Shadow Price, and Marginal Social Cost (MSC), key concepts in economics, especially in the context of resource allocation and environmental economics.

1. **Market Price (PM):** The blue dashed line represents the typical market price for a resource, which is determined by the forces of supply and demand. In a perfect market, this price reflects the equilibrium where the quantity of a good supplied equals the quantity demanded. The market price increases gradually as the quantity of the resource increases, suggesting that as more of the resource is made available, its market value rises in response to scarcity or increased demand.
2. **Shadow Price (PS):** The red solid line represents the shadow price, which reflects the hidden or implicit cost of using a resource, particularly when market prices do not

account for the full social cost or benefit. In many cases, such as environmental resources or public goods, market prices fail to fully capture the externalities, like pollution or ecosystem degradation. The shadow price rises more steeply than the market price, indicating that as we use more of the resource, the opportunity cost (the value of what we forgo by using the resource) increases. It represents the true economic value of the resource, considering both the direct and indirect effects on society.

3. **Marginal Social Cost (MSC):** The green dashed line represents the marginal social cost, which is the cost incurred by society when one additional unit of a resource is used or consumed. This curve starts lower than both the market price and shadow price but increases sharply as the resource becomes scarcer or more overexploited, reflecting the growing negative externalities or societal costs, such as pollution, depletion of natural resources, or health impacts. MSC accounts for the total cost of consumption, including those external factors that are not captured by the market or shadow prices alone.

Together, these curves demonstrate the divergence between market prices and the true social cost of resource use. The market price reflects a simplified view, while the shadow price and marginal social cost provide a more comprehensive understanding, incorporating externalities and societal implications. The shadow price, in particular, offers a method for internalizing the external costs of resource use, ensuring that decision-makers account for the full economic and environmental impacts when allocating resources or designing policies. In environmental economics, this distinction is crucial for achieving sustainable resource management and making informed policy decisions.

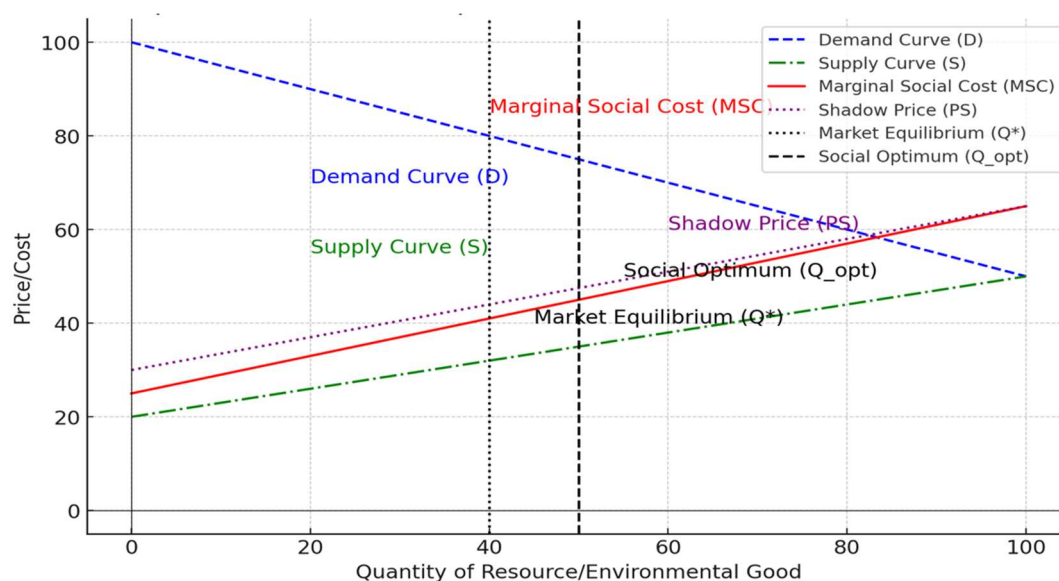


Diagram: Social Optimum vs. Market Equilibrium with Shadow Prices and Externalities

The diagram above presents a fundamental economic analysis contrasting Market Equilibrium and Social Optimum with the incorporation of Shadow Prices and Marginal Social Cost (MSC), offering insights into how externalities influence resource allocation. At the core of this analysis is the Demand Curve (D), which represents consumer preferences and the inverse relationship between price and quantity demanded. The Supply Curve (S), conversely, shows the producer's response to price, with a positive relationship between price and the quantity supplied. In an ideal, unregulated market, these two curves intersect at *Market Equilibrium* (Q^*), where the forces of supply and demand set the price and quantity of resources. However, this equilibrium fails to capture the broader social costs of resource use, particularly when externalities like pollution or resource depletion exist.

This is where Marginal Social Cost (MSC) comes into play. The MSC curve (red) reflects the true cost to society of using an additional unit of the resource, accounting for externalities that market prices ignore. As the quantity of resources used increases, the MSC rises steeply, indicating the increasing cost to society, such as environmental damage or depletion. The Shadow Price (PS), represented by the purple line, reflects the societal value of conserving or managing these resources, factoring in the opportunity cost and the hidden externalities. It rises similarly to the MSC, showing how society would value reducing resource use to avoid the negative impacts.

The Social Optimum (Q_{opt}), indicated by the black dashed line, represents the ideal quantity of resource use that maximizes social welfare. This occurs where the MSC intersects with the demand curve, considering both private benefits and the external costs to society. In contrast, *Market Equilibrium* (Q^*) reflects overconsumption, as it ignores these externalities. The diagram illustrates that to achieve the Social Optimum, policy interventions or regulatory measures (such as taxes, subsidies, or pricing mechanisms) are necessary to align the market outcome with societal welfare, ensuring that the true costs of resource use are accounted for. In essence, the diagram highlights how shadow prices and marginal social costs provide a more accurate, socially responsible way to allocate resources, correcting market failures and guiding policies that promote sustainable resource management.

In conclusion, shadow prices are indispensable in both theoretical and applied economics, particularly in Cost-Benefit Analysis, Environmental Economics, and Public Policy. Through the works of prominent economists such as Pearce, Stern, Nordhaus, Dasgupta, and Pigou, we gain a deeper understanding of how shadow prices can be applied to evaluate the social value of non-market goods, correct market failures, and guide efficient policy decisions. By

incorporating these shadow prices into decision-making processes, policymakers can more effectively allocate resources, address environmental issues, and maximize societal well-being.

In 1991, economist **William Nordhaus** introduced the concept of the **Social Cost of Carbon (SCC)**, a shadow price for carbon emissions that quantifies the economic damage caused by the release of one ton of CO₂ into the atmosphere. This concept has since been used in policy frameworks to evaluate the true costs of carbon emissions, especially in cost-benefit analyses of climate policies. In his work, **Nordhaus (1991)** stated: "The Social Cost of Carbon is essential for determining the optimal path for reducing emissions and addressing the externalities associated with climate change." The SCC is calculated by considering factors such as the long-term economic damage caused by rising temperatures, changes in agricultural productivity, human health impacts, and more. The SCC has been integrated into global environmental assessments and policy-making, helping governments like the United States design carbon pricing mechanisms, such as carbon taxes or cap-and-trade systems. By incorporating this shadow price, policymakers can better evaluate the long-term benefits of reducing carbon emissions, driving forward more sustainable climate policies.

Case Study 1: The Social Cost of Carbon - Nordhaus and the SCC

In 1998, **David Pearce**, a pioneer in environmental economics, emphasized the importance of shadow pricing in evaluating environmental resources that are not traded in markets. Pearce's work, "**Blueprint for a Green Economy**" (1998), advocated for incorporating shadow prices to reflect the true value of ecosystem services, such as air quality, biodiversity, and carbon sequestration. He argued, "Ecosystem services must be valued for the benefits they provide to society, even though they are not priced in the market." This approach became instrumental in environmental policy, leading to the widespread use of shadow prices in valuing resources like forests and wetlands. Pearce's work laid the groundwork for techniques like **contingent valuation**, which estimates the monetary value of non-market goods by asking individuals their willingness to pay for environmental preservation. His contributions are now fundamental to policies around sustainable development and the valuation of natural capital, guiding nations in assessing the costs and benefits of protecting environmental goods.

Case Study 2: Valuing Ecosystem Services - Pearce and Environmental Economics

27.7 Advantages and Limitations of Shadow Prices

Shadow prices are an essential tool in economic analysis, offering several advantages in terms of resource allocation, policy evaluation, and environmental valuation. However, there are also significant limitations to their use, particularly in practical applications where data might be incomplete or difficult to estimate. In this section, we explore both the advantages and limitations of shadow prices, considering their utility in various economic contexts.

Advantages of Shadow Prices

1. Incorporation of Non-Market Values

One of the primary advantages of using shadow prices is their ability to reflect the value of non-market goods and services. In cases where market prices are absent or distorted, such as public goods (clean air, water, or biodiversity), environmental resources, and social benefits, shadow prices help quantify these values. For example, when evaluating a government project to build a highway, traditional market prices might not capture the full environmental cost of carbon emissions or the benefits of reducing pollution. Shadow prices, like the Social Cost of Carbon (SCC), estimate these externalities, providing policymakers with a more accurate picture of the costs and benefits associated with the project. This allows for a more comprehensive analysis and better decision-making in cases where market mechanisms fail.

2. Efficient Resource Allocation

Shadow prices can guide efficient resource allocation in cases where resources are scarce. In optimization problems such as linear programming, shadow prices indicate the marginal value of relaxing a constraint by one unit. For example, a factory operating under labor or material constraints would use shadow prices to determine how much the objective (profit) would increase if more labor or materials were available. Shadow prices provide decision-makers with valuable information on how to best allocate resources to achieve optimal outcomes. This is particularly important in industries where resources are limited and need to be distributed efficiently.

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3. Support for Cost-Benefit Analysis (CBA)

In Cost-Benefit Analysis (CBA), shadow prices help estimate the economic value of non-market goods that cannot be directly priced through market transactions. For example, when evaluating the environmental impact of a policy, shadow prices can be used to quantify the value of preserving natural resources such as forests or reducing pollution. By incorporating

shadow prices into CBA, economists can more accurately assess the true costs and benefits of a policy or project, including externalities that are otherwise left out of traditional market analysis. This leads to more informed policy decisions that maximize social welfare.

4. Environmental and Social Policy Design

In the context of environmental economics, shadow prices allow for a more accurate valuation of natural resources, enabling the design of policies that internalize environmental externalities. For example, shadow prices are used in calculating taxes or subsidies for activities that affect the environment, such as carbon emissions. By assigning a shadow price to carbon, policymakers can create effective carbon taxes or cap-and-trade systems that reduce emissions and promote cleaner energy. Similarly, shadow prices for public goods like parks, recreational spaces, or ecosystem services help policymakers assess the value of preserving these resources for future generations.

5. Guiding Public Policy on Non-Market Goods

Shadow prices play an important role in public policy formulation, particularly when dealing with public goods or services that are not bought and sold in markets. For instance, a government may use shadow prices to value improvements in public health due to a new healthcare policy or to evaluate the impact of a transportation project on traffic congestion. By using shadow prices to estimate the value of these intangible goods, policymakers can make decisions that reflect societal welfare rather than relying solely on market signals, which might be insufficient or distorted for public goods.

Limitations of Shadow Prices

1. Data and Estimation Challenges

A major limitation of shadow prices is the difficulty in accurately estimating them, particularly when market prices are unavailable, and the necessary data is incomplete or difficult to obtain. For instance, estimating the shadow price of environmental goods such as clean air, biodiversity, or ecosystem services requires extensive data on the costs of degradation, the benefits of preservation, and the potential impact on human health and welfare. In some cases, data may be scarce or unreliable, which could lead to biased or inaccurate shadow price estimates. This makes the application of shadow prices more challenging in developing countries or in industries where data collection is not robust.

2. Subjectivity in Valuation

The estimation of shadow prices can involve a degree of subjectivity, especially in the case of non-market goods. For example, the shadow price of a park or natural resource might depend on the preferences of the population being surveyed, which can vary significantly. Methods like Contingent Valuation (CVM), which rely on surveys to determine individuals' willingness to pay for environmental goods, may be influenced by respondents' biases or hypothetical biases. This subjectivity can lead to disagreements among stakeholders about the true value of resources, which complicates the policymaking process.

3. Challenges with Dynamic Changes

Shadow prices are often estimated using static models, but the value of many resources, especially natural resources or environmental goods, can change over time due to factors like technological progress, changing social preferences, or unforeseen future costs. The inability to predict these dynamic changes accurately can undermine the reliability of shadow prices. For example, the shadow price of a forest may increase as society becomes more concerned about climate change and deforestation, but these shifts in preferences are difficult to predict and incorporate into long-term policies.

4. Market Distortions and Inaccurate Reflections of True Value

Another limitation is that shadow prices may not always reflect the true value of a resource if market distortions or failures exist. For example, in developing economies, market prices may be artificially low due to subsidies, monopolies, or market imperfections. In these cases, shadow prices based on these distorted market signals might not accurately reflect the actual opportunity cost of using a resource. Similarly, shadow prices may fail to account for **global** externalities, such as the long-term effects of climate change, if they are not adequately adjusted for factors like future risk or global interdependencies.

5. Complexity in Application

The application of shadow prices in complex systems³⁶⁰, especially those involving multiple interconnected resources, sectors, and stakeholders, can be technically challenging. For instance, shadow prices in large-scale systems like agriculture or energy production might need to incorporate interactions between different resources (e.g., land, water, labor, and capital), making the estimation of these prices highly complex. The need to model these

interactions accurately requires sophisticated econometric models and expertise, which might not be available in all contexts, particularly in less-developed regions.

6. Ethical and Political Considerations

The estimation and use of shadow prices also involve ethical and political considerations, particularly when assigning value to resources that have cultural, spiritual, or historical significance. For example, assigning a monetary value to a sacred forest or cultural heritage site might be met with opposition from indigenous communities or stakeholders who view these resources as invaluable and irreplaceable. In such cases, shadow prices may not fully capture the social or cultural importance of a resource, leading to ethical dilemmas and conflicts between different stakeholders.

While shadow prices are powerful tools in economic analysis, particularly in cost-benefit analysis, environmental valuation, and public policy, they come with their own set of advantages and limitations. On the positive side, shadow prices allow for the inclusion of non-market goods in economic decision-making, enable efficient resource allocation, and provide a basis for the design of policies that internalize externalities. However, their accurate estimation can be challenging, subject to data limitations, and influenced by subjective preferences. Furthermore, shadow prices may not always capture the true value of resources in dynamic or complex systems. Despite these limitations, shadow prices remain an essential tool in economic analysis, especially in the context of environmental economics and policy-making, offering a more holistic approach to understanding the full costs and benefits of resource use.

Check your Progress - II

Based on your understanding of the previous section, answer these questions in your own words:

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1. What is the primary function of shadow prices in economics?
2. How do shadow prices help in resource allocation?
3. What is the difference between market prices and shadow prices?
4. What role do shadow prices play in Cost-Benefit Analysis (CBA)?
5. How can shadow prices be applied to environmental economics?

6. What is the relationship between shadow prices and externalities?
7. How do shadow prices help in valuing non-market goods?
8. What are the advantages of using shadow prices in public policy decisions?
9. What is one limitation of using shadow prices in estimating environmental costs?
10. How do shadow prices contribute to achieving a socially optimal resource allocation?

