Karnataka State Open University
Manasagangothri, Mysore- 570 006

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಮಾನಸಗಂಗೋತ್ರಿ, ಮೈಸೂರು ೫೭೦ ೦೦೬

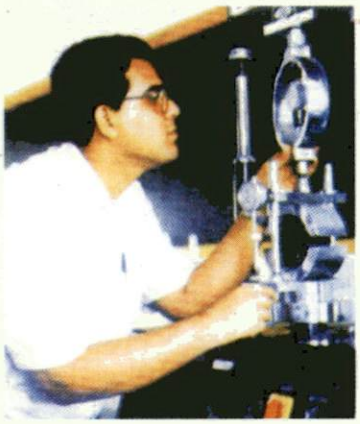
COURSE : 2

M.A. (PREVIOUS)
DEVELOPMENT ECONOMICS

485

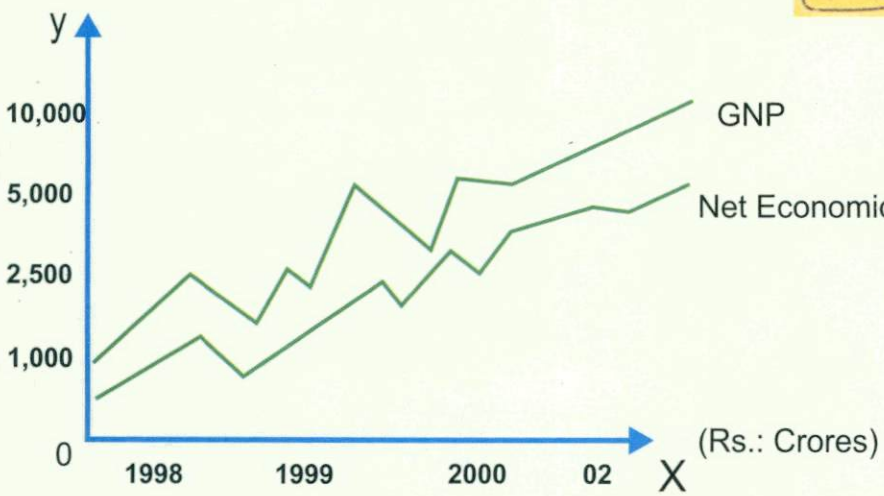
Modern Agriculture

Industrial Development



Agriculture

IT Industry



ಉನ್ನತ ಶಿಕ್ಷಣಕ್ಕಾಗಿ ಇರುವ ಅವಕಾಶಗಳನ್ನು ಹೆಚ್ಚಿಸುವುದಕ್ಕೆ ಮತ್ತು ಶಿಕ್ಷಣವನ್ನು ಪ್ರಜಾತಂತ್ರೀಕರಿಸುವುದಕ್ಕೆ ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ ವ್ಯವಸ್ಥೆಯನ್ನು ಆರಂಭಿಸಲಾಗಿದೆ.

ರಾಷ್ಟ್ರೀಯ ಶಿಕ್ಷಣ ನೀತಿ 1986

ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯವು ದೂರಶಿಕ್ಷಣ ಪದ್ಧತಿಯಲ್ಲಿ ಬಹುಮಾಧ್ಯಮಗಳನ್ನು ಉಪಯೋಗಿಸುತ್ತದೆ. ..... ವಿದ್ಯಾಕಾಂಕ್ಷಿಗಳನ್ನು ಜ್ಞಾನ ಸಂಪಾದನೆಗಾಗಿ ಕಲಿಕಾ ಕೇಂದ್ರಕ್ಕೆ ಕೊಂಡೊಯ್ಯುವ ಬದಲು, ಜ್ಞಾನ ಸಂಪತ್ತನ್ನು ವಿದ್ಯೆ ಕಲಿಯುವವರ ಬಳಿ ಕೊಂಡೊಯ್ಯುವ ವಾಹಕವಾಗಿದೆ.

ಡಾ. ಕುಳಂದೈಸ್ವಾಮಿ

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"The Open University system makes use of Multimedia in distance education system. ..... it is vehicle which transports knowledge to the place of learners rather than transport to the place of learning.

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M.A. ECONOMICS
(Previous)
Course - II

Block 4

Unit-11 APPROACH TO DEVELOPMENT AND GROWTH

Block Introduction:

Economics of development and growth is a science, which shows the ways and means to accelerate economic development in less developed countries (LDC's) and to maintain development in advanced countries. 'Economic Development' refers to the problems of LDC's and economic growth refers to advanced countries.

According to J.A.Schumpeter " development is a discontinuous and spontaneous change in th stationery sate, which for ever alters and displaces the equilibrium state existing; while growth is gradual and steady change in the long run, which comes about by a general increase in the rate of savings and population" However, the terms growth and development are synonymous.

The development economists very broadly belong to three groups. The first group has tried to understand development problems with the help of theories and theoretical models. Classical and neo classical economists belong to this group.

The second group has attempted to understand the development problems by stage wise analysis of growth process. W.W.Rostow's name is the prominent name among the second category development economists.

The third group has pointed some strategies for the attainment of development. Lewis, Nurkse, Singer, Hirschman, Leibenstein, Rosenstein Rodan, Nelson, Boeke, Myrdal, Ranis and Fei and a good number of others belong to this category.

This particular block attempts to provide an anylitical outlook of the approaches of the development economists belonging to the last two categories.

COURSE - II BLOCK- 4

Unit-11 APPROACH TO DEVELOPMENT AND GROWTH

STRUCTURE

Unit-11 : STAGES OF GROWTH - W.W.ROSTOW'S THEORY

11.0 OBJECTIVES

After studying this unit, you will be able to

- know the economic development as a process,passing through certain stages.
- understand the growth process as being continuous and harmonious.
- know the growth process as a multi dimensional phenomenon influenced by several factors in different stages.
- analyse the applicability of Rostow's stages to the LDC's.

A common matrix in that the successive segments are stages in one broad process, usually one of development and growth, rather than devolution and shrinkage.

11.1 INTRODUCTION

W.W.Rostow followed a new approach to explain the problems of development which is known as " stagewise analysis". In this unit we shall discuss Rostow's growth theory in detail.

11.2 ROSTOW'S STAGES OF GROWTH

Rostow's has adopted the historical approach to describe the economic development through different stages. His approach was a multi-dimensional approach to the evolution of the economy. This 'Stages of Growth' was first published in 1960 with a subtitle ' A Non-economist Manifesto'. This was an attempt to explain the process of growth interms of socis-institu tional set up and people's attitude.

According to Rostow, the development of an economy depends on the following six propositions:

(i)Propensity to develop fundamental science
(ii)Propensity to apply science to economic needs.
(iii)Propensity to accept innovations
(iv)Propensity to seek material advance
(v)Propensity to consume
(vi)Propensity to have children

Rostow believed that these Propensities are influenced by attitudes, aspirations and motivations of the people. All of them are conditioned by socio-economic and political environment of a country. Economic development is caused both by economic and non-economic factors.

Rostow has divided the historical process of economic development in five stages:

Stage 1 : The traditional society
Stage 2 : The pre-conditions to take off
Stage 3 : The take-off
Stage 4 : Drive to maturity
Stage 5 : High mass consumption

11.2.1 THE TRADITIONAL SOCIETY

A Traditional society is one, which is caught up in the low level equilibrium trap. Rostow has defined the traditional society as " one whose structure is developed within limited production functions, based on pre-Newtonian Science and technology, and as pre Newtonian attitudes towards the physical world".

It is a society based on primitive attitudes towards the physical world. It covers all stages like (i) Savagery (ii) Horticulture, (iii) Animal husbandry, (iv) Free agricultural development, (v) Primitive agricultural development, (vi) Feudalism, etc. The world was in this stage before the 19th century.

Features: Features of traditional society are the following:

1. Low productivity due to adoption of the primitive methods of cultivation.
2. The operation of the law of diminishing marginal returns in agriculture due to absence of modern science and technology.
3. The changes in population are along the Malthusian lines. The bulk of the population is engaged in agriculture.
4. The structure of the society is based on inheritance. All the economic activities are determined by traditional customs.
5. The big landlords enjoy an honourable position in social life due to concentration of political power in their hands.
6. Bulk of the expenditure is unproductive. The state expenditure is done mostly for building up memorials, expensive funerals, marriages and maintaining glory of the rulers.

11.2.2 THE PRE-CONDITIONS FOR TAKE OFF.

In this stage a process of transition takes place, involving changes in economic, social and political structure of the traditional society. According to Rostow, " preconditions for take off is an era, when society prepares itself for sustained growth".

Features: Following are the main features of this stage:

1. An increased productivity of agriculture due to adoption of science and technology.
2. Agriculture supplies more food to urban centers and raw materials to the industries.
3. The governments build up social overhead capital required for economic development.
4. The entrepreneurial class emerges with new enthusiasm to innovate, take risk and break uncertainties.
5. People spend more money for productive purposes. Profit motive stimulates the economic activities.
6. Importance to agriculture decreases. The industrial and service sector expand. The scope for trade and commerce widens. The closed economies now become open ones.
7. People's attitude and social customs now change. People begin to favour small families.

Thus both the government efforts and private initiative create the pre-conditions necessary for take-off.

Pre-conditions for sustained industralisation require radical changes in the following three non - industralised sectors:

1. In the transport sector, a build up of social overhead capital is required. It enlarges the market, exploits the natural resources productivity and allows the state to rule effectively.
2. In the agricultural sector, a technical revolution is required. It increases the agricultural productivity and meets the requirements of increased population.
3. In the import sector, an expansion is required. Imports [including capital imports] are to be financed by efficient production and marketing of natural resources for exports.

Huge amount of capital and its profitable investment is an essential requirement of the development of these three non-industrialized sector. Ac

cording to Rostow, " the essence of the transition can be described legitimately as a rise in the rate of investment to a level which regularly, substantially and perceptibly outstrips population growth".

11.2.3 THE TAKE OFF

According to Rostow " Take off is a big-push to the economy or great leap forward. Growth becomes a normal condition of the society in this decisive stage of evolution. Rostow has characterised the take off " as an industrial revolution, tied directly to radical changes in methods of production, having their decisive consequences over a relatively short period of time".

Features: Following are the important features of Take off.

1. A rising trend is maintained by the rate of investment and the real out put per capita.
2. Industries yield profits by expanding rapidly. New industries emerge stimulating the demand for the manufactured goods and industrial labourers.
3. Industrial expansion creates employment opportunities. Increased demand for agricultural products in industrial sector develops the rural sector. As a result, both the level of income and the effective demand will rise.
4. The growth will become an ongoing feature of the society due to the emergence of a group which has both the will and ability to take the economy up. The emergence of social, political and institutional set ups create the internal impulse of growth. Mobilisation of financial and real resources makes the growth self-sustained.
5. A leading sector emerges which leads the development further. The leading sector is known as the growth pole.