27.8 Glossary

- **Shadow Price:** The implicit or "hidden" price that reflects the opportunity cost of using a resource when market prices are unavailable or do not capture all social costs or benefits.
- **Market Price:** The price at which goods and services are bought and sold in a competitive market, reflecting supply and demand dynamics.
- **Opportunity Cost:** The cost of forgoing the next best alternative when a resource is used for a particular purpose.
- **Externality:** A side effect or consequence of an activity that affects other parties who did not choose to be involved in the activity, such as pollution.
- **Cost-Benefit Analysis (CBA):** A systematic approach to comparing the costs and benefits of a decision, policy, or project, including both market and non-market factors.
- **Marginal Social Cost (MSC):** The additional cost to society of producing one more unit of a good or service, including both private costs and externalities.
- **Non-Market Goods:** Goods and services that are not bought and sold in markets, such as clean air, public health, or biodiversity.
- **Social Optimum:** The ideal level of resource allocation where the marginal social cost equals the marginal benefit, maximizing societal welfare.

27.9 Let's Sum Up

- **Shadow Prices Represent True Economic Value:** They help reflect the value of resources, especially when market prices fail to capture externalities or non-market goods.
- **Resource Allocation Efficiency:** Shadow prices are crucial in guiding efficient resource allocation in both market and non-market settings.

- **Applications in Cost-Benefit Analysis (CBA):** They are used to estimate the economic value of outcomes not reflected in traditional market prices, like environmental and public health impacts.
- **Environmental Economics:** Shadow prices are applied to value non-market goods such as clean air, water, and biodiversity, helping policymakers address environmental issues.
- **Policymaking and Regulation:** Shadow prices guide public policy decisions by quantifying the true costs of resources and externalities, promoting socially optimal outcomes.
- **Limitations in Practical Use:** Despite their utility, shadow prices face challenges in accurate estimation due to data limitations, subjectivity, and dynamic changes in the economy.
- **Dynamic vs. Static Models:** The use of shadow prices often assumes static conditions, but real-world applications require adjustments for future uncertainties and changing societal preferences.
- **Shadow Prices Drive Sustainability:** By incorporating shadow prices, we can align economic activities with long-term sustainability goals, ensuring resources are used in a way that benefits both current and future generations.

27.10 Suggested Readings

- "Microeconomics" – Paul A. Samuelson, William D. Nordhaus, 2010
- "Environmental Economics: A Critical Introduction" – Peter Söderbaum, 2013
- "Cost-Benefit Analysis: Concepts and Practice" – E. J. Mishan, 2007
- "The Economics of Climate Change: The Stern Review" – Nicholas Stern, 2007
- "The Theory of Environmental Policy" – H. Scott Gordon, 2011
- "Principles of Microeconomics" – N. Gregory Mankiw, 2015
- "Sustainable Development: Economics and Policy" – Partha Dasgupta, 2001

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27.11 Hints to Check Your Progress

CYP I :

1. What are shadow prices and why are they important in economics?

- Refer to: Section 27.3 Shadow Prices: Concept and Definition. This section defines shadow prices and their importance in resource allocation, optimization, and policy-making.
- 2. How are shadow prices used in linear programming to optimize resource allocation?
 - Refer to: Section 27.4.1 Linear Programming Approach. This section explains the use of shadow prices in linear programming models for optimizing resource allocation.
- 3. What is the role of dual variables in calculating shadow prices?
 - Refer to: Section 27.4.2 Dual Variables in Optimization. This part discusses the role of dual variables in solving optimization problems and calculating shadow prices.
- 4. How do shadow prices reflect the opportunity cost of using a resource?
 - Refer to: Section 27.3 Shadow Prices: Concept and Definition. It covers how shadow prices represent the opportunity cost when market prices are unavailable or distorted.
- 5. Explain how shadow prices are used in cost-benefit analysis for non-market goods.
 - Refer to: Section 27.6.1 Cost-Benefit Analysis. This section explains the use of shadow prices in cost-benefit analysis, particularly for valuing non-market goods.
- 6. What is the connection between shadow prices and marginal utility in economic models?
 - Refer to: Section 27.5.1 Role in Resource Allocation. This section touches upon how shadow prices reflect the marginal value or utility of a resource.
- 7. Give an example of how shadow prices are applied in environmental economics.
 - Refer to: Section 27.6.2 Environmental Economics. This section provides examples of shadow prices applied to environmental resources and externalities.
- 8. How does the shadow price of carbon help in policy-making for environmental protection?
 - Refer to: Section 27.6.2 Environmental Economics. This part explains the role of the shadow price of carbon in policy decisions like carbon taxes or emissions trading.

1. What is the primary function of shadow prices in economics?
 - Refer to: Section 27.3 Shadow Prices: Concept and Definition. This section covers the primary role of shadow prices in reflecting true economic value when market prices are not available.
2. How do shadow prices help in resource allocation?
 - Refer to: Section 27.5.1 Role in Resource Allocation. This section explains how shadow prices aid in optimal resource allocation when market prices are absent or ineffective.
3. What is the difference between market prices and shadow prices?
 - Refer to: Section 27.3 Shadow Prices: Concept and Definition. This section highlights the differences between market prices and shadow prices in resource allocation and economic decision-making.
4. What role do shadow prices play in Cost-Benefit Analysis (CBA)?
 - Refer to: Section 27.6.1 Cost-Benefit Analysis. This section discusses the significance of shadow prices in quantifying non-market goods and impacts in CBA.
5. How can shadow prices be applied to environmental economics?
 - Refer to: Section 27.6.2 Environmental Economics. It illustrates the use of shadow prices in valuing environmental goods like clean air and carbon emissions.
6. What is the relationship between shadow prices and externalities?
 - Refer to: Section 27.5.2 Market Failure and Shadow Prices. This section explains how shadow prices are used to internalize externalities such as pollution or resource depletion.
7. How do shadow prices help in valuing non-market goods?
 - Refer to: Section 27.6.1 Cost-Benefit Analysis. Shadow prices provide a way to assign value to non-market goods like public health, clean air, or social benefits.
8. What are the advantages of using shadow³⁶⁰ prices in public policy decisions?
 - Refer to: Section 27.7 Advantages of Shadow Prices. This section discusses the advantages of using shadow prices, such as more accurate policy evaluations and efficient resource allocation.
9. What is one limitation of using shadow prices in estimating environmental costs?

- Refer to: Section 27.7 Limitations of Shadow Prices. This part discusses the challenges in accurately estimating shadow prices due to data limitations, subjectivity, and market distortions.
10. How do shadow prices contribute to achieving a socially optimal resource allocation?
- Refer to: Section 27.7 Advantages of Shadow Prices. This section explains how shadow prices guide decision-makers to allocate resources efficiently, promoting socially optimal outcomes.

27.12 Examination-Oriented Questions

1. What are shadow prices and how are they used in economics?
 - Definition: Start by defining shadow prices as the implicit or "hidden" prices reflecting the opportunity cost of using a resource when market prices are unavailable or fail to capture the full economic costs.
 - Purpose: Explain their role in situations where market prices do not exist, such as public goods or environmental resources.
 - Examples of application: Mention their use in resource allocation, optimization problems (e.g., linear programming), cost-benefit analysis, and environmental economics.
 - Relevance in economics: Conclude by emphasizing how shadow prices help policymakers and economists make informed decisions, even when market prices do not exist or are inefficient

2. Discuss the role of shadow prices in resource allocation.
 - Introduction: Define resource allocation in the context of economics, emphasizing that it refers to distributing resources efficiently to maximize utility or profit.
 - Role of Shadow Prices: Explain how shadow prices represent the marginal value of relaxing constraints in resource allocation problems (e.g., labor, materials, land).
 - Applications in optimization: Discuss how shadow prices are used in optimization models (such as linear programming) to help firms and governments allocate scarce resources efficiently.

- Market failures: Mention that shadow prices are critical when market prices fail to capture the true social cost, such as in the case of environmental resources or public goods.
3. How do shadow prices contribute to cost-benefit analysis (CBA)?
- Definition of CBA: Define cost-benefit analysis as the process of comparing the costs and benefits of a policy, project, or decision.
 - Role of Shadow Prices in CBA: Explain how shadow prices are used to estimate the value of non-market goods or services (e.g., environmental impacts, public health improvements).
 - Example: Provide an example, such as the calculation of the social cost of carbon in evaluating an environmental policy or project.
 - Importance in decision-making: Highlight how shadow prices help include externalities (positive or negative) in CBA, leading to more accurate and informed policy or project decisions.
4. Explain how shadow prices are applied in environmental economics to address market failures.
- Introduction to market failure: Define market failure as a situation where markets do not efficiently allocate resources, often due to externalities, public goods, or information asymmetries.
 - Role of Shadow Prices: Discuss how shadow prices are used to internalize externalities, such as pollution, which are not reflected in market prices.
 - Application in Environmental Valuation: Provide examples, such as the use of shadow prices to estimate the cost of carbon emissions or the value of ecosystem services like clean air.
 - Policy implications: Explain how governments use shadow prices in policy design, such as carbon taxes or cap-and-trade systems, to correct market failures and promote environmental sustainability.
5. What are the advantages and limitations of using shadow prices in economic decision-making?

- Advantages: Start by discussing the advantages of shadow prices, such as their ability to reflect non-market values, improve resource allocation, and incorporate externalities into economic analysis.
- Examples of advantages: Mention how shadow prices help in decision-making by quantifying the value of environmental goods, public goods, and non-market services.
- Limitations: Explain the limitations of shadow prices, such as data estimation challenges, subjectivity in valuation, and difficulties in capturing dynamic changes over time.
- Conclusion: Conclude by stressing the importance of shadow prices despite their limitations, especially in cases where market prices fail to reflect true costs, guiding policymakers toward more efficient and sustainable decisions.

Economic Planning -Meaning, characteristics, objectives, and Classification of Planning.

STRUCTURE

28.0 Objectives

28.1 learning outcomes

28.2 Introduction

28.3 Meaning of Economic Planning

28.3.1 Definition of Economic Planning

28.3.2 Characteristics or Features of Economic Planning

28.4 Objectives of Economic Planning

28.5 Types of Planning

28.5.1 Capitalist and Socialist Planning

28.5.2 Totalitarian and Democratic Planning

28.5.3 Centralized and Decentralized Planning

28.5.4 Functional and Structural Planning

28.5.5 Perspective Medium- and Short-Term Planning

28.5.6 Permanent and Emergency Planning⁴⁰⁰

28.5.7 Physical and Financial Planning

28.5.8 Direction and Inducement Planning

28.5.9 Rolling and Fixed Planning

- 28.5.10 Indicative and Imperative Planning
- 28.5.11 Corrective and Development Planning
- 28.5.12 Comprehensive and Partial Planning
- 28.5.13 Flexible and Rigid Planning
- 28.5.14 Anti-Cyclical and Development Planning
- 28.6 Lets Sum-up
- 28.7 Glossary
- 28.8 Further Readings
- 28.9 Hints for Check Your Progress (CYP)
- 28.10 Self- Assessment Exercise

28.0 OBJECTIVES

After going through this lesson, the students should be able to:

- learn about the meaning of economic planning
- understand the features of Economic Planning
- describe the various types of Planning
- understand the classification of Planning

28.1 LEARNING OUTCOMES

After completing this chapter, students will be able to:

1. Understand the concept, meaning, and definitions of economic planning.
2. Identify the main features and characteristics of economic planning.
3. Comprehend the objectives of economic planning, especially in the context of developing economies.
4. Distinguish between various types and classifications of planning based on control, structure, duration, and purpose.

5. Evaluate the merits and demerits of different planning types such as capitalist vs. socialist, centralized vs. decentralized, totalitarian vs. democratic.

28.2 INTRODUCTION OF ECONOMIC PLANNING

The concept of planning is quite old and has been widely used by intellectuals of the society from time to time in different ways and in variety of senses. It is often confused with communism, socialism or economic development. Any type of state intervention in economic affairs has also been treated as planning. However, state can intervene even without making a plan. Now the question arises as to what is meant by planning? Planning is a technique, a means to an end being the realization of certain pre-determined and well-defined aims and objectives laid down by a central planning authority. The end may be to achieve economic, social, political, cultural, religious or even military objectives. The days of laissez-faire are gone and the issue is not between plan and no plan; it is between different kinds of plans.

28.3 MEANING OF ECONOMIC PLANNING

Economic planning consists of state intervention to control and regulate economic values so as to achieve the goal of socio-economic justice in an economy. Economic planning refers to an activity which is comprised of ends or aims which a society wants to achieve, and the means with which these ends are sought to be achieved. The ends are set by planners, keeping in view the needs of the countries concerned as also the possibilities open to them. The means to attain these ends, too, are described by planners. The ends and means are thus laid down before the action starts or before the plan is put into operation. State is the vehicle through which the operation of the economic plan takes place. The adoption of economic planning in underdeveloped, developing or developed countries in recent years has involved a great deal of state interference in economic life. Economic planning is essentially a way of organizing and utilizing economic resources to maximum advantage in terms of well-defined socio-economic goals.

28.3.1 DEFINITION OF ECONOMIC PLANNING

The term economic planning has been so widely and loosely used that a definition acceptable to all is difficult to give. Prof W. Arthur Lewis has referred to six different senses in which the term planning is used in economic literature.

Firstly, it refers only to the geographical zoning of factors, residential building, cinemas etc. This is also called town and country planning.

Secondly, planning means only deciding what money the government will spend in future during a given

period.

Thirdly, a planned economy is one in which each production unit (or firm) uses only the resources of men, material and equipment allotted to it by quota and disposes of its products exclusively to persons or firms which have been authorized by the central authority.

Fourthly, planning means setting of production targets by the government, whether for private or public enterprise. This type of practice is done only if there are one or two industries or services to which they attach special importance.

Fifthly; planning means fixing the target for the economy as a whole, purporting to allocate the country's labour, foreign exchange, raw material and other resources among the various sections of the society.

Finally, the word planning is sometimes used to describe the means which the government tries to enforce upon private enterprise the targets which have been already determined.

Some definitions as given by other leading economists:

1. According to Prof. Robinson, Economic planning is "collective control or supersession of private activities of production and exchange."
2. According to Hayek, "Planning means "the direction of productive activity by a central authority."
3. G. Myrdal defined economic planning as "programme for the strategy of a national government in applying a system of state interference with the play of market forces, thereby conditioning them in such a way as to give an upward push to the social process".
4. According to Dr. Dalton, "Economic planning in the widest sense is the deliberate direction by persons in charge of large resources of economic activity towards chosen ends."

28.3.2 CHARACTERISTICS OR FEATURES OF ECONOMIC PLANNING

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The main characteristics or features of economic planning can be summarized as follows:

- (i) **Definite Aims and Objectives.** The economic planning has deliberated and conscious economic aims and objectives.
- (ii) **Central Planning Authority.** There is one single central planning authority and executing diverse schemes.

(iii) **Comprehensive Planning.** There is comprehensive planning for all the sectors so that planning of one sector may not be nullified by absence of planning in other sectors.

(iv) **Use of All Available Resources.** The economy attempts to use all the available resources most economically and on a well-organized system of priorities, targets and economic objectives.