Rostow mentions following three related conditions as the requirements for take off.

1. " A rise in the rate of productive investment from, say 5% or less to over 10% of national income or net national product ".
2. The development of one or more substantial manufacturing sectors with a high rate of growth.
3. The existence or quick emergence of a political, social and institutional framework which exploits the impulse to expansion in the modern sector and gives growth an ongoing character.

Let us briefly examine these conditions:

(i) **Rate of Investment**: According to Rostow, the rate of investment remains around 5% in pre-take-off economies. It is between 5% to 10% in economies attempting the take off. It becomes 10% in growing economies. If domestic pre-conditions for sustained development have not been met, the economies can remain enclave economies, even if the rate of investment is 10%.

On the basis of above criterion the LDC's are classified as follows in [Table 11.1]

Table 11.1 : Classification on Rostow's Criterion

Sl.No.	Classification	Criterion
1	Pre take off economies	The rate of savings and investment is under 5% of NNP
2	Economies attempting to take off	The rate of savings and investment is under 5% to 10% of NNP
3	Growing economies	The rate of savings and investment is to 10% or more of the NNP
4	Enclave economies	The rate of savings and investment is 10%. But domestic preconditions for sustained growth have not been achieved.

(ii) **Development of Leading Sectors:** Development of the following three leading sectors is another essential prerequisites for take off:

a) Primary growth sectors – They initiate and stimulate growth in other sectors till growth process becomes self-sustained.
b) Supplementary growth sectors – They develop as a consequence of the development of primary growth sectors.
c) Derived growth sectors - Such as agriculture, industrial housing, transport, etc.

The following four basic factors initiate development in leading sectors:

a) Expansion of effective demand. It increases output,employment and income.

b) Introduction of new productive functions in order to increase the output.
c) Generation of required amount of capital for investment.
d) Introduction of technical transformation to expand production in other sectors.

(iii) **Cultural and Institutional Framework**: The emergence of new social, political and institutional framework is another requirement for the take off. According to Rostow, " the take off usually witness a definite social, political and cultural victory of those, who would modernise the economy over those who would either cling to the traditional society or seek other goals".

Rostow identified the tentative take of periods for a number of countries [Table 11.2].

Table 11.2: Tentative Take off periods for selected countries

Sl.No.	Country	Take-off
1	Great Britain	1783-1802
2	France	1830-1860
3	Belgium	1833-1860
4	USA	1843-1860
5	Germany	1850-1873
6	Sweden	1868-1890
7	Japan	1878-1900
8	Russia	1890-1914
9	Canada	1896-1914
10	Argentina	1935-
11	Turkey	1937-
12	India	1952-
13	China	1952

The growth process becomes institutional in the take-off period. The economy transforms itself to make the growth process nearly automatic in a short period.

11.2.4 DRIVE TO MATURITY

It is the stage of self-sustained growth. Rostow defines this stage as " the period when a society has effectively applied the range of (then) modern technology to the bulk of its resources."

Features: Following are the features of the stage of drive to maturity:

(i) The economic development becomes automatic due to high rates of savings and investment. The rate of investment increases from 10% of the GNP to higher limits even up to 20%.

(ii) The industries which initiated the take off decelerate due to the operation of the law of diminishing returns. But new industries, including import substituting and export replacing industries, come up and become the pioneers of growth.

(iii) The GNP growth rate becomes substantially higher than the population growth rate. Modern technology embraces all the sectors of the country. Division of labour and specialisation becomes complex and compound.

(iv) Economic development changes the values of life. Human sentiments pave the way to the material advancement. Demand based production scored over need based production.

(v) A greater degree of unbanisation changes the structure of the economy. The proportion of skilled, semi-skilled and white-collar labour increases. Entrepreneurship floursihes.

As visualised by Rostow, an economy can attain technological mayurity in 60 years after the beginning of take off or 40 years after achieving the take off. The tentative dates of technological progress in selected countries as prepared by Rostaow is shown in Table 11.3

Table 11.3 : Tentative Maturity period for selected countries

Sl.No.	Country	Year
1	Great Britain	1850
2	United States	1900
3	Germany	1910
4	France	1910
5	Sweden	1930
6	Japan	1940
7	Russia	1950
8	Canada	1950

When a country is in the stage of maturity, the following three significant changes take place:

(i)The composition or character of working class changes. The working class becomes more skilled. Its real wage rises and consumption pattern changes. The working force depending on agriculture declines from 75% [before take off] to 20% when the economy reaches to maturity. The working class pre fers to live in urban areas. The workers unite themselves to exercise their rights.

(ii)The character of entrepreneurship or leadership changes. Efficient, polite and polished leaders substitute the rugged and hardworking masters. The employees as the co-partners of development.

(iii)At the end of the maturity stage, the society, fed up by miracles of industralisation, aspires for new things. It leads to further changes.

11.2.5 THE AGE OF HIGH MASS CONSUMPTION

It is the stage of very high levels of consumption and physical quality of life. At the end of the maturity stage, people begin to think, about the basic aims and values of life. So the society allocates larger resources for social welfare and social security. Changes in attitudes and production pattern lead the country to the age of high mass consumption.