(v) **Work of Economic Planning.** The work of planning is done by an army of statisticians, scientists and technicians, so much so that the system has come to be known as planning by technocracy.

(vi) **Scope of Economic Planning.** Economic Planning is not only of production but also of distribution: What and how much is to be produced and to whom it is to be distributed

(vii) **Proper Balance.** Another characteristic of economic planning is that there is proper balancing in the plan so that lopsided development may be checked before-hand.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What is meant by economic planning?

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Q2. State any four objectives of planning in the Indian economy.

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Q3. Why was planning considered necessary in India after independence?

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28.4 OBJECTIVES OF ECONOMIC PLANNING

In this way, economic planning has multiple objectives which may be summarized as under

(1) **Rapid Economic Development.** The first and the foremost objective of economic planning is the

rapid economic development of an underdeveloped country. The vicious circle of poverty can only be broken by the rapid development in agriculture industry and infrastructures. Generally, the rate of capital formation is low in such economies, followed by low capital output ratio, misallocation and underutilization of natural resources, higher rate of population explosion inflationary trends in prices, unskilled labour force, inefficient and corrupt administration etc. It is thus, through economic planning that an underdeveloped country can break these bottlenecks and in turn increase national income, per capita income and standard of living of the people. That is why India, Pakistan and similar other developing countries have, therefore, given top priority in their recent five-year plans to the faster economic growth of the economy.

(2) Full Employment. Another crucial objective of economic planning that has been widely accepted, is that of full employment. It is obviously a hypothetical stage which is assumed, particularly in the developed economies like U.S.A., U.K. and so on. In a planned economy whether it is developed or underdeveloped, full employment is an inherent character of any economic system and, therefore, it is never enlisted in the objectives of planning. As such, the planned economies in general lay emphasis on employment promotion in the economy, and the objective of employment is, thus, treated essentially as an instrument of production planning.

(3) Post-war Reconstruction. In the post-war period, reconstruction of war-affected economies was one of the main objectives of planning. It may include the following issues

- (a) Planning for transformation of war economy to peace economy;
- (b) Reconstruction of bombed cities, factories ports, communications and transportation.
- (c) Work for economic and social betterment. This objective of planning nowadays acquires merely a historical importance, and it may be placed in planning objectives in the specific conditions when the planned economy has suffered on a large scale from any natural or manual calamity like storm, flood, earthquakes, war and soon.

(4) Economic Security. Some of the planned socialist economies gave much importance to the economic security in their planning. Economic security means the fair wages to labourers, fair profits to the entrepreneurs, fair prices to customers, fair rents to landlords and fair rates of interest to the capita

(5) Poverty Alleviation. The developing economies have two chronic problems—unemployment and poverty. Regional backwardness and inequality in the society are the main reasons of poverty. Both of them are related to each other. If the first is the cause, the latter is the impact. Therefore, the

planned developing economies have accepted poverty elimination as one of the main objectives of the planning.

(6) Optimum Utilization of Natural Resources. Another important objective of economic planning is the optimum utilization of natural resources which are lying underutilized, misutilised, misused and wasted since long. In an underdeveloped and developed economy, concrete action is essential or making the optimum utilization of natural resource in the economic interest of the country.

(7) Promotion of Infrastructural Facilities. There are a number of regions economically backward, particularly in the countryside of underdeveloped in the world. Socio-economic infrastructural facilities widely play very significant role in the development of the backward regions. The promotion of socio-economic infrastructural facilities, such as schools, telephone, means of transportation roads, railways, electrification and so on is the prerequisite of economic development of any region. Hence, the majority of economies which are underdeveloped but planned have recently aimed at the promotion of infrastructural facilities in their plans.

(9) Rapid Capital Formation. Another major problem of the underdeveloped and developing countries is the low capital town on account of low saving and thereby low investments. The low savings and low investment are due to mass poverty and economic backwardness. Economic planning is considered an important tool in the hands of the State for raising capital formation.

28.5 TYPES OF PLANNING

There is no watertight classification of planning. Planning, as experienced in different world economics, varies from one economic system to the other, from time to time, and region to region. Thus, same type of planning cannot succeed in every country because socio-economic structures of different countries widely differ from each other. In the words of Prof. Robbins, "The issue is not between a plan and no plan; it is between different kinds of plans." However, every plan is accompanied with definite aims and objectives. Hence the success of planning for attaining the desired aims and objects great depends upon the type of planning chosen by the respective country.

TYPES OR CLASSIFICATION OF PLANNING

Planning may be classified on the basis of economic system, time, scope, regions, finance and output basis etc. as under.

1. Capitalist and Socialist Planning.
2. Totalitarian and Democratic Planning.

3. Centralized and Decentralized Planning.
4. Functional and Structural Planning.
5. Perspective, Medium and Short-term Planning.
6. Permanent and Emergency Planning.
7. Regional National and International Planning.
8. Physical and Financial Planning.
9. Direction and Inducement Planning.
10. Rolling and Fixed Planning.
11. Indicative and Imperative Planning.
12. Corrective and Development Planning.
13. Comprehensive and Partial Planning
14. Flexible and Rigid Planning.
15. Anti-cyclical and Development Planning.

28.5.1 CAPITALIST AND SOCIALIST PLANNING

Capitalist Planning:

Under capitalist planning, though laissez faire principle is abandoned and some sort of planning comes to be associated with capitalism, it should be noted that at the same time most of the fundamental features of capitalism (such as institution of private property, Profit motive, competition, price mechanism etc.) are maintained or modified only to a limited extent. Under capitalism, the planning authority prepares a broad framework of the plan. The plan broadly indicates the objectives and targets of different sectors, and the annual growth rate to be attained within a specified period of time. Whatever the extent of planning under capitalism, it is implemented through price-mechanism which is manipulated through subsidies tax concessions, etc., in such a manner that price-manipulation helps in the attainment of the objectives and targets.

Thus, under capitalist planning the state offers various types of fiscal and monetary incentives to private enterprise units to induce them to take up some particular line of production and refrain from taking certain other lines, the idea being to induce production of those commodities which are conducive to welfare of society. Planning under capitalism is thus planning not by command and direction, but by inducements. Planning under capitalism is planning within the broad capitalist framework. The implementation of the plan is not by command or order or force but by offering various inducements like cheap loans, tax concessions, fiscal and monetary steps, and so on to persuade private enterprise to move along lines broadly indicated in the plan so that primary

objectives and targets can be attained.

They are critics who maintain that capitalism is incompatible with planning. This is because planning to be effective does require some degree of compulsion and direction. It is also possible that private enterprise may not adequately respond to various positive and negative inducements offered and therefore the plan objectives and targets may not be fulfilled. Anyway, more and more sophisticated monetary, fiscal and other policies and instruments are being evolved to make planning under capitalism successful. Experience shows that to make planning under capitalism successful. Experience shows that planning under capitalism has been partially successful and has helped to remove certain defects of capitalism and helped it to attain some desirable goals and objectives.

Socialist Planning

As we have seen under socialism (or communism), all factors of production are owned by the state. All productive economic activities are carried on by the enterprises which are established, owned, and managed by the state, under such circumstances, planning process becomes more integrated and effective. Under socialist planning, government formulates the plan and also implements it. This implies that socialist planning is essentially planning by direction and not by inducements only.

In socialist planning, all the economic activities are centrally planned and the economy is directed towards the attainment of certain specific goals and targets.

The fact, that under socialism all factors of production are owned by the state and there only public (or only insignificant private sector) which helps the planning authority to formulate and implement a plan. A socialist economy in which there is absence of the institution of private property, private profit motive, competition and freely fluctuating price-mechanism and in which there is public ownership of all the factors of production and complete control of the state over all the economic activities of the people is in a better position to successfully formulate and implement a plan. As an author has put it, "No country can have much planning with little socialism or much socialism with little planning."

Merits and Demerits

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The merits of socialist planning are that under socialism planning can be comprehensive and its implementation effective. But the defect of socialist planning is that the consumers and producers enjoy hardly any personal freedom and they just become tools in the hands of the old state, acting under its command.

But experience has shown that socialism and planning not only are compatible but go hand-in-hand, and that planning has greater chances of success under socialism than under capitalism.

28.5.2 TOTALITARIAN AND DEMOCRATIC PLANNING

Totalitarian Planning may be defined as economic planning under totalitarian regime of the right (as in the case of Fascist dictatorship of Hitler in Germany and Mussolini in Italy) or of the left (as in the case of dictatorship of Stalin in the USSR). Under totalitarian planning, all authority comes to be concentrated in the hands of one or a small coterie of people who take all important and even minor economic decisions with regard to the formulation and implementation of the country's economic plan. If found necessary, these totalitarian regimes will not hesitate to use repressive and punitive measures while implementing a plan, as for example, heavy punishment in case of failure to realize a specific target within a specified time by an enterprise. It is the concentration of authority that is the fundamental feature of totalitarian economic planning and not whether it is dictatorship of the right or of the left.

Democratic Planning may be defined as an economic plan formulated and implemented in a democratic way. In the case of a democratic country adopting economic planning, it will be observed that there are planning cells, or boards or commissions at different levels which formulate plans for their respective areas, taking into consideration the views of the elected representative bodies in respect of all important economic matters. At each state, the draft plan is debated in elected bodies where opposition parties are free to criticize the plan and suggest amendments or modifications or even an alternative plan. The central planning authority will then try to co-ordinate all the tentative plans coming from lower levels and the final draft of the plan is thrown open for debate in the parliament where elected representatives of the people in the country debate the plan. Opposition parties can suggest minor changes or even fundamental modifications. It is only after the parliament approves and finalizes the draft plan that the plan is supposed to be ready for implementation.

Democratic planning is essentially a decentralized type of plan in which planning exercises are undertaken at different levels such as village, block, district, state and central levels and there is planning run below to make it realistic in nature. In India we are still very far from his ideal model of decentralized planning, but the Prime Minister has recently emphasized the role of district plans in the future planning set-up of the country, say, during the Ninth Plan Period (1997-2002).

Merits and Demerits.

Comparing totalitarian planning with democratic planning we notice the following merits and demerits in each of them:

In the case of totalitarian planning, since a small group of people formulates the plan, plan formulation is easy and expeditiously done; its implementation, because of the use of repressive measures, if need arises, is more effective as the experiences in the USSR, China and some East European countries have shown.

But the demerit of totalitarian planning is that too much power comes to be concentrated in a few hands; any mistake on their part, which is very likely, will have disastrous effects. Also, since people are not consulted while formulating the plan, plan priorities may not represent the wishes, aspirations and needs of the people and, therefore, the people will not feel that it is their own plan and hence their co-operation in its implementation may not be forthcoming in requisite manner.

28.5.3 CENTRALIZED AND DECENTRALIZED PLANNING

In the case of centralized planning, one centralized planning authority or board or commission is entrusted with the powers of taking all the important economic decisions, such as, decisions regarding rate of saving and amount and pattern of investment, rate of growth of the economy, sectoral allocation of resources, fixation of targets in different industries, and so on. The central planning authority further splits these resources and targets which each region or enterprise is asked to fulfill. Regional planning authorities may be existing and may be consulted; but all the final and vital decisions are taken by the central planning authority.

The central planning authority may ask the regional bodies to implement their part of the national plan; but all the implementation will be done under the direct supervision of the central planning authority. Thus, in the case of centralized planning which is also known as planning from above, all the powers of taking vital decisions regarding formulation, adaptation and supervision over implementation are entrusted to the central planning authority.

Merits

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Since a single and all-powerful planning authority enjoys all powers in respect of formulation and implementation of a plan, centralized planning possesses certain advantage such as, decision-making in regard to planning logical consistency, effective and efficient implementation or execution of the plan, all leading to substantial results as regards achievements of predetermined objectives and targets.

Demerits

But centralized planning also suffers from grave defects, such as, predominance of subjective considerations or even whims and fact of prominent members of the central planning authority, lack of flexibility, non-involvement of people in plan formulation and therefore failure of the plan to represent the real needs and aspirations of the people in general, lack of co-operation of the people in the implementation of the plan and because of the vastness of the task of evolution and implementation involved, inefficiency and therefore failure to attain objectives and targets within specified time limit.

Decentralized Planning.

As regards decentralized planning there is not just one all-powerful central planning authority, there are several regional and even lower-level planning bodies. These bodies enjoy the power of formulating plans for their own regions taking into consideration local needs, local background, local priorities, and soon. But these regional planning agencies or boards are required to formulate their regional plans within the broad framework of the national plan pre discussed and agreed upon by all parties concerned. This sort of planning is known as planning from below.

Merits. In the case of decentralized planning the advantages are that there is no concentration of authority in the hands of a small body of persons; hence there is little scope for domination of such body over planning; since people are involved and consideration is given to different regional and local needs and resources, planning from below or decentralized planning becomes more representative of people's needs, aspirations and priorities.

Demerits. But decentralized planning has certain defects. Each region may make excessive demand without reference to nation's resource position. This would make pruning of regional plans necessary and here political pressure may exert undue influence with the consequence that some regional plans may suffer unjustifiable cuts while those with political pulls may have bigger regional plans not justified on logical grounds.

28.5.4 FUNCTIONAL AND STRUCTURAL PLANNING

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Functional planning is that type of economic planning which aims at improving the functioning of the economy. It aims at improving the efficiency and performance of the economy by pushing up the rate of saving and investment, or improving efficiency of labour or by such other innovations like modernization of industry etc. What is to be noted is that functional planning aims at bringing about all these improvements without fundamentally altering the structure of the economy or without

introducing fundamental changes in the institutional pattern or structure of the society. At the most, only minor structural or institutional changes or adjustments necessary to enable the economy to function more efficiently and attain specified targets and objectives within the prescribed time limit, would be brought about.

Structural Planning

By structural planning is meant type of economic planning which aims at achieving the objectives and targets within specific time-limit by improving of the economy, by bringing about some fundamental structural and institutional changes in the economy. These structural and institutional changes in the existing socio economic and political institutional pattern are deemed essential because it is felt that with the existing institutional system or pattern would be very difficult or practical impossible to improve the functioning of the economy and attain the aims and targets of planning within the specified time limit. This structural planning is planning which aims at improving the functioning of the economy by bringing about radical or fundamental change in the existing socio-economic and political institutions.

The concept of structural planning (and by implication, that of functional planning) can best be illustrated by taking the illustration from planning in India. Like other developing countries when India adopted economic planning, it had many feudal socio-economic and political institutions, attitudes and the value-systems. Planning in India had therefore to be both functional and structural. Thus, planning in India aims at improving the functioning of the economy and its efficiency which is very low, by bringing about several radical or fundamental alterations in its social, cultural, economic, and even political institutions prevailing in the country. This should make clear why developing countries in Asia, Africa and Latin America need not only functionally planning but also structural planning. In fact, in the case of these countries one wonders whether without structural planning, there can be much of functional planning.

28.5.5 PERSPECTIVE MEDIUM- AND SHORT-TERM PLANNING

Perspective planning refers to long-term covering a period of 15 to 20 years or even more. Perspective planning only lays down the broad direction in which the economy and different sectors of the economy are expected to, or should, move and the broad objectives which the economy aims at or should in at attaining in the long run.