Features: Main features of the stage of high mass consumption are:

1. The per capita real income becomes very high. The consumption transcends beyond food, clothes and shelter to goods of comforts and luxuries on a large scale.

2. The values of life change. The development consciousness increases due to urbanisation and industrialization.

3. The basic structure of the society changes due to emergence of new leading sectors. New types of durable consumer goods industries become the leading sectors.

In the age of high mass consumption the following three forces are required to enhance social welfare.

(i)A national policy which enhances power and influence beyond national frontiers.

(ii) A welfare state characterised by a more equitable distribution of national income. Equality can be achieved through progressive taxation, increased social security and leisure to the working forces.

(iii) Decisions to create new commercial centres and leading sectors like automobiles, houses and innumerable electrically operated household devices etc.

The dynamic theory of production envisages rise in income level in each stage of growth. This is explained in the fig.11.1

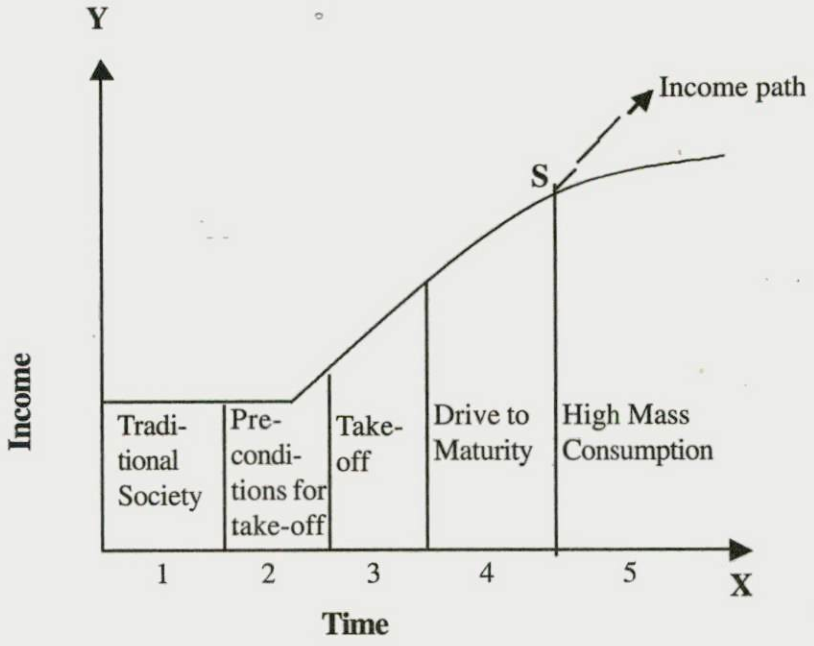

Fig. 11.1 Stages of Growth

Income is shown on OY vertical axis and time on OX horizontal axis. In stage 1 or in traditional societies the income growth is very slow. In the period of pre-conditions for take off the income growth curve rises. During the take off and drive to maturity stages it rises rapidly. The rate of progress slows down after maturity period. So the curve becomes flatter after the point S. This gompert curve is a tool of statistics used to analyse the path of economic growth.

The age of high mass consumption is an era of sovereignty. According to Rostow, the US has reached this stage in 1920's. Japan and western Europe in 1950's and the Soviet Union after the death of Stalin.

The society moves from one stage to another till it reaches the stage of mass consumption. It is impossible to visualise the behaviour of society after the fifth stage.

Check your progress - I

1. What is meant by 'Take-off'? State the pre-conditions required for take off?
2. Explain the features of High Mass Consumption stage?

11.3 CRITICAL APPRAISAL

Rostow's stages of growth theory is criticised on following grounds:

1. **Unconvincing demarcation**: In the beginning Rostow mentions six propensities as responsible for growth motivation. Among them the propensity to have children is an integral part of human motivation for progress.

But Rostow makes an unnecessary and unconvincing demarcation between propensities and motives. Moreover, he has not explained the development process in the light of these propositions. Infact, the first five propositions reveal the desire to maximise profit. However, he has not made use of these propositions in his theory elaborately.

2. **Logical Confusion**: According to Rostow polices are the result of development; but development is not the result of polices. This is certainly a logically confused statement. It is impossible to imagine development without a proper policy.

Hence myrdal writes: " Most of the stage theories, after a brief period of popular appeal and excitement, fall into oblivion. The humbler and less dramatic efforts to establish " what actually happened, continue to increase our stock of historical knowledge".

3. **Traditional Society is not essential:** A country need not pass through the first stage to attain growth. In fact United States, Canada, Newzealand, Australia and number of other countries did not pass through the stage of traditional society. They were born free and derived the pre-conditions from Britain. Besides, every country cannot have the same history of economic growth and a common future.

4. **Illogical Preconditions:** The theory assumes that the stage of preconditions precedes the stage of take off. But 'preconditions' need not precede the take off. It is illogical to believe that an agricultural revolution and accumulation of social overhead capital in transport must take place before the take off.

As pointed out by Meier, " stage making approaches are misleading .....No single sequence fits to the history of all countries.....A country may attain a later stage of development, without having first passed through an earlier stage".

5. **Loopholes of Take Off:** Rostow's take off periods and dates are purely arbitrary. He fails to take notice of the abortive take offs of countries like Italy, Spain and Russia.

As pointed out by Myrdal " his [Rostow's] approach is theoretically not vigorous, conceptually vague and empirically superficial".

6. **Irrational Conditions:** Rostow suggests a rise in the rate of productive investment between 5% to 10% of the NNP as the first pre-requisite for take off. But the development is decided by the pattern of income and investment distribution and the capital output ratio coupled with incentives. A.K.Dasgupta and V.B. Singh criticise Rostowian 'conditions' for not recognising these problems.

Rostow's emphasis on leading sectors like textiles, railways, road, etc is criticised by Cairncross. He asks: " why must the leading sectors be in manufacturing? If railway building can qualify, why not retail distribution or agriculture?"

In the opinion of Rostow, the existence of quick emergence of a political, social and institutional framework is an essential requirement for economic growth. But, according to Cairncross, " this is the most baffling condition of the three".

7. **Flimsy Concept:** The stage of drive to maturity is puzzling. 'Self sustained growth' is criticised as flimsy concept. Continued growth of any country cannot be self-sustained.

In Rostow's analysis, the things that are supposed to happen in the third stage, spills over to fourth stage also. The conditions to take off are

carried forward to explain the matirity stage also. For example, the rate of investment rises to 10% of the national income, new leading sectors and institutions emerge and new production techniques development during maturity stage. These are the conditions existing in the previous stage also. Repetition of same conditions makes the need for a separate stage unwanted.

8. **Objections against mass consumption** : Critics consider Rostow's analysis of the last stage as old wine in new bottle, as it conveys nothing new. There is nothing special in the tendency of consumers with higher income consuming durable goods. Cairncross asks: " what is special significance of this period, when at the higher level of income, people themselves show an elastic demand for durable goods?".

Rostow has given undue importance to national power, social security and consumption. But he has ignored the functions of the state, which lead to greater economic equality. Rostow's last stage is irreversible one. But Cairncross, Kuznets, Meire and others raise doubts about the external continuity of the final stage.

9. **No Empirical Evidence:** Rostow's theory neither helps to understand the past, nor to build a promising future. The experiances of European countries does not conform to Rostow's growth pattern. His growth pattern is not visible even in the LDC's.

10. **Growth is not timeless**: According to Rostow, growth becomes timeless once the final stage is reached. But in reality, natural resources, manpower and capital set the upper limit of growth.

A country can be regarded as fully developed even if the stage of mass consumption is not reached. As pointed out by Niculscue, " it would be strange to continue to regard a rabbit underdeveloped, just because an elephant is much bigger in size."

Importance of Rostow's theory:

1. Rostow's theory highlights the importance of political, social and institutional factors in growth process. He seems to be the first ever economist to incorporate the non-economic factors in the theory of economic development.

2. Rostow's theory provides both the evidence of and the explana-

tion for the elements of unity underlying the apparent diversity in the historical experience of the growth of different countries. The diversity is reflected in different experiences of growth, growth rates and growth apparatus. The unity is reflected in emhasising the role of leading sectors in economic growth.

3. Rostow's theory helps to identify the crucial requirements of growth. It pin points the necessity of having an adequate level of aggregate demand, a given level of savings and investment.

4. Rostow's take off inspires the planners of less developed countries to create the conditions for take off. Agreeing with the historical process of development, Kindleberger writes: " the maintenance and growth of organism involves a process [metabolism] in which decay [ketabolism] and up building [anabolism] proceed simultaneously and ceaselessly".

11.4 ROSTOW'S STAGES AND LDCs

Rostow's take off is historical concept derived from past experience. It ideally suits to the industralisation of the LDC's. Its relevance can be analysed as follows.

1.**Suggests Choice:** The concept of take off suggests choice open to LDC's. The 'preconditions for take off' outline the development polices to be followed for industralisation.

2. **Lays down basic conditions:** Investment to the extent of over 10% of national income, development of leading sectors and creation of institutional frame work are the three basic requirements for take off. These requirements guide the policy makers to design the development programs.

3. **Reveals the Inner Mechanics:** The concept of take off provides guidelines about the inner mechanics of capital formation. The LDC's, according to Rostow, "must seek ways to tap off into the modern sector, income above consumption levels, hitherto sterlised by arrangements controlling traditional sector".

4. **Stress on resource allocation:** The concept of take off emphasises the significance of efficient resource allocation. According to Rostow, the LDC's must allocate their resources with a view " to building up and modernising the three non industrial sectors required as the matrix of industrial growth: social

overhead capital, agriculture and foreign exchange earning sectors, rooted in the exploitation of natural resources.

5. **Highlights the significance of social changes:** The analysis of take off outlines the catalogue of social changes essential for development. According to take off, social changes are required.

(a) To persuade the peasant to change his methods of production and marketing.

(b) To build up a crop of technicians capable of manipulating the new techniques in order to expand the output.

(c) To create a modern professional, civil and military service..... oriented to the welfare of the nation and standards of efficient performance.

11.5 LIMITATIONSOF ROSTOW'S THEORY

From the stand point of the LDC's, the concept of take off suffers from following limitations:

(i) **Ignores the relative economic positions**: Rostow's take off ignores the relative economic positions in LDC's completely while prescribing the requirements of the take off. The economic environment of LDC's is completely different from that of developed countries. Hence the strategic policy issues suggested by take off cannot be applied as they are to the LDC's.