From the concept of perspective planning, it follows that such a plan can be drawn only in broad terms and not in details. It also follows that the longer the span of time of a perspective plan, the broader and vaguer will be the direction and objectives and less detailed the programme and

projects. It should also be clear that as in the modern complex world, many dynamic changes are continually taking place drawing a perspective plan for the country today for the next 15 to 20 years is going to be based on a number of assumptions which may prove invalid and the perspective plan may prove unrealistic and therefore require drastic modification

Medium planning

The perspective plan of 15 to 20 years for operational purpose, comes to be split into several medium-term plans. The medium-term plan generally covers a period of five years and is called a five-year plan. But in practice it may be a little less or more than five years

The medium plan enables the planning authority to lay down specific targets in specific sectors and formulate specific policies and procedures to attain the targets. Thus, India Five Year Plans lay down specific targets in respect of food grains and other crops, output of different industries, specific projects (like irrigation projects or factories) to be completed, and so on. Naturally there are more concrete targets in these medium-term plans.

Short Term Planning

The respective medium-term plan is further split into annual plans laying down targets in still more specific terms which the economy should achieve at the end of each year. The rationale behind the formulation of annual plan has been that experience in India showed that in the case of a Five-Year Plan very little was generally done during the first two or three years of a Five-Year Plan and then, execution of projects and expenditure were several projects used to be rushed through during the last two or three years of the Five-Year Plan to show that targets were attained in time. This often resulted in wasteful expenditure and inferior quality of work done or goods produced. In order to avoid this sort of concentration of work and expenditure during the latter part of Five-Year Plan, it was found that it would be desirable to break up a Five-Year Plan into five annual plans. This resulted in spreading the work to be done in a proper way so that implementation of different projects had to be done at a reasonable speed from the beginning of a Five-Year Plan to the end of it. It would be observed that the relation between annual plans and a Five-Year Plan is much the same as between several Five-Year Plans and the perspective plan.

28.5.6 PERMANENT AND EMERGENCY PLANNING

By 'Permanent Planning' is meant economic planning which has been accepted by a country on ideological grounds as in the case of the USSR and other communist countries, or even some of the democratic countries, where all political parties appear to have agreed on acceptance of some sort of

economic planning to attain certain socio-economic objectives. In the case of permanent planning, planning comes to be accepted as the most satisfactory way of managing the nation's economy so that economic planning becomes a permanent way of managing the economy and part and parcel of the philosophy and way of life of the community.

Emergency Planning

Emergency planning means planning which comes to be adopted for a temporary or short period because of the force of circumstances like war, or a severe drought or depression creating an emergency situation in a country. It is possible that the country has no faith in planning or in fact is opposed to economic planning on ideological grounds: but the force of circumstances is such that for a temporary period of emergency the country is forced to adopt some sort of planning.

28.5.7 PHYSICAL AND FINANCIAL PLANNING

Physical planning means planning based on the physical resources like men and material of a country. For Indian planners, "Physical Planning is an attempt to work out the implications of the development efforts in terms of factor allocations and product yields so as to maximize incomes and employment.

Physical planning requires proper evaluation of relations between investment and output. In socialist countries which have acquired considerable experience in economic planning investment coefficients are computed on a regular basis. These coefficients are quite useful for physical planning, because they not only indicate the amount of investment required for obtaining a certain increase in the output of product, but they also tell us the composition of that investment in terms of inputs which will be needed to get that output. This enables planners to balance the planned increase in output of various products with the amount of investment and inputs required. Further, physical planning involves balancing of the various sectors and sub-sector, of the economy, because the output of one sector of the economy often serves as input for doing production in other sectors. For this kind of physical planning now planners generally rely on the technique of input-output analysis.

In physical planning, an overall assessment of the available real resources like raw-materials, man-⁴¹⁴power etc and how these have to be obtained so that bottleneck may not appear during the functioning of the plan. Physical planning requires the fixation of physical targets with regard to agricultural and industrial production, trade, transport, socio-economic services consumption levels and in respect of employment, income and investment levels of the economy. There must be proper balancing in the various targets set in the plan. Further, physical planning has to be reviewed as an

overall long-term planning rather than a short—term piecemeal planning.

Financial Planning

Finance is the life-blood of all economic activities. It is the main key to economic planning. Financial planning implies the arranging of financial resources to meet the development expenditure of the plan without the stipulated financial resources; the successful economic planning is almost an impossibility. Financial planning is essential in order to remove maladjustments between supplies and demand and for calculating costs and the benefits of the various projects. According to Indian Planning Commission, 'The essence of financial planning is to ensure that demands and supplies are matched in a manner which exploits physical potentialities as fully as possible without major and unplanned changes in the price structure.'

28.5.8 DIRECTION AND INDUCEMENT PLANNING

Planning by direction is found in a socialist economy like that of the Soviet Russia (the then USSR). There is one Central Authority, which formulates plans, directs and executes them in order to achieve the predetermined goals of planning for the entire economy. Prof Oscar Lange states, "With regard to the socialist sector, the national plan represents a binding directive. The targets of national plan and its financial provisions represent orders to be carried out of the various ministries and the enterprises controlled by them. These are duty bound to carry out the directives of the plan. The planning by direction, particularly in socialist countries, has been considered most significant in view of attaining the vast objectives in a planned economy. Planning by direction relates to a bureaucratic and totalitarian outlook."

Demerits. The main drawbacks or demerits of planning by direction are as follows

- (i) Planning by direction relates to a bureaucratic and totalitarian outlook. The rationing and price-control are the main shortcomings of planning by direction that may lead to the corruption and nepotism on a large scale.
- (ii) The consumers sovereignty in such planning is always lacking and people have no right to spend their incomes and on consume goods according to their choice and taste.
- (iii) The planning by direction is always inelastic and inflexible.

Planning by Inducement

The planning by inducement is a democratic type of planning which relies on persuasion and not on compulsion. It is always applied in a free and democratic economy where the State Control and

regulations are liberal and there is freedom of enterprise, freedom of consumption and production. The public in such economies is likely to work under monetary and fiscal measures. The various institutions bear their own responsibility to carry out their plans of development. The planning authority tends to induce the savings and the amount of investment on the one hand and to discourage consumption on the other, through a taxation and monetary policy under the planning by inducement.

Demerits.

- (i) The incentives offered may not be adequate both for the producers and the consumers.
- (ii) Monetary and fiscal measures alone are inadequate to induce planned development in the economy.
- (iii) Planning by inducement is not conducive to the requirement of less developed countries.

28.5.9 ROLLING AND FIXED PLANNING

Prof Myrdal was the first economist who advocated a rolling plan for the developing countries in his book 'Indian Economic Planning in its Broader Setting'. In India, it was introduced in 1962 for purposes of defense after the Chinese aggression. It had a great success in making the country almost self-sufficient in the manufacture of sophisticated arms and ammunitions, frigates and aircraft and helped to prepare it in facing Pakistan twice.

In a rolling plan, every year three new plans are framed and acted upon. Firstly, there is a plan for the current year which includes the annual budget and the foreign exchange budget. Secondly, there is a plan for a number of years, say three, four or five. It is changed every year in accordance with the requirements of the economy. Thirdly, a perspective plan for 10, 15 or 20 or even more years is presented every year in which the broader goals are mentioned and the outlines of future development are forecasted. The annual one-year plan is fitted into the same year's three four- or five-year plan and both are framed in the light of the perspective plan. In short, in the rolling plan the plan of the earlier year provides the basis for the subsequent plan. The basic idea for planning is only to renew the medium-term plan every subsequent year but the number of years remains the same as the plan rolled forward through time.

Fixed Planning

Fixed planning, as the name indicates, is a plan for fixed period, say 5, 6 or 7 years. A fixed plan lays down definite aims and objectives which are to be achieved during the specific plan period. In this connection physical targets are fixed along with the total outlay of the plan.

28.5.10 INDICATIVE AND IMPERATIVE PLANNING

Indicative planning is practiced in capitalist countries as also in a number of mixed economies. This type of planning is flexible and imperative. Indicative planning has been in use in France since the Moonet Plan of 1947-50. In the French system of planning, the public sector comprises basic sectors like steel, coal, fertilizers, transportation, farm machinery etc. Besides the public sector, there is also a private sector which works side by side with the public sector. The private sector works freely and thus it is neither rigidly controlled nor directed by the state to fulfil the targets and priorities of the plan.

In indicative planning, there is need for evolving coordination between economic units which are in private hands. According to Andrew Shoufield, one may classify coordination in terms of the following three approaches— (i) the forecasting approach, (ii) the policy approach, and (iii) the corporate approach. In the forecasting approach, individuals or groups in the economy are provided with the requisite information in the form of forecasts or projections into the future, along with a specified/desirable future which is sought to be achieved. This acts as a guide to their decision making process and provides a secure basis as against the uncertainties to which units in these economies are subject. In the case of policy approach, coordination is enacted through the use of policy variables. Finally, the corporate approach, practiced in France, envisages the coordination function of indicative planning at two levels. At one level it seeks coordination of the behaviour of the economic groups (like business enterprises) which hold market power. At another level it coordinates the relations between private and public activities.

Imperative Planning

Under imperative planning the plan is formulated by the central authority and all economic activities and resources of the economy operate under the direction of the state. There is complete control over the factors of production by the state. The entire resources of the country are used to maximise the production so as to achieve the targets laid down by the plan. Production of commodities is done in accordance to the state policies. The consumers get commodities in fixed quantities at fixed prices. The commodities are rationed. There is no consumer sovereignty such as in market planning. Imperative planning is in operation in communist countries like Russia and China.

28.5.11 CORRECTIVE AND DEVELOPMENT PLANNING

A collective planning, as the name also indicates, is one in which the state plans adopt various fiscal, monetary and direct control measures in order to rectify maladjustments that arise in a

capitalist economy.

Development Planning

Development planning as the name also indicates, is meant to develop the economy of a country as a whole. It involves the application of a rational system of choices among feasible courses of investment and other development actions. It relies to a large extent on the market mechanism. Under development planning, the state formulates a development plan for the whole economy of a country. The private sector is considered as an active partner in the development effort of the economy. The state does not use force on the private sector to get the plan implemented. Rather, it provides various incentives through monetary, fiscal and direct control measures. Development planning is primarily related to the development activities of underdeveloped countries.

28.5.12 COMPREHENSIVE AND PARTIAL PLANNING

Comprehensive planning as the name indicates, is the general planning covering all the major issues for the whole economy of the country. It is the overall planning of the country. This type of planning includes all economic aspects of the country integrated in an organized way. It also covers the entire resource allocation and overall pattern of the country's economy. Economic planning of India, Russia and China and other socialist countries (with the exception of Yugoslavia) is based on comprehensive planning. In short, comprehensive planning covers all the aspects of the economy.

Partial planning is contrary to comprehensive planning. In partial planning the state attempts to plan only the important sectors of the economy, such as, agriculture, industry, investment, transport etc. It is also possible that the state might plan only a particular aspect of the various branches economic activity.

28.5.13 FLEXIBLE AND RIGID PLANNING

Flexible planning, as the name indicates, operates within the wider limits of the growth forecast for the whole system and deals with a limited number of targets, usually established per branch rather than per firm and allowing considerable freedom of action. In flexible planning, there is flexibility of adjustments, readjustments in targets, output and resource. This type of planning is dynamic. In the light of the changed circumstances, planning can be modified and amended. Thus, there is wide scope of revision in flexible planning. For example, India Second Five Year Plan was more flexible as compared to First Five Year Plan.

Rigid planning is contrary to flexible planning. Rigid planning deals with fixed targets which are not subject to change under any circumstances. Strictly speaking, rigid planning is seldom found in the

present economic world. Rigid planning is not much suitable for the underdeveloped and developing countries.

28.5.14 ANTI-CYCLICAL AND DEVELOPMENT PLANNING

Anti-cyclical planning, as the name indicates, is the planning against economic cycles. The main objective of anti-cyclical planning is to achieve economic stability or freedom from cyclical fluctuations within the prevailing socio-economic framework. The socio-economic structure is not to be changed in anti-cyclical planning. Policies and measures adopted to achieve plan objectives operate largely through the market mechanism. Anti-cyclical planning is also called as 'corrective planning' because its objective is to correct certain unfavourable trends in the economy of the country. Anti-cyclical planning is generally limited to developed countries with strong private sectors and well-developed markets.

Development planning, as the name indicates, is meant to develop the economy of a country as a whole. Under development planning, the government formulates a development plan for the whole country. It seeks to explore new employment and development avenues and raise the level of income and output. According to Watersten, 'it involves the application of a rational system of choices among feasible courses of investment and other developed actions.'

28.6 Lets Sum-up

Economic planning has become an essential framework for modern economic management, particularly in countries striving for rapid development and socio-economic transformation. This lesson has provided an in-depth understanding of the concept, meaning, and importance of economic planning. We began by recognizing that planning is not merely a tool of socialism or state control but a flexible mechanism used across diverse economic systems to guide resource allocation and promote national development goals.

The lesson explored the key characteristics of planning, including its centralization, purposefulness, and the coordinated use of available resources. These features ensure that planning functions as a systematic approach to overcoming market failures, addressing regional disparities, and promoting inclusive growth. 419

We also examined the objectives of planning, which span from rapid economic development, poverty alleviation, and full employment to better utilization of natural resources and infrastructure development. In this context, planning becomes a means to achieve balanced regional growth and social justice.

A significant portion of the lesson was devoted to the types and classifications of planning. These included distinctions based on political structure (democratic vs. totalitarian), control mechanisms (indicative vs. imperative), economic systems (capitalist vs. socialist), geographical scope (national vs. regional), and time frame (short-, medium-, and long-term). Each classification highlights how planning adapts to the specific socio-economic realities and institutional frameworks of different nations.

In sum, economic planning is a dynamic and multifaceted process. It is not a one-size-fits-all model but a spectrum of strategies tailored to meet specific developmental challenges. Understanding these dimensions empowers policymakers and economists to design more effective, inclusive, and forward-looking plans.

Check your Progress-II

Based on your understanding of the previous section, answer these questions in your own words:

1. How does democratic planning differ from totalitarian planning?
2. In centralized planning, who makes the major economic decisions?
3. What is meant by functional planning?
4. How is short-term planning different from perspective planning?
5. When is emergency planning typically used?
6. What is physical planning mainly concerned with?
7. How does planning by inducement work in a capitalist economy?
8. What is the main feature of rolling planning?
9. Why is comprehensive planning more inclusive than partial planning?

28.7 Key words

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- **Economic Planning:** A deliberate and organized process by which the state allocates resources and directs economic activities to achieve predetermined social and economic objectives.
- **Democratic Planning:** A decentralized planning approach where public institutions,

elected representatives, and local bodies participate in plan formulation and implementation.