(ii) **Assumption of Agricultural revolution**: The concept of take-off wrongly assumes that the agricultural revolution has already occurred in the LDC's. Many of the LDCs have to experience the required level of agricultural improvement needed for industrialization yet.

(iii) **Ignores population pressure:** LDC's are still backward due to the problem of ever increasing population. But the concept of take off ignores the hurdles created by population pressure in accelerating economic development.

(iv) **Neglects the problem of unemployment**: Growth is self sustained and spontaneous in that economy which secures full employment. The LDCs suffer from the accumulated backlog of unemployment. Besides under employment or disguised unemployment is a very common feature of the LDC's. The concept of take off is totally silent over the removal of any type of unemployment.

(v) **Complex socio- cultural set up:** The concept of take off suggests that the investment and average propensity to consume should increase with a rise in national income. The level of consumption is decided by the method of distribution. Hence, Rostow prescription is criticised as unsound.

(vi) **Capital out-put ratio is not constant:** One of the requirements for take off is rise of investment to 10% of national income. This requirement assumes the capital out-put ratio to be constant during the course of industralisation. Constant capital output ratio suggests a constant return to scale. This assumption is not valid in LDC's. They are characterised by the pre-dominance of the primary sector. In the LDc's the unchanged production techniques result in conditions of diminishing returns.

(vii) **Absence of spontaneity:** The concept of take off treats development as spontaneous. According to John P.Lewis " a take off is not an instantaneous process. It is an exercise that requires time and a certain speed". So the assumption of spontaneity makes the concept irrelevant to LDC's.

11.6 Rostow's Theory and India:

Whether the Indian economy has entered the stage of take off or not? To get the answer, we have to examine the following Rostowian requirements of take off:

(i) **Investment rate:** The first requirement for take off is raising the investment to 10% of national income and maintaining it for two or more decades. As observed by Rostow, India has entered the stage of take off in 1952. India is said to have taken off as it attained more than 10% savings and investment ratio in between 1950-51 and 1964-65.

(ii) **Development of leading sectors:** The second requirement for take off is the development of one or more leading sectors. The success of first two five-year plans reveals the fulfillment of second condition also.

(iii) **Institutional framework:** The third requirement for take off is existence or emergence of social, political and institutional frames work to exploit the opportunities of development. In India, due to economic planning, the necessary institutional development is emerged.

Though the Indian economy has already attained take-off stage, it

failed to achieve growth rate of 8% per annum. Besides, it is impossible to reach to the maturity stage without attaining self-reliance.

Rostow's theory is milestone in the development of developmental economics. It documents economic history and gets over the growth-restraining factor of classicals. It highlights the significance of institutions and social factors in economic development. But it ignores the problems of unemployment, underemployment, poverty, agriculture and rural development, rural industralisation, lack of infrastructure and the role of government. Conceptually and empirically it is a very weak theory. In the context of LDC's it should be interpted and used cautiously.

11.7 LET US SUM UP:

Rostow's theory is a historical approach to growth process. He dis tinguishes between five stages of growth mentioned in chronicle order viz

(i) The traditional society
(ii) The pre-conditions for take off
(iii) The take off
(iv) The drive to maturity
(v) The age of high mass consumption.

Rostow's theory is a historical approach to the process of economic development.It throws light on the factor of unity underlying the apparent experiences of different countries. It helps to identify the growth require ments.

11.8 LIMITATIONS

It ignores relative economic positions of the LDCs. It also ignores the problems like poverty, unemployment, excess population, complexities existing in socio-cultural set up.

The investment and average propensity to consume need not increase in LDC's when the income increases.Capital output ratio is not constant in LDC's.Development need not be spontaneous.

Relevance to LDC's: The concept of take-off is relevant to LDC's in some respects viz.

1. It suggests choices.
2. It lays down basic conditions for development.

3. It reveals the inner mechanics of capital formation.
4. It stresses the need for efficient resource allocation.
5. It highlights the significance of social changes.

Relevance to India: India has fulfilled all the three requirements to take off. But it has failed to attain maturity still.

1. Its annual growth rate is less than 10%.
2. It suffers from population explosion, poverty and large scale unemployment
3. Its leading sectors failed to provide the Momentum required for sustained growth.

11.9 KEY WORDS:

- Abortive Take off: Take off which fails to lead the economy to maturity.
- Average propensity to consume [APC]: The proportion of income [Y] spent on consumption [C] APC=C/Y.
- Social Overhead Capital [SOC]: Basic infrastructure Eg. Transport and communication, health and sanitation and public utilities.
- Sustainable Development: Self supportive growth process.
- Take off: A concept used by Rostow to explain the prematurity stage of growth.
- Urbanization: Development of towns and cities.
- Welfare State: A state, which attempts to maximise the happiness of its maximum citizens.

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Check your progress - II

1. Critically examine Rostow's theory of economic growth?.
2. What are the five stages of growth in Rostow's theory? Explain the characteristics of these stages?
3. Analyse the concept of take off. Discuss whether India has achieved the stage of take off ?

NOTES

Unit 12 : LEWIS' UNLIMITED SUPPLY OF LABOUR

Structure

Unit 12 : LEWIS' UNLIMITED SUPPLY OF LABOUR

12.0 OBJECTIVES

Main objectives of the study of this unit are:

(i) To understand the dualistic nature of the LDC's.

(ii) To find out an avenue to breakdown the inertia of labour surplus economies.

(iii) To appreciate the role of bank credit in the usage of surplus labour.