- **Totalitarian Planning:** A centralized and authoritarian form of planning where decisions are made by a single authority or small group without public involvement, often using repressive means.
- **Centralized Planning:** Planning in which all major decisions related to targets, investments, and policies are taken by a central authority and passed down to lower levels.
- **Decentralized Planning:** A system in which planning responsibility is distributed across various levels—district, state, and central—to reflect local priorities within a national framework.
- **Capitalist Planning:** A market-based planning model where the state guides private enterprises through incentives, tax concessions, and subsidies, without direct control over production.
- **Socialist Planning:** A state-controlled economic system where all means of production are publicly owned and planning is conducted through directives by a central authority.
- **Functional Planning:** Planning that aims to improve the efficiency and operation of the economy without changing its structural or institutional framework.
- **Structural Planning:** Planning that involves significant changes in the institutional and structural aspects of the economy to enable effective functioning and development.
- **Perspective Planning:** Long-term planning spanning 15 to 20 years, focusing on broad national goals and strategic directions.
- **Medium-Term Planning:** Typically a five-year plan that breaks down the long-term perspective into actionable and measurable targets for a shorter period.
- **Short-Term Planning:** Annual plans derived from medium-term goals, used for operational execution and monitoring of development progress.
- **Rolling Planning:** A dynamic form of planning in which new plans are added each year while older ones are revised, allowing flexibility and regular updates.

- **Fixed Planning:** Planning with rigid targets and strategies that remain unchanged during the fixed time period (e.g., 5 years), regardless of changing circumstances.
- **Physical Planning:** Planning based on real resources—labor, raw materials, and capital goods—emphasizing tangible outputs and sectoral balance.
- **Financial Planning:** The arrangement and mobilization of financial resources to support planned development activities, ensuring the balance between demand and supply.
- **Planning by Direction:** A top-down approach in which the state gives binding directives to enterprises and sectors to fulfill set targets.
- **Planning by Inducement:** A liberal planning method where the state influences economic activities through incentives rather than compulsion.
- **Comprehensive Planning:** A wide-ranging approach covering all sectors of the economy to ensure coordinated and balanced development.
- **Partial Planning:** Planning limited to specific sectors (like agriculture, industry, or infrastructure) without integrating the entire economy.
- **Flexible Planning:** A form of planning that allows modification of targets and strategies in response to changing internal and external conditions.
- **Rigid Planning:** A fixed planning framework where goals and resource allocations are not subject to revision during the plan period.
- **Emergency Planning:** Temporary planning initiated in response to crises like war, drought, or economic collapse, often with short-term objectives.
- **Corrective Planning:** Planning aimed at rectifying economic imbalances such as inflation, unemployment, or regional disparities.
- **Development Planning:** Planning focused on accelerating overall economic growth and improving living standards, especially in underdeveloped and developing countries.

28.8 FURTHER READINGS

Agarwal R.C.: Economics of Development and Planning [Theory and Practice]

Dewett K.K.: Modern Economic Theory

Jhingan M.L.: The Economics of Development and Planning

Jhingan M.L.: Advanced Economic Theory

28.9 Hints for Check Your Progress

CYP I

Q1 Refer to Section 28.2

Q2 Refer to Section 28.3

Q3 Refer to Section 28.2

CYP II

Q1 Refer to Section 28.5.1

Q2 Refer to Section 28.5.2

Q3 Refer to Section 28.5.3

Q4 Refer to Section 28.5.4

Q5 Refer to Section 28.5.5

Q6 Refer to Section 28.5.6

Q7 Refer to Section 28.5.7

Q8 Refer to Section 28.5.8

Q9 Refer to Section 28.5.9

Q10 Refer to Section 28.5.12

28.10 SELF ASSESSMENT EXERCISE (Modified)

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Q1. Define economic planning. How does it help in achieving socio-economic development?

Q2. What are the key features of economic planning? Discuss briefly.

Q3. Explain any five objectives of economic planning in developing countries.

Q4. Differentiate between capitalist and socialist planning with suitable examples.

- Q5.** What is the difference between totalitarian and democratic planning?
- Q6.** Explain the merits and demerits of centralized and decentralized planning.
- Q7.** Write short notes on:
- (a) Functional and Structural Planning
 - (b) Permanent and Emergency Planning
- Q8.** Distinguish between rolling planning and fixed planning.
- Q9.** What is the difference between physical and financial planning?
- Q10.** Define comprehensive planning. How does it differ from partial planning?

Economic Planning- Review of Plan Models

Structure

29.0 Objectives

29.1 Learning Outcomes

29.2 Introduction

29.3 Need for Planning in Underdeveloped Countries

29.4 Planning Model for the First Five Year Plan Model

29.5 Planning Model for Second Five Year Plan

29.5.1 Single Sector Model

29.5.2 The Two-Sector Model

29.5.3 Economic Significance of the Two-Sector Model

29.5.4 The Four-Sector Model

29.5.5 A Critical Study

29.6 Planning Model for the Third Five Year Plan

29.7 Planning Model for the Fourth Five Year Plan

29.8 Planning Model for the Fifth Year Plan

29.9 Planning Model for the Sixth Plan

29.10 Planning Model for the Seventh Plan

29.11 Planning Model for the Eighth Five Year Plan

29.12 Planning Model for the Ninth Plan

29.13 Planning Model for the Tenth Plan

29.14 Planning Model for the Eleventh Plan

29.15 Planning Model for the Twelfth Plan

29.16 Glossary

29.17 Let's Sum Up

29.18 Suggested Readings

29.19 Hints to Check Your Progress (CYP)

29.30 Examination-Oriented Questions

29.0 Objectives

After studying this chapter, you will be able to:

- Understand the significance of economic planning as a tool for national development.
- Explore the historical background and rationale for adopting planned development in India.
- Examine the key planning models adopted in different Five-Year Plans.
- Analyze the theoretical foundations behind each model, including Harrod-Domar and Mahalanobis models.
- Differentiate between single-sector, two-sector, and four-sector models of economic planning.
- Evaluate the evolution of planning approaches from simple investment-based models to complex multi-sector frameworks.
- Understand the goals and priorities reflected in each Five-Year Plan and their underlying model.
- Develop a critical perspective on the effectiveness and limitations of different planning models in the Indian context.

29.1 Learning Outcomes

- Define and explain the role of planning models in the formulation of development strategies.
- Describe the key features of the Harrod-Domar model used in the First Five-Year Plan.
- Illustrate the structure and logic of the Mahalanobis models applied in the Second Plan onwards.
- Distinguish between different types of economic models used across various Five-Year Plans.
- Interpret how investment allocation decisions were made based on model assumptions.
- Assess the contribution of planning models in addressing employment, industrialization, and income growth.
- Examine how successive plans shifted from static to dynamic, and from sectoral to multi-sectoral frameworks.
- Apply conceptual understanding to evaluate the relevance of these models in the context of contemporary economic planning.

29.2 Introduction

Economic planning has been one of the most significant instruments for promoting structural transformation and sustained development in newly independent and developing nations. Faced with challenges such as widespread poverty, low levels of industrialization, weak infrastructure, and underutilization of resources, many countries have turned to planning as a strategic tool to guide their economies toward growth, equity, and modernization.

India, at the time of independence, inherited a fragile economy characterized by a stagnant agricultural sector, minimal industrial base, and glaring regional and income disparities. To overcome these challenges, the country adopted a planned approach to development, relying on a series of Five-Year Plans that laid out national objectives and strategies for economic growth. These plans were not merely policy documents but were supported by specific planning models that aimed to allocate scarce resources efficiently, prioritize sectors, and address long-term goals in a systematic manner.

The foundation of the early plans was built on growth theories such as the Harrod-Domar model, which emphasized the role of savings and investment in economic expansion. As the planning process evolved, more sophisticated frameworks were introduced, such as the Mahalanobis models, which focused on capital goods-led growth and structural transformation. These included the single-sector, two-sector, and later the four-sector models, each incorporating varying degrees of complexity to simulate the impact of investment allocation on income generation and employment.

The First Five-Year Plan emphasized agriculture and basic infrastructure and relied on a modified Harrod-Domar model to stimulate capital formation. The Second Plan, guided by P.C. Mahalanobis, introduced sector-based investment models—beginning with the Two-Sector and then Four-Sector Model—placing a strong focus on industrialization and long-term self-reliance. As India's economy matured, later plans incorporated more advanced modelling techniques, including multi-sectoral consistency models (e.g., CELP model for the Fourth Plan), static and dynamic input-output tables, optimization frameworks, and macroeconomic policy simulations.

Each model addressed not only economic ⁴²⁸growth but also objectives like employment generation, poverty alleviation, and regional development. These planning models reflected both the theoretical understanding of the time and the practical realities of the Indian economy. Subsequent plans incorporated multi-sectoral input-output models, econometric simulations, and dynamic optimization techniques to better capture the interdependence between various sectors and to formulate balanced development strategies. These models also began to integrate

broader objectives such as poverty alleviation, employment generation, and social welfare, reflecting a shift from purely growth-centric planning to inclusive and comprehensive development.

The progression of planning models in India illustrates a continual effort to refine developmental strategies in response to emerging economic challenges and empirical realities. Each model contributed to shaping policy directions, guiding investment decisions, and setting quantifiable targets. Understanding these models is essential to grasp the logic, limitations, and achievements of planned economic development in India. This chapter provides a detailed review of these models, offering insights into their structure, assumptions, policy implications, and their role in India's development journey.

29.3 NEED FOR PLANNING IN UNDERDEVELOPED COUNTRIES

One of the principal objectives of planning in underdeveloped countries is to increase the rate of economic development. In the words of D.R. Gadgil, "Planning for economic development implies external direction or regulation of economic activity by the planning authority which is, in most cases, identified with the government of the state." It means increasing the rate of capital formation by raising the levels of income, saving and investment. But increasing the rate of capital formation in underdeveloped economies is beset with a number of difficulties. People are poverty-ridden, their capacity to save is extremely low due to low levels of income and high propensity to consume. As a result, the rate of investment is low which leads to capital deficiency and low productivity. Low productivity means low income and the vicious circle is complete. This vicious economic circle can only be broken by planned development. Two methods are open to underdeveloped countries. One is planned development by importing capital from abroad which Zweig calls 'supported industrialization,' and the other is by force saving which he characterizes as 'self-sufficient industrialization.'

The rationale for planning arises in such countries to improve and strengthen the market mechanism. The market mechanism works imperfectly in underdeveloped countries because of the ignorance and unfamiliarity with it. A large part of the economy comprises the non-monetized sector. The product, factor, money and capital markets are not organized properly. Thus, the price system exists in only a rudimentary form and fails to bring about adjustments between aggregate demand and supply of goods and services. To remove market imperfections, to mobilize and utilize efficiently the available resources, to determine the amount and composition of investment, and to overcome structural rigidities, the market mechanism is required to be perfected in underdeveloped countries through

planning.

The need for planning in underdeveloped countries is further stressed by the necessity of removing widespread unemployment and disguised unemployment in such economies. Capital being scarce and labour being abundant, the problem of providing gainful employment opportunities to an ever-increasing labour force is a difficult one. It is only a centralized planning authority which can solve this. In the absence of sufficient enterprise and initiative, the planning authority is the only institution for planning the balanced development of the economy. For rapid economic development, underdeveloped countries require the development of the agricultural and the industrial sectors, the establishment of social and economic overheads, the expansion of the domestic and foreign trade sectors in a harmonious way. All this requires simultaneous investment in different sectors which is only possible under development planning.

The need for developing the agricultural sector along with the industrial sector arises from the fact that agriculture and industry are interdependent. Reorganization of agriculture releases surplus labour force which can be absorbed by the industrial sector. Development of agriculture is also essential to supply the raw material needs of the industrial sector.

The agricultural and industrial sectors cannot, however, develop in the absence of economic and social overheads. The building of canals, roads, railways, power stations, etc., is indispensable for agricultural and industrial development. So are the training and educational institutions, public health and housing for providing a regular flow of trained and skilled personnel. But private enterprise in underdeveloped countries is not interested in developing the social and economic overheads due to their unprofitability. It is motivated by personal gain rather than by social gain. It, therefore, devolves on the state to create social and economic overheads in a planned way.

Similarly, the expansion of the domestic and foreign trade requires not only the development of the agricultural and industrial sectors along with social and economic overheads but also the existence of financial institutions. Money and capital markets are undeveloped in underdeveloped countries. This factor acts as an obstacle to the growth of industry and trade. There is economic instability generated by international cyclical movements. Such maladjustments can only be removed by the state. It can decide upon the setting up of a central bank and with its help a bill market, commercial banks and other financial institutions throughout the country. It is the planning authority which can control and regulate the domestic and foreign trade in the best interests of the economy.

The planning for development is indispensable for removing the poverty of nations. For raising national and per capita income, for reducing inequalities in income and wealth, for increasing

employment opportunities, for all-round rapid development and for maintaining their newly won national independence, planning is the only path open to underdeveloped countries. There is no greater truth than this that the idea of planning took a practical shape in an underdeveloped country and that this is the only hope of the resurgent underdeveloped countries of the world. The rapid development of the USSR, a poor country at the time of the October Revolution, bears testimony to this fact. To sum up in the words of Professor Gadgil, "Planning for economic development is undertaken presumably because the pace of direction of development taking place in the absence of external intervention is not considered to be satisfactory and because it is further held that appropriate external intervention will result in increasing considerably the pace of development and directing it properly. Planners seek to bring about a rationalization, and if possible and necessary, some reduction of consumption to evolve and adopt a long-term plan of appropriate investment of capital resources with progressively improved techniques, a programme

of training and education through which the competence of labour to make use of capital resources is increased, and a better distribution of the national product so as to attain social security and peace. Planning, therefore, means, in a sense, no more than better organization, consistent and far-seeing organization and comprehensive all-sided organization. Direction, regulations, controls on private activity, and increasing the sphere of public activity, are all parts of organizational effort."

29.4 PLANNING MODEL FOR THE FIRST FIVE YEAR PLAN MODEL

The planning model for India's First Five-Year Plan (1951-1956) was primarily based on the Harrod-Domar model of economic growth, but with some modifications to better suit India's economic context and the objectives of the plan. Below is a combined and refined explanation that integrates the core model and its adjustments:

Harrod-Domar Model (Modified for the First Five-Year Plan)

The Harrod-Domar model serves as the foundation for India's First Five-Year Plan. It is used to estimate the relationship between investment, savings, and growth. The core equation of the model is:

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

Where:

I = Rate of investment in the economy for a given period,

σ = Productivity of investment, or the amount of output generated per unit of investment.

In this model, capital formation is the primary driver of economic growth. The model assumes that the economy's growth rate depends on the level of investment and the productivity of that investment.

Key Modifications in the First Five-Year Plan Model

The First Plan made some key modifications to the original Harrod-Domar model:

Marginal vs. Average Savings Rate: The model used in the First Five-Year Plan assumed that the marginal savings rate (s) is higher than the average savings rate (s_0) over time. This modification implies that as the national income rises, the savings rate will increase, leading to greater investment and, ultimately, higher economic growth.

Investment Assumptions: The investment rate I_0 in the initial period (1950-51) was set at 5% of the national income. The marginal rate of savings (s) was initially assumed to be 0.33. It was anticipated that, as the economy grew, the savings rate could rise to 0.50 in future plans.

Foreign Aid and Domestic Savings: The First Plan also factored in the availability of foreign savings to supplement domestic savings in the initial years. This helped to ease the capital shortage for development.

Fractional Adjustments and Growth Projections

To incorporate the assumptions of increasing savings and investment, the First Five-Year Plan adopted a fractional form of the equation to model the evolving dynamics of savings and growth over time. This adjustment captures the idea that as national income increases, the savings rate also increases, thereby boosting investment.