(iv) To analyse the factors causing the end of growth process.

(v) To discuss the possibilities of growth by opening up the economy.

(vi) To evaluate Lewis model of unlimited supply of labour.

12.1 INTRODUCTION

The less developed countries [LDC's] are characterised by the co-existence of a traditional subsistence agricultural sector and a modern commercialised industrial sector. Hence they are called the dual economies. The dual economies are labour surplus economies too. Economic development lies in the contraction of traditional sector and expansion of the modern sector. Nurkse, Lewis, Fie and Ranis and a number of other development economists have formulated analytical models to use the surplus labour productivity. Lewis' model explains how the unlimited labour supply of dual economies can be used as an instrument of economic development.

In 1954 Arthur Lewis has published an article entitled 'Economic Development with Unlimited Supplies of Labour.' In this article he has analysed the process of economic expansion in a dual economy. Lewis developed his growth model in the neoclassical framework, with special reference to LDC's. His model shows how the surplus labour, existing in capital poor, labour abundant dualistic economies can be used for economic development.

12.2 LEWIS' GROWTH MODEL

Arthur Lewis in his growth model discusses the possibilities of incresing investments in the LDC's through the productive usage of surplus labour. The LDC's are dual economies, consisting of traditional subsistence sector and modern capitalist sector. The marginal productive of labour is zero or even negative in the subsistence sector. Therefore, it is essential for establishing new or expanding the existing industries by drawing upon labour from subsistence sector.

Thus drawn labourers are to be paid with real subsistence wage plus about 30% extra to cover the cost of living in urban areas. The expansion of the capitalist sector results in more and more capital formation. Increase in profits and creation of credit accentuates capital formation. Expansion of the capitalist sector stops when capital accumulation grows faster than population. Expansion may halt even when the surplus labour is completely exhausted. Mass immigration and export of capital take place when the wages begin to rise. This is Lewis Model of unlimited supply of labour in a nutshell.

Assumptions: Lewis model is based on the following assumptions:
(i) The LDC's are endowed with unlimited supply of labour, available at subsistence wage.
(ii) The economy of the LDC's is dualistic in nature, being composed of a capitalistic sector and a subsistence sector. Only the farmer makes use of the reproducible capital.
(iii) The subsistence sector is characterised by disguised unemployment. The marginal productivity of labour in this sector is zero or negative.
(iv) The capitalist sector is guided by the principle of profit maximisation. It draws labour from subsistence sector when it expands.
(v) The expansion of the capitalist sector absorbs the surplus labour existing in the subsistence sector.
(vi) The population multiplier operates. Population growth restricts the magnitude of investment in the capital sector.
(vii) Further expansion is possible only in an open economy, which allows for migration and foreign capital transfer.

Lewis model of unlimited supply of labour may be explained with well sequenced six steps.

12.2.1 IDENTIFICATION OF SURPLUS LABOUR

The surplus labour model of Lewis starts from the classical assertion that the labour supply in LDC's is perfectly elastic at a subsistence wage. Lewis divided the economics of the LDC's into capitalist sector and subsistence sector. He defines the capitalist sector as " that part of the economy which uses reproducible capital, and pays capitalists for the use there of". The subsistence sector is not using the reproducible capital. It is an indigenous traditional or self-employment sector.

The subsistence sector is characterised by the existence of surplus labour or disguised unemployment. A situation in which the marginal productivity is zero [or even negative] is called disguise unemployment. Identifica-

tion of the surplus labour forms the first step of lewis model.

12.2.2 EXPANSION OF CAPITAL SECTOR

The capitalist sector draws labour from the subsistence sector when the former expands. Lewis assumes that the supply of unskilled labour to capitalist sector is unlimited. He writes " In this situation, new industries can be created or old industries expanded without limit at the existing wage. To put it more exactly, shortage of labour is no limit to the creation of new sources of employment".

Main sources from which the surplus labour would be coming for employment at subsistence wage rate are:
(i) Those who are in disguised unemployment in agriculture;
(ii) Unemployed in overmanned occupations such as domestic service, casual odd jobs or petty retail trading;
(iii) Women in household;
(iv) Population Growth.

The surplus labour existing in subsistence sector is unskilled. It is quasi bottleneck for the absorption of surplus labour in capitalist sector. To remove this temporary bottleneck training is to be provided to the unskilled surplus labour.

What determines the subsistence wage at which the surplus labour is available for employment in capital sector? It is the minimum earnings necessary for subsistence, which decides the subsistence wage. According to lewis, the newly employed workers are to be paid a real subsistence wage plus 30% extra wages for three reasons.

(i) The absorption of surplus labour in the capitalist sector increases the output in the subsistence sector. It induces the workers absorbed in capitalist sector to ask for higher wage.
(ii) The real income in subsistence sector will increase when the surplus is absorbed in the capitalist sector. Naturally the transferred workers are induced to ask for a better living.
(iii) The cost of living is comparatively more in the capitalist sector. This necessitates the payment of a higher wage in the capitalist sector.