The adjusted equation is:

$$\Delta I = \frac{I_0(1 + \sigma)}{\left(1 - \frac{s}{s_0}\right)}$$

Where:

I_0 = Initial investment rate (5% of national income),

σ = The potential social average productivity of investment,

s_0 = Initial average savings rate,

s = Marginal savings rate over time.

This modification reflects the growing investment capacity and its expected impact on the national income and output. The plan aimed to increase national income by increasing the investment rate and adjusting the savings rate as income grew.

While the Harrod-Domar model was useful in formulating the growth strategy for the First Five-Year Plan, it had its limitations:

Structural Problems Not Addressed: The model emphasized the importance of capital formation, but did not account for the structural issues of the economy, such as inadequate infrastructure, technological backwardness, and inefficient industries.

Investment-Driven Growth: The model largely viewed growth as being driven by the rate of capital formation, assuming that increasing investment would automatically lead to proportional increases in output and growth.

Nonetheless, this model set the framework for the plan and was a stepping stone toward more complex models used in subsequent plans.

The First Five-Year Plan's growth model combined elements of the Harrod-Domar model with adjustments to account for the changing rates of savings and investment over time. By assuming an increasing marginal savings rate and factoring in the impact of foreign savings, the model projected growth through capital accumulation.

The fractional adjustment introduced in the model reflected the assumption that as national income grew, the economy's capacity to save and invest would also increase. The key goal of the First Plan was to stimulate economic development, which would break the vicious cycle of poverty and set the stage for sustained growth.

29.5 PLANNING MODEL FOR SECOND FIVE YEAR PLAN

29.5.1 SINGLE SECTOR MODEL

The Single Sector Model is a critical part of the theoretical framework used during the Second Five-Year Plan (1956-1961) in India, particularly in understanding the relationship between national income, investment, and growth. This model, introduced by Prof. P.C. Mahalanobis, aimed to provide a more detailed and practical approach to economic planning, focusing on how investments could increase national income in a self-sustaining manner.

Below is a combined and refined explanation of the Single Sector Model, as used in the Second Five-Year Plan:

The Single Sector Model

The Single Sector Model is an extension of the general growth theory where the entire economy is treated as a single aggregate sector. In this model, the goal is to understand how investment leads to an increase in the national income, assuming the economy operates as one unified sector with the potential for investment to directly boost output.

Prof. Mahalanobis formulated this model to estimate per capita national income growth over time. The core of the Single Sector Model focuses on investment as the driving force for growth, while accounting for population growth, investment's effect on national output, and the rate of investment needed to achieve desired economic objectives.

The model can be represented mathematically as:

$$Y_t = Y_0(1 + \alpha\beta - \rho)^t$$

Where:

Y_t is the per capita national income at time t ,

Y_0 is the initial per capita income (at $t = 0$),

α is the rate of net investment (expressed as a percentage of national income),

β is the addition to national income generated by a unit of net investment (or the capital-output ratio),

ρ is the rate of population growth,

t represents the time period (usually in years).

Key Parameters and Assumptions of the Model

The model assumes a closed economy, meaning there is no foreign trade or external influence. The focus is solely on domestic production and investment.

Rate of Net Investment (α): This is the proportion of the national income that is set aside for investment. A higher rate of investment would lead to a higher growth rate of national income.

Capital-Output Ratio (β): This is the ratio of capital needed to produce a unit of output. A higher β means more capital is needed for each unit of output, which impacts the overall productivity of investment.

Population Growth Rate (ρ): The growth rate of the population plays a role in determining the per capita income. A higher population growth rate will reduce the per capita income, even if the total income of the economy is growing.

Economic Growth Projections Using the Single Sector Model

Prof. Mahalanobis used this model to calculate the required rate of investment to achieve a desired growth rate. By plugging in specific values for α , β , and ρ , the model could predict the growth in per capita income over time.

For instance, assuming the following parameters for India in the 1950s:

$\alpha \approx 0.10$ (a net investment rate of 10%),

$\beta \approx 0.33$ (capital-output ratio),

$\rho \approx 1.25\%$ (rate of population growth),

and a target to double per capita income in 35 years (set by the plan).

The model suggested that an investment rate of approximately 10-11% of national income would be required to meet this goal. This meant that to achieve a higher rate of growth in per capita income, the country would need to focus on raising investment levels, particularly in capital goods sectors that would drive industrial growth.

The Single Sector Model introduced by Prof. P.C. Mahalanobis was an important theoretical tool during the Second Five-Year Plan. It provided a simplified framework for understanding how investment influences economic growth, particularly in a developing economy like India. Though it had limitations, the model highlighted the need for sustained investment in capital goods and infrastructure to achieve industrialization and economic self-sufficiency. The model also emphasized the importance of balancing investment with population growth and improving the capital-output ratio to maximize the efficiency of investment.

This approach laid the foundation for more sophisticated multi-sector models in later plans, but it remains a vital part of understanding India's early economic planning.

29.5.2 THE TWO-SECTOR MODEL

The Two-Sector Model developed by Prof. P.C. Mahalanobis plays a pivotal role in understanding how the investment in two primary sectors—capital goods and consumer goods—drives economic growth. This model was instrumental during India's Second Five-Year Plan (1956-1961), guiding decisions on investment allocation between these sectors to achieve sustainable economic growth.

The Two-Sector Model divides the economy into:

Capital Goods Sector (K): Produces goods used to increase the productive capacity of the economy (e.g., machinery, factories, infrastructure).

Consumer Goods Sector (C): Produces goods consumed directly by the population (e.g., food, clothing, services).

Key Assumptions of the Two-Sector Model

Two Sectors: The economy is divided into the capital goods sector and the consumer goods sector, with each having a unique capital-output ratio.

No Intermediate Goods: There are no intermediate goods; everything produced is either for investment (capital goods) or consumption (consumer goods).

Closed Economy: The economy is assumed to be closed, meaning there is no foreign trade or external economic influence.

Non-Transferability of Capital: The capital produced in the capital goods sector cannot be used directly in the consumer goods sector, although both sectors produce complementary outputs.

Investment Proportions: The total investment in the economy is allocated between the two sectors, with λ representing the fraction of total investment allocated to the capital goods sector, and $1-\lambda$ allocated to the consumer goods sector.

Capital-Output Ratios: Each sector has a fixed capital-output ratio, β_K for the capital goods sector and β_C for the consumer goods sector. These ratios represent the amount of capital required to produce one unit of output in each sector.

Mathematical Formulation of the Two-Sector Model

Investment Allocation Between Sectors

Total investment I_t at time t is divided between the two sectors:

$$I_K(t) = \lambda I_t \text{ and } I_C(t) = (1 - \lambda)I_t$$

Where:

$I_K(t)$ is the investment in the capital goods sector,

$I_C(t)$ is the investment in the consumer goods sector,

λ is the proportion of total investment allocated to the capital goods sector.

Output Production in Each Sector

The output produced in each sector is related to the previous period's investment and the capital-output ratio for each sector:

Capital Goods Sector Output:

$$Y_K(t) = \frac{I_K(t-1)}{\beta_K}$$

Consumer Goods Sector Output:

$$Y_C(t) = \frac{I_C(t-1)}{\beta_C}$$

Where:

$Y_K(t)$ and $Y_C(t)$ are the outputs of the capital goods and consumer goods sectors at time t ,

β_K and β_C are the capital-output ratios for the capital goods and consumer goods sectors, respectively.

Capital Accumulation in Both Sectors

The capital in each sector is accumulated over time from previous investments:

Capital in Capital Goods Sector:

$$K_K(t) = K_K(t-1) + I_K(t-1)$$

Capital in Consumer Goods Sector:

$$K_C(t) = K_C(t-1) + I_C(t-1)$$

Total National Income

Total national income $Y(t)$ at time t is the sum of the outputs from both sectors:

$$Y(t) = Y_K(t) + Y_C(t)$$

Growth of National Income

The growth of national income is determined by the change in total income between periods:

$$\Delta Y(t) = Y(t) - Y(t-1)$$

This equation expresses how income changes as capital accumulates and investments are reinvested into the economy.

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Growth Rate of National Income

One of the most important results of this model is the relationship between investment in the capital goods sector, capital-output ratios, and the growth rate of national income. This is

captured by the following equation:

$$\gamma = I_0[(1 + \lambda\beta_K)^t - 1]$$

Where:

γ is the growth rate of national income,

I_0 is the initial investment in the economy,

λ is the proportion of investment directed towards the capital goods sector,

β_K is the capital-output ratio for the capital goods sector,

t is the time period.

This equation illustrates that the growth rate of national income depends on the level of initial investment, the capital-output ratio in the capital goods sector, and how much investment is allocated to the capital goods sector.

Investment in Terms of Output and Savings

Investment in the economy can be directly linked to national savings, as savings are assumed to fund investment in a closed economy:

$$I = S$$

Where S represents national savings.

Investment is also expressed as a fraction of national income:

$$I = \alpha Y(t)$$

Where α is the fraction of national income allocated to investment.

Sectoral Contributions to Growth

The contribution of each sector to overall growth can be expressed as:

Capital Goods Sector Contribution:

$$\Delta Y_K = \lambda \cdot \beta_K \cdot I_t$$

Consumer Goods Sector Contribution:

$$\Delta Y_C = (1 - \lambda) \cdot \beta_C \cdot I_t$$

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Final Equation for Long-Term Growth

The long-term growth of national income is determined by the combined contributions of both sectors. The following equation summarizes the total growth of national income over time:

$$Y_t = Y_0 \cdot \left(1 + \frac{\lambda\beta_K + (1 - \lambda)\beta_C}{\beta_K + \beta_C} \right)^{t-1}$$

Where:

Y_t is the national income at time t ,

Y_0 is the initial national income,

λ is the proportion of total investment in the capital goods sector,

β_K and β_C are the capital-output ratios for the capital goods and consumer goods sectors, respectively.

Economic Significance and Policy Implications

Investment Allocation: The Two-Sector Model emphasizes the importance of allocating investment between the capital goods and consumer goods sectors. A balanced allocation ensures sustainable long-term growth. Over-investing in consumer goods may provide immediate benefits but could hinder long-term growth, while prioritizing capital goods creates the foundation for industrialization and future economic expansion.

Growth through Capital Formation: The model suggests that capital accumulation in the capital goods sector is essential for boosting productivity in the long run. However, it also highlights that growth in the consumer goods sector is crucial for improving living standards in the short term.

Capital-Output Ratios: The capital-output ratios β_K and β_C determine how efficiently capital is used in each sector. A lower ratio indicates more efficient use of capital, leading to higher returns on investment.

Role of Savings: A high marginal propensity to save is essential for funding the necessary investments in both sectors. The model suggests that national savings must be high enough to support the required levels of investment, especially in the capital goods sector, to achieve self-sustained growth.

The Two-Sector Model provides a clear framework for understanding how investments in both capital and consumer goods sectors drive economic growth. By allocating investment strategically between these sectors, it is possible to achieve a balance that promotes long-term industrial development while also addressing immediate consumption needs. This model set the foundation for India's Second Five-Year Plan, guiding policies aimed at industrialization, capital formation, and balanced economic growth.

29.5.3 Economic Significance of the Two-Sector Model

In the context of economic reasoning, the fraction λ (the proportion of total investment allocated to the capital goods sector) helps determine the **marginal propensity to invest** of the system. This is a significant concept and warrants some discussion.

The reciprocal of the ratio $\frac{\lambda\beta_K + \lambda\beta_C}{\lambda\beta_K}$ is clearly:

$$\frac{\lambda\beta_K}{\lambda\beta_K + \lambda\beta_C}$$

This ratio represents the proportion of the increment in real output that takes the form of investment goods. In other words, it shows how much of the total output growth is directed toward the capital goods sector.

Since $\lambda K\beta_K + \lambda C\beta_C = \beta$, which is the aggregate productivity of investment, this ratio is essentially the marginal propensity to save (MPS). It indicates how much of the income generated from output is saved and reinvested, rather than being consumed as consumer goods.

If the capital-output ratio for both sectors is equal, i.e., $\beta_C = \beta_K$, the equation simplifies as follows:

$$\lambda K\beta_K = \lambda K = \text{MPS}$$

In this case, the **marginal propensity to save** is directly related to the investment allocation to the capital goods sector (λ).

Therefore, if policymakers wish to increase the value of λ , meaning they want to allocate more investment to the capital goods sector, they must also ensure that the planned marginal rate of savings is correspondingly higher. This means that for an economy to increase its investment in capital goods, it must simultaneously increase its savings rate to sustain this higher level of investment.

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This relationship highlights the interconnectedness between investment, savings, and economic growth, which is at the core of the Two-Sector Model. By adjusting λ , an economy can influence its growth trajectory, but this requires a higher marginal propensity to save to match the increase in investment in the capital goods sector.

The above result is somewhat surprising, but a closer look would immediately indicate the main point: if the economy is to grow, some capital is necessary to produce more capital. Professor Evsey Domar had earlier reached the same conclusion after his study of the model of Feldman, a Soviet economist. Feldman had built a model which is surprisingly similar to the model as given by Professor Mahalanobis. Prof. Domar observed: "Though exaggerating the rigidities of the real world Feldman's model contains important elements of truth a closed economy without well-developed metal, machinery and subsidiary industries (the complex of the so-called heavy industries) is unable to produce a sizable quantity of capital goods and thus to invest a high fraction of its income, however high its potential saving propensity may be".

29.5.4 THE FOUR-SECTOR MODEL

Prof. P.C. Mahalanobis developed the Four-Sector Model in 1955, which was an extension of his earlier Two-Sector Model from 1953. The Four-Sector Model was crucial in preparing the draft plan for India's Second Five-Year Plan. The main objective of this model was to address employment generation, particularly in accommodating the increasing labor force during the period of the Second Five-Year Plan. The model divides the economy into the following four sectors:

Sector C1: Factories producing organized consumer goods.

Sector C2: Small-scale household industries producing consumer goods.

Sector C3: Services-producing sector, including health, family welfare, education, etc.

Sector K: The investment or capital goods sector.

Parameters of the Four-Sector Model

$\beta_s, \beta_k, \beta_1, \beta_2, \beta_3$: Capital-output ratios of the respective sectors.

$\theta_s, \theta_k, \theta_1, \theta_2, \theta_3$: Capital-labor ratios in the respective sectors.

$\lambda_s, \lambda_k, \lambda_1, \lambda_2, \lambda_3$: Investment allocation ratios for each sector.

Furthermore, the model includes the following parameters:

A: Total investment during the plan period.

N: Total increase in employment during the plan period.

E: Total increase in average income during the plan period.

Model's Basic Objective

The Four-Sector Model is designed to solve certain policy problems and achieve two basic objectives:

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A postulated rate of growth of income over a specific period.

An increase in employment over the same period.

The allocation problem is represented by the set of equations below:

$$Y_R + Y_1 + Y_2 + Y_3 = Y \quad (1)$$

$$N_R + N_1 + N_2 + N_3 = N \quad (2)$$

$$\lambda_k A + \lambda_1 A + \lambda_2 A + \lambda_3 A = A \quad (3)$$

Where:

Y, N, and A are exogenous variables, representing total income, employment, and investment, respectively. These values are predetermined by the aggregate H-D model.

Output and Capital Relations

The output of the economy is related to the capital investments in the four sectors:

$$Y_k = \lambda_k A Y = \beta_k \lambda_k A Y = \beta_k \lambda_k A$$

Hence, the total output equation becomes:

$$\lambda_k A \beta_k + \lambda_1 A \beta_1 + \lambda_2 A \beta_2 + \lambda_3 A \beta_3 = Y$$

Employment and Capital Accumulation

The change in employment is expressed as:

$$\frac{\lambda_k A}{\theta_k} + \frac{\lambda_1 A}{\theta_1} + \frac{\lambda_2 A}{\theta_2} + \frac{\lambda_3 A}{\theta_3} = N$$

Where:

$\theta_k, \theta_1, \theta_2$, and θ_3 are the capital-labor ratios in each sector.

The equation shows how investment is related to employment generation in each sector.

Initial Income Identity

The initial income identity is given by:

$$Y_t = C_t + I_t$$

Where:

Y_t is total income,

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C_t is consumption,

I_t is investment at time t .

Growth Equation and Investment Relation

To express the relation between investment and income growth, we use:

$$I = \alpha Y$$

Where α is the investment ratio, representing the fraction of income allocated to investment.

Marginal Propensity to Invest and Save

In terms of economic reasoning, the fraction λ determines the marginal propensity to invest in the system. The ratio $\frac{\lambda\beta_k + \lambda\beta_c}{\lambda\beta_k}$ indicates the proportion of the increment in real output that takes the form of investment goods. Since investment equals savings (as the increment in capital goods production is equal to the income that is not spent on consumer goods), this ratio is the marginal propensity to save (MPS).

If the capital-output ratios for both the consumer and capital goods sectors are equal,

i.e., $\beta_C = \beta_K$, the equation simplifies as:

$$\lambda_k \beta_k = \lambda_k = \text{MPS}$$

Thus, if the value of λ is to be higher, the planned marginal rate of savings must correspondingly increase to support the higher investment in capital goods.

Calculating Overall National Income Growth

To calculate the overall increase in national income after the plan period, the change in national income ΔY is:

$$\Delta Y = Y_0[(1 + n)^5 - 1]$$

Where:

Y_0 is the initial national income,

n is the growth rate of national income.

The Four-Sector Model consists of 11 equations with unknown variables. This model becomes indeterminate unless plausible values are assigned to certain parameters. For instance, assuming the value of β to be fixed at 20 and assigning plausible values to the capital-output ratios, the model can predict that for rapid income growth over the next 30 years, the value of λ (the investment ratio) must also increase to keep pace with this growth.

The Four-Sector Model developed by Prof. Mahalanobis was a significant extension of his earlier Two-Sector Model. It accounted for the employment problem by incorporating more

sectors, specifically focusing on employment generation alongside income growth. The model highlights the importance of investment allocation across different sectors, the marginal propensity to save, and the relationship between investment and national income growth. This model played a crucial role in shaping India's Second Five-Year Plan, offering critical insights into balancing industrialization, consumption, and employment needs.

Table 1

Sector	Description of sectors	Parameters	
		β	θ
k	Basic investment goods sector	.20	20000
C ₁	Factory consumer goods	.35	8750
C ₂	Small-scale household industries	1.25	2500
C ₃	Services including health and education	0.45	3750

Table 2

Sector	Net investment	Incremental income (Rs.million)	Increment employment(million)
k	18500	3700	0.9
C ₁	9800	3400	1.1
C ₂	11800	14700	4.7
C ₃	16000	7200	4.3
	56100	29000	11.0

Detailed planning from this theoretical background was done on the basis of input-output tables and various sectoral data from which eventually a set of physical targets was worked out.

29.5.5 A CRITICAL STUDY

(1) **An operational model.** This model lays down an operational strategy. It emphasizes that conditions of unemployment leading role of capital goods is significant, provided industrialization continues in long run. Mahalanobis obtained the values of unknowns—income and employment from the parameters λ , β and θ . According to Komiya, “It is meaningless to treat β 's and θ 's as constants and marginal and average figures as equal, when India's intention is to revolutionize her industrial structure and to innovate technologically.”

(2) **No attempt to reconcile the model.** In deriving his central proposition a higher λ_k would mean a higher saving rate on the margin—Mahalanobis implicitly ignored the role of foreign trade altogether and assumed that the government was in a position to control consumption completely.

(3) Proportion of investment arbitrary. Prof. Mahalanobis assumed the value $\lambda_k=1/3$ without specifying the reason for it. He simply remarked, “it would not be possible to go beyond this value under present conditions.” It can be said that the numerical solution of the model did not point towards any definite welfare function.

(4) Unnecessarily rigid model. This model assumed the output capital ratios and the labour-output ratios as given and offering no scope for variation. A.K Sen observed, “If demand is uniquely related to income and/or employment and techniques of production are given, there can only be one rise in income, one rise in employment and one investment in the investment goods sector. As such, target fixation does not arise and income and employment emerge out to be parts of the solution of the system.

The points of criticism noted above are striking enough to the condition that the Mahalanobis model was theoretically and operationally a crude exercise. But at the time of formulation of the Second Plan, there was no better plan frame available for India. It was the first logical system to be applied to plan for a vast country like India, a starting point which could be expanded to take note of many sectors. Despite all the above criticisms it is an admitted fact that Mahalanobis models proved to be an effective instrument in launching the Indian economy on the correct path of development planning during the Second Plan and also headed toward some bold future plans.

Check your Progress-I

Based on your understanding of the previous section, answer these questions in your own words:

Q1. What was the key objective of the Sixth Five-Year Plan, and what type of model was used?

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Q2. How did the planning models shift in approach after the initial two Five-Year Plans?

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Q3. Why was the Mahalanobis model considered capital goods-biased?

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Q4. What distinguishes the Two-Sector Model from the Four-Sector Model?

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29.6 PLANNING MODEL FOR THE THIRD FIVE YEAR PLAN

Although the Third Plan was based on more or less the same model of development as the Second Plan, there was a clearer recognition of the definite limit to the fraction of investment that could be allocated in the capital goods sector inasmuch as the physical composition of investment fund itself determines to a large extent the type of output that could be secured. The range of choice as to what type of capital goods might be produced—for example, whether these would be used to produce consumer goods or to produce further capital goods—would depend to a large extent on the type or character of investment goods that could be produced in a given period of time. It was therefore considered important to define the fraction of investment allocated to capital goods sector, not merely in broad terms, but as capital goods which could be used to produce more capital goods. This to a large extent explains the emphasis in the Third Plan on machine building and such other industries as would help the economy to attain the stage of self-generating or self-sustained growth over the next two or three plan periods.

A striking feature of the formulation of the Third Plan was that the achievement of inter-industry consistency was attempted in some details this time. There was a marked shift away from the simple decision models to the multi-sectoral models. This was partly the result of the suggestions Ragnar Frisch had given in the course of his lectures at the Indian Statistical Institute (ISI) and largely due to the simple linear programming model Jan Sandee had constructed during his visit to the ISI in 1957-58. Another analytical improvement incorporated in the Third Plan was the explicit attention paid to foreign trade as a bottleneck, to increasing the rate of foreign aid^{44.7} breaking the bottleneck and on the possible desirability of 'using aid to end aid' so as to reach the stage of self-sustained growth at some foreseeable future date.

29.7 PLANNING MODEL FOR THE FOURTH FIVE YEAR PLAN

The Third Plan had attempted to achieve some inter-sectoral consistency. The method employed was

that of commodity balances. The demand for and supplies of the key commodities were sought to be matched through supervised discussions of various committees. In fact Professor W B. Reddaway undertook systematic supply-demand balance exercises for many industries for the year 1965-66, the terminal year of the Third Plan. But soon it was realized that there is need for stating carefully the model underlying the investment allocations so that the vague assumptions which underlie the simple procedure could be given theoretical elegance and scrutiny. Work on models for the Fourth Plan was in the direction of building multi-sectoral models which could guide the computation work on inter-sectoral balances. Allan Manne and Ashok Rudra built static multi-sector consistency models, while S. Chakravarty, R. Eckaus, L. Lefebvre and Kirti Parikh, undertook exercises concerned with explicitly dynamic, multi-sector models. In the literature of planning models given in the context of Indian Planning, it is the latter which has been most discussed and is as a result most detailed.

“This Chakravarty-Eckaus-Lefebvre-Parikh (CELP) model is best described as a finite horizon, linear optimization model involving explicit inter-sectoral and interrelationships, which satisfies boundary conditions relating to the initial year as well as to the terminal year of the plan.”

Thus the fundamental properties of the CELP model are: -

- (i) It formally subsumed the structural features of the preceding models. Therefore, the preceding models became sub-cases of this more general model
- (ii) It provided- an optimal path of development over time which brought economy from the initial situation to the desired terminal situation.
- (iii) It distinguished between investment starts, investment in execution and completed investment. As the CELP model was brought to bear on the allocation of resources in the Third Plan, it revealed that the investment figures in the Third Plan presented a serious underestimate. Further, the results pointed to a shift in investment allocation away from the capital goods sectors to the consumer goods sectors (primarily agriculture). This is quite in accordance with the renewed emphasis on the development of agriculture in the fourth plan and the approach paper for the fifth plan.

It goes to the credit of the Indian planners that they have shown immediate awareness of the scope for improvement of the models in their plans. There seems to be a present gap between the available techniques and those actually being employed. But this gap is likely to persist because of the paucity of suitable data and largely because of the inevitable delay in assimilating theory with practice.

29.8 Planning Model for the Fifth Five-Year Plan

The Fifth Five-Year Plan (1974-1979) was based on the document titled Technical Note on the Approach to the Fifth Five-Year Plan of India (prepared by the Perspective Planning Division

of the Indian Planning Commission). This plan used a multi-sector, modified open-ended static input-output model and was primarily constructed with two major objectives:

- Removal of poverty,
- Attainment of self-sufficiency by the end of the plan (i.e., by March 31, 1979).

The model was built with the aim to comprehensively reflect the technological characteristics of the economy, taking into account the inter-industry relationships, and was primarily a 66-sector input-output model.

Model Variables and Equations

The following equation was used for the 66-sector input-output model of the Fifth Plan:

For $i = 1, 2, 3, \dots, 66$ (representing the sectors):

X_t = Total output at factor cost of sector i in period t

Where the variables represent:

- X_t = Total output at factor cost of sector i in period t ,
- a_{ij} = Inputs of sector i per unit of sector j in period t ,
- C_t = Private consumption of sector i in period t ,
- G_t = Public consumption at factor cost of sector ii in period t ,
- I_t = Total investment goods produced by sector i in period t ,
- E_t = Exports at factor cost of sector ii in period t ,
- ST_t = Change in stock of sector ii in period t ,
- M_t = Imports of sector ii in period t .

The model incorporated technological relationships and input-output matrixes, and was considered as a macroeconomic 66-sector input-output model, followed by a consumption sub-model.

Exports and Imports Assumptions

Exports were assumed to be exogenous, and import substitution was considered for significant sectors.

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Public consumption was assumed to increase by 10% per annum, while exports were projected to grow by 8.5% per year.

Investment and Financing

91% of the total investment was planned to be financed from domestic resources, with the remaining from foreign aid and foreign debt.

The plan was based on the assumption that domestic savings would rise from 14.4% of GDP in 1973-74 to 15.9% by 1978-79. Public savings were expected to rise from 2.5% of GDP to 4.6%, while private savings were expected to fall from 11.9% to 11.3%.

Growth Rate Projections

The annual growth rate for the plan was estimated at 4.3%, as opposed to 5.5% in the Technical Note and Draft Plan. The target growth was broken down into physical targets, with specific growth rates for independent sectors such as coal, crude oil, iron ore, and cement.

29.9 Planning Model for the Sixth Five-Year Plan

The Sixth Five-Year Plan (1980-1985) model was also based on a Technical Note prepared by the Perspective Planning Division of the Indian Planning Commission. The macro-structure of this model used an 89-sector input-output table and included a combination of core models and sub-models.

Core Models and Sub-Models

The core models used in the Sixth Plan included:

- Input-Output Model
- Investment Model
- Private Consumption Model
- Financial Resources Model
- Import Model
- Employment Model

The Perspective Planning submodels included:

- X_i : Gross output of sector i ,
- a_i : Input-output coefficients for sector i ,
- C_i : Private consumption of sector i ,
- G_i : Public consumption of sector i ,
- I_i : Gross investment of sector i ,
- ST_i : Changes in inventories of sector i , 450
- M_i : Imports of goods and non-factor services for sector i .

The model covered a 15-year period from 1980-81 to 1994-95, with two sub-periods.

Model Objectives

- The primary goals of the Sixth Plan were:

- **Reduction in Poverty:** To bring down the percentage of the population below the poverty line to 30% by 1984-85 and to less than 10% by 1994-95.
- **Increase in Employment:** The net increase in employment was projected at 3.4% per annum, with a labor force growth rate of 14% per annum.

Development Strategy

- The plan focused on investment and social consumption.
- A rise in the share of domestic capital formation and public consumption was expected, with a simultaneous improvement in exports, implying a decline in the share of public consumption in gross national expenditure.
- Varying rates of growth in different sectors reflected the changes in final demand and intermediate demand. These changes were influenced by import dependence, changes in final demand composition, and inter-industry relationships.

Sectoral Growth Projections

The growth rates for different sectors were expected to induce a structural change in the economy, reflected in the composition of GDP at factor cost. The plan projected changes in the composition of national output due to varying rates of sectoral growth.

Key Features of the Sixth Plan Model

- **Macro Structure:** The model was based on an 89-sector classification and used core models to forecast overall economic outcomes, including investment, consumption, and financial resources.
- **Submodels:** The inclusion of submodels helped in providing input to the core models for more accurate projections.
- **Poverty Reduction and Employment Goals:** The Sixth Plan was ambitious in its attempt to reduce poverty and provide employment in the face of rapid labor force growth.
- **Sectoral Changes:** The growth in different sectors was expected to bring about a significant structural shift in the economy.

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The Sixth Five-Year Plan aimed at achieving a more balanced and equitable economic growth by focusing on investment, poverty reduction, and employment generation. By using a multi-sector input-output model, the plan accounted for the interlinkages between sectors and their collective contribution to national output, employment, and social welfare. This plan helped set

the foundation for structural changes in the Indian economy, with an emphasis on reducing poverty and improving the standard of living for a larger segment of the population.

29.10 PLANNING MODEL FOR THE SEVENTH PLAN

The Seventh Plan's macro and sectoral structures were basically formulated on the Sixth Plan model. The macro structure of the Plan was prepared on the basis of the 89-sector classification of the input-output table which was aggregated into 50 sectors. The rate of domestic savings is assumed to have been increased from 23.3% of GDP in 1984-85 to 24.5% in 1989-90. It also projects the rate of gross investment at 24.5% of GDP in 1984-85 which is assumed to be increased at 25.9% in 1989-90. Sectorwise growth rate of output has been estimated on the basis of these projections. Accordingly, the growth rate in agriculture sector has been estimated at 4% whereas it is estimated at 8.3% in industrial sector, 12% in electricity, gas and water supply, 8% in transport and 6 in other service sectors. The sectoral composition of national income in terms of gross value was also estimated. The contribution of agriculture sector was supposed to be 33% of GDP in the terminal year of the Seventh Plan and that of mining, manufacturing, construction, etc remained to be 34.4 per cent. Thus, the sectorwise contributions of agriculture, industrial and service sectors stood at near 33% each in Gross National Product during the Seventh Plan.

29.11 PLANNING MODEL FOR THE EIGHTH FIVE YEAR PLAN

The Eighth Five Year Model was based on a Technical Note to the English Plan 1992-97 prepared by the perspective planning division of the Planning Commission. The model used the Eighth Plan comprises a core model and a set of inter-linked sub model. The core model of the Eight plan consists of a macro economic model, an input-output model, an investment model and five sub models relating to (i) agriculture (ii) industry (iii) trade (iv) consumption and (v) financial resources.

The macro-economic model was a set of structural equations relating to such macro variables as Gross Domestic Product at factor cost, indirect taxes, GDP at market prices, Gross National Product, gross domestic savings, gross fixed investment disposal income, total consumption export of goods and non-factor services and import of goods and non-factor services.

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The investment model was based on a stipulated level of output. It had two components: investment by destination and investment by source or origin. An econometric simulation model was used to estimate investment by destination. The estimated investments by destination were converted into investment by source with the help of a capital co-efficient matrix. These estimates were then included in the input output matrix.

As regards the five sub models, the Technical Note presents a family of five sub models i.e (i) agriculture (ii) industry (iii) trade (iv) consumption and (v) financial resources. The agricultural sub model assesses the production possibilities of agricultural crops for the Eighth Five Year Plan (1992-97) and for the perspective period 1997-2007. The structure of the industry sub model was based on the approach of material since the Third Five Year Plan.

The consumption sub-model estimated the demand for different goods and services for private consumption. It takes into account the growth pattern of the economy postulated in the plan, a projected growth in population and its rural-urban composition and the inequality in consumption distribution. The private consumption is divided into four segments : rural and urban, each into below and above the poverty line, i.e. for poor and non-poor group of population. The financial resources sub-model estimated the availability of domestic resources consistent with the investment requirement to attain the level of output determined by the input-output and investment models. The sub-model assesses the level of domestic savings sectorally as well as in terms of its composition. Using econometric estimation procedure.

The Eighth Five-Year Plan model also drew a perspective plan covering a period of 15 years from 1991-92 to 2006-07. This long-term development perspective visualized the long-term needs of the society and the directions in which the economy of India should move over a long-time horizon. To determine the long-term conditions of economic growth, it analyzed the demographic trends; the basic resource endowment, the entrepreneurial resources and the technology perspective.

29.12 PLANNING MODEL FOR THE NINTH PLAN

The planning model for the Ninth Five Year Plan was primarily based on the Eighth Plan Model. In calculating the parameters of the Ninth Plan, the following assumptions were made:

- (i) The base year of the Ninth Plan was taken as 1996-97.
- (ii) Calculations too were made at 1996-97 prices.
- (iii) Total public investment was determined to achieve deficit target of 4% for the centre during the Ninth Plan period.
- (iv) It was assumed that the trends in public and domestic savings would continue in the Ninth Plan also.
- (v) ICOR would tend to rise to 4.3% during the Ninth Plan period on account of emphasis on investment in infrastructure.

On the basis of the above parameters, the Perspective Planning Division of the Planning Commission presented two growth scenarios envisaging (a) projected GDP rate of 6.2% per annum, and (b) accelerated GDP rate at 7% per annum for the entire Ninth Plan period. However, there was delay of about two years in finalizing the Ninth Plan document and also looking at the 4.8% growth rate of 1997-98 and about 6.6% annual growth rate of 1998-99, the plan model was reviewed and thereby the annual growth rate target was reduced to 6.3% for the entire plan period (1997-2002) which was thought to be more reasonable and feasible.

The revised and final macro parameters consistent with the targeted GDP annual growth rate of 6.3% for the Ninth Plan were:

- (i) average annual saving rate of 26.1%. (ii) average annual investment rate of 28.2%,
- (iii) ICOR rate 4.3%, (iv) average annual export growth rate 11.5% average annual import growth rate 10.8%, and current account deficit rate 2.1%.

The main objectives of the Ninth Plan were Growth with Social Justice and Equity providing basic minimum services such as safe drinking water, primary health care centre, universal primary education, shelter etc. to all. The Ninth Plan model worked the population growth rate of 1.57% and of the labour force 2.85% in the terminal year of the Plan. The employment rate was estimated at 15%. At the end of the Plan, the per capital household consumption was projected to 4.3% per annum. Further, the Ninth Plan model had estimated the incidence of poverty as 18.61% in rural areas, 16.46% in urban areas and 17.98% for the country as a whole.

In order to achieve above sectoral and overall growth rates of the Ninth Plan, aggregate public outlay was fixed at Rs. 8,59,200 crores for 1997-2002 at 1996-97 prices.

29.13 PLANNING MODEL FOR THE TENTH PLAN (2002–2007)

The main objectives of the tenth Five Year Plan of India were:

1. Attain 8% GDP growth per year.
2. Reduction of poverty rate by 5 percentage points by 2007.
3. Providing gainful and high-quality employment at least to the addition to the labor force.
4. Reduction in gender gaps in literacy and wage rates by at least 50% by 2007.
5. 20-point program was introduced.
6. Target growth: 8.1% Growth achieved: 7.7%
7. Expenditure of 43825 crores for 10th five-year plans

29.14 PLANNING MODEL FOR ELEVENTH PLAN (2007–2012)

The eleventh plan had the following objectives:

1. Income & Poverty

- Accelerate GDP growth from 8% to 10% and then maintain at 10% in the 12th Plan in order to double per capita income by 2016–17
- Raise real wage rate of unskilled workers by 20 percent.
- Reduce the headcount ratio of consumption poverty by 10 percentage points.

2. Education

- Reduce dropout rates of children from elementary school from 52.2% in 2003–04 to 20% by 2011–12
- Develop minimum standards of educational attainment in elementary school, and by regular testing monitor effectiveness of education to ensure quality
- Increase literacy rate for persons of age 7 years or above to 85%
- Lower gender gap in literacy to 10 percentage point
- Increase the percentage of each cohort going to higher education from the present 10% to 15% by the end of the plan.

3. Health

- Reduce infant mortality rate to 28 and maternal mortality ratio to 1 per 1000 live births
- Reduce Total Fertility Rate to 2.1
- Provide clean drinking water for all by 2009 and ensure that there are no slip-backs
- Reduce malnutrition among children of age group 0–3 to half its present level
- Reduce anemia among women and girls by 50% by the end of the plan

4. Women and Children

- Raise the sex ratio for age group 0–6 to 935 by 2011–12 and to 950 by 2016–17
- Ensure that at least 33 percent of the direct and indirect beneficiaries of all government schemes are women and girl children
- Ensure that all children enjoy a safe childhood, without any compulsion to work

3. Infrastructure

- Ensure electricity connection to all villages and BPL households by 2009 and round-the-clock power.

- Ensure all-weather road connection to all habitation with population 1000 and above (500 in hilly and tribal areas) by 2009, and ensure coverage of all significant habitation by 2015.
- Connect every village by telephone by November 2007 and provide broadband connectivity to all villages by 2012
- Provide homestead sites to all by 2012 and step up the pace of house construction for rural poor to cover all the poor by 2016–17

4. Environment

- Increase forest and tree cover by 5 percentage points.
- Attain WHO standards of air quality in all major cities by 2011–12.
- Treat all urban waste water by 2011–12 to clean river waters.
- Increase energy efficiency by 20%
- Target growth: 8.6% Growth achieved: 7.9%

29.15 PLANNING MODEL FOR THE TWELFTH PLAN (2012–2017)

The Twelfth Five-Year Plan of the Government of India has decided for the growth rate at 8.2% but National Development Council (NDC) on 27 Dec 2012 approved 8% growth rate for 12th five-year plan.

With the deteriorating global situation, the Deputy Chairman of the Planning Commission Mr Montek Singh Ahluwalia has said that achieving an average growth rate of 9 per cent in the next five years is not possible. The Final growth target has been set at 8% by the endorsement of plan at the National Development Council meeting held in New Delhi.

“It is not possible to think of an average of 9 per cent (in 12th Plan). I think somewhere between 8 and 8.5 per cent is feasible,” Mr Ahluwalia said on the sidelines of a conference of State Planning Boards and departments. The approached paper for the 12th Plan, approved last year, talked about an annual average growth rate of 9 per cent.

“When I say feasible...that will require major effort. If you don’t do that, there is no God given right to grow at 8 per cent. I think given that the world economy deteriorated very sharply over the last year...the growth rate in the first year of the 12th Plan (2012-13) is 6.5 to 7 per cent.”

He also indicated that soon he would share his views with other members of the Commission to choose a final number (economic growth target) to put before the country’s NDC for its approval.

The government intends to reduce poverty by 10 per cent during the 12th Five-Year Plan. Mr Ahluwalia said, “We aim to reduce poverty estimates by 9 percent annually on a sustainable basis during the Plan period.”

Earlier, addressing a conference of State Planning Boards and Planning departments, he said the rate of decline in poverty doubled during the 11th Plan. The commission had said, while using the Tendulkar poverty line, the rate of reduction in the five years between 2004–05 and 2009–10, was about 1.5 percentage points each year, which was twice that when compared to the period between 1993-95 to 2004-05.

Check your Progress – I

Based on your understanding of the previous section, answer these questions in your own words:

1. What type of model was used in the Third Five-Year Plan, and what was its main goal?
2. Which model in the Fourth Plan focused on maintaining internal consistency between sectors?
3. What approach was used for resource allocation in the Fifth Plan model?
4. How did the Sixth Plan incorporate employment generation in its planning strategy?
5. What kind of framework was emphasized in the Seventh Plan to ensure better implementation?
6. How did the Eighth Plan shift planning focus after the economic reforms of 1991?
7. What was the central theme of the Ninth Plan’s planning model?
8. How did the Tenth Plan model use indicators to measure plan success?
9. What role did inclusivity and equity play in the Eleventh Plan model?
10. What was unique about the Twelfth Plan model in terms of sustainability and participation?

29.16 Key words

1. **Harrod-Domar Model** – A growth model emphasizing savings and capital-output ratio to determine economic growth.
2. **Mahalanobis Model** – A planning model focused on prioritizing capital goods industries for long-term self-reliance.
3. **Two-Sector Model** – Divides the economy into capital and consumer goods sectors for efficient investment planning.
4. **Four-Sector Model** – An advanced extension of the Mahalanobis framework, covering more economic sectors for better balance.
5. **Input-Output Model** – A quantitative technique showing inter-industry relationships to ensure sectoral consistency in planning.
6. **Employment Elasticity** – A measure of how employment responds to economic growth, key in later plans.
7. **Inclusive Growth** – Economic development that ensures the participation and benefit of all sections of society.
8. **Decentralized Planning** – A planning approach involving local bodies to reflect regional priorities and needs.
9. **Indicative Planning** – A flexible model where government sets targets and leaves implementation mostly to the private sector.

29.17 Let's Sum Up

1. **Planning models evolved gradually** – From simple growth equations to complex multi-sectoral frameworks over time.
2. **Initial plans focused on infrastructure** – The early models emphasized agriculture, capital formation, and heavy industries.
3. **Mahalanobis model shaped long-term⁴⁵⁸ strategy** – It emphasized capital goods to build industrial strength and reduce dependency.
4. **Each plan reflected economic priorities** – Models were tailored to fit the economic and political needs of each planning period.
5. **Shift toward employment and poverty focus** – Later plans integrated social goals

like job creation and poverty alleviation.

6. **Post-1991 plans adapted to liberalization** – Planning shifted from directive to indicative in line with market reforms.
7. **Inclusiveness became a core goal** – From the Eleventh Plan onwards, equitable growth gained strategic importance.
8. **Twelfth Plan emphasized sustainability** – Balancing economic growth with social inclusion and environmental responsibility.
9. **Planning models guided real policy** – These models were instrumental in shaping India's development policies and targets.

29.18 Suggested Readings

- Dutt, R. & Sundaram, K.P.M. – *Indian Economy* – 2022
- Mishra, S.K. & Puri, V.K. – *Indian Economy: Its Development Experience* – 2021
- Ahluwalia, M.S. – *Planning and Economic Policy in India: 1991–2011* – 2014
- Jalan, Bimal – *India's Economic Policy: Preparing for the Twenty-first Century* – 2004
- Chakravarty, S. – *Development Planning: The Indian Experience* – 1987
- Basu, Kaushik – *An Economist's Miscellany: From the Groves of Academe to the Tea Gardens of Assam* – 2015

29.19 Hints to Check Your Progress (CYP)

CYP I

Q1 Refer to Section 29.3

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Q2 Refer to Section 29.4

Q3 Refer to Section 29.4

Q4 Refer to Section 29.5

Q5 Refer to Section 29.5

Q6 Refer to Section 29.5

Q7 Refer to Section 29.5

Q8 Refer to Section 29.5

CYP II

Q1 Refer to Section 29.6

Q2 Refer to Section 29.7

Q3 Refer to Section 29.8

Q4 Refer to Section 29.9

Q5 Refer to Section 29.10

Q6 Refer to Section 29.11

Q7 Refer to Section 29.12

Q8 Refer to Section 29.13

Q9 Refer to Section 29.14

Q10 Refer to Section 29.15

29.30 Examination-Oriented Questions

Q1. Explain the key features of the Harrod-Domar model and its relevance to India's First Five-Year Plan.

How to write:

- Define the Harrod-Domar model and its focus on savings and capital-output ratio.
- Mention how the model was adapted in India's planning context.
- Explain its relevance for a newly independent economy aiming at capital formation and infrastructure.
- Discuss limitations and how the model shaped early development strategies.

Q2. Describe the structure and assumptions of the Mahalanobis Two-Sector and Four-Sector Models.

How to write:

- Start with Mahalanobis' role in shaping India's Second and Third Plans.
- Explain the Two-Sector model (capital vs. consumer goods) and its rationale.
- Describe the Four-Sector model and its sectoral composition.
- Highlight assumptions, goals, and its long-term self-reliance strategy.

Q3. Compare and contrast input-output models and econometric models used in later Five-Year Plans.

How to write:

- Define both models and their basic structure.
- Explain how input-output models show inter-sectoral flow and consistency.
- Describe how econometric models are data-driven and simulate multiple scenarios.
- Compare their use in different Plans and relative advantages.

Q4. Discuss the shift in planning models before and after the 1991 economic reforms.

How to write:

- Outline key features of pre-1991 directive planning (control, targets, state-led).
- Describe how liberalization introduced indicative planning and market-based models.
- Mention Eighth and later plans and their model orientation.
- Analyze the shift from centralized control to strategic facilitation.

Q5. What role did inclusiveness and employment generation play in the planning models of the Eleventh and Twelfth Plans?

How to write:

- Explain the concept of inclusive growth and why it became important.
- Discuss planning strategies that focused on rural development, education, and health.
- Mention employment elasticity and its integration into the models.
- Highlight the participatory and sustainable growth goals in the Twelfth Plan.

Q6. Outline the evolution of planning models in India from the First to the Twelfth Plan.

How to write:

- Briefly list the key models used in each Plan in chronological order.
- Highlight how planning goals shifted (from infrastructure to poverty to sustainability).
- Mention changes in methodology—from simple to multi-sector and dynamic models.
- Conclude with the overall trend of planning adapting to changing economic needs.