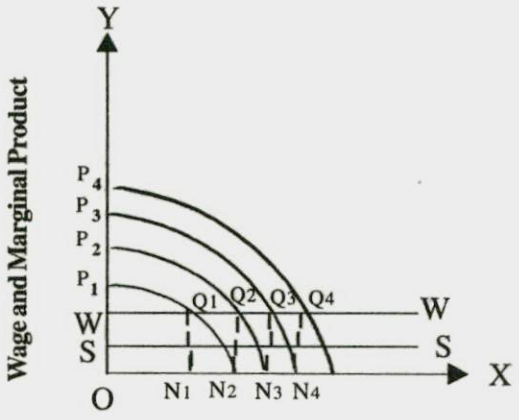
12.2.3 EMERGENCE OF CAPITALIST SURPLUS

The rate of capital formation decides the economic development in the LDC's. Capital formation depends on the capitalist surplus. The marginal productivity of labour in capitalist sector is higher than the capitalist

wage. This results in the emergence of capitalist surplus.
Capital surplus = Marginal productivity > Wages in capital sector.

Thus, the capitalist surplus is the positive difference between marginal productivity and wages in capitalist sector. The rate of economic growth depends on the generation and utilization of the capitalist surplus. Higher the rate of capital formation more is the labour absorption in the capitalist sector.

Fig 12.11 shows the surplus labour absorption model.



Quantity of Labour

In fig 12.1 the quantity of labour is shown on horizontal axis OX. OY axis shows the wage and marginal product. OS is the subsistence wage and OW is the capitalist wage. $N_1 P_1$, $N_2 P_2$, $N_3 P_3$, $N_4 P_4$ are the productivity curves. At OW wage rate the supply of labour is perfectly elastic. Q_1, Q_2, Q_3, and Q_4 are the marginal productivity of labour.

In the begining when ON_1 amount of labour is employed in the capatalist sector, its productivity $P_1 N_1$ and total output is $OP_1 Q_1 N_1$. Out of this, workers are paid $OW Q_1 N_1$. The remaiining area $WP_1 Q_1$ is the surplus output. When this surplus is reinvested the productivity curve shifts to P_2N_2. Now the surplus earned is WP_2Q_2, which is greater than before. This process continues till the entire surplus labour is observed in the capitalist sector. Reinvestment of surplus increases the rate of capital formation.

Once the surplus labour is absorbed, wages would rise with economic development. Then the supply curve WW would slope upwards from left to right like any other usual supply curve.

12.2.4 ROLE OF CAPITALISTS IN DEVELOPMENT

Economic development is conditioned by the rate of capital accumulation. In the LDCs, only the capitalists can increase the rate of savings. As stated by Lewis " the central problem in theory of economic develop-

ment is to understand the process by which a community, which was previously saving and investing 4% to 5% of its national income or less, converts itself into an economy where voluntary savings is running about 12% to 15% of the national income or more".

Thus Lewis highlights the role of capitalists in economic development. The indigenous private capitalists increase the labour productivity by employing new techniques of production. Increased productivity widens the market, which increases the capitalist surplus. The state through its sovereign powers faster the spread of technology and taxes the subsistence sector to accumulate capital. Capital formation and technical progress raise the share of profits in national income. Capital and technology increase both the profits and employment, but not the wages.

12.2.5 ROLE OF BANK CREDIT IN CAPITAL FORMATION

Lewis recognizes the role of bank credit in capital formation. Emergence of profits [capitalist surplus] and creation of credit increase the total supply of capital. The effect of bank credit on capital formation is similar to that of reinvestment of profits.

Bank credit increases the money supply. Increased money supply increases the output and employment. But there is every possibility of credit financed for capital formation leading to inflation. But such inflation is of temporary nature and self destructive due to four reasons:

(i) The capital goods start producing the consumer goods.Expansion of the consumer goods reduces the prices.
(ii) The voluntary saving will increase to level where they are equal to the level of investment.
(iii) Use of bank credit for investment decreases when the profits are available for investment.
(iv) Taxes imposed by the government will curtail the purchasing power of the people.

Increased capital formation increases out put, employment and profits. Higher the profits, higher will be the savings. Ultimately, bank credit is not required for new investments as the increased savings supply the necessary capital.

The government receives back the inflation-financed money in the form of taxes. It need not resort to deficit financing as the increased out put increases the national income. In the LDC's the effort of capital formation either through bank credit or taxation is the same on output.

12.2.6 END OF GROWTH PROCESS

The growth process continuous so long as the capitalist surplus rises with the utilisation of unlimited labour available at a constant wage. But the process of growth cannot go on indefinitely. It comes to a halt due to the following reasons:

(i) Decline in the number of surplus labour: Rapid expansion of capitalist sector absorbs the surplus labour completely. The absolute number of people in the subsistence sector declines when capital accumulation is faster than the population growth.

Expansion of capitalist sector increases the average product per worker in the subsistence sector. Increase in the capitalist wage decreases the capitalist surplus and lowers the capital formation. As a result the expansionary process is going to be reversed.

(ii) Increase in the prices of consumption goods: A rise in the prices of raw materials and food turns the terms of trade against the capitalist sector. The price of consumption goods rises in terms of prices of the products of capitalist sector. Now the capitalist is forced to pay higher wages to keep the real income of the labourers intact. Higher wages reduce the capitalist surplus and capital formation.

(iii) Increase in productivity: The productivity in the subsistence sector will increase due to the adoption of improved technology. It will increase the wage in capitalist sector and reduce the capitalist surplus. Thus an increase in the productivity in subsistence sector will reduce the capital formation.

(iv) Demand for higher wages: Trade unionism and the capitalist way of living induce the workers in capitalist sector to demand higher wages. As a result the capitalist surplus will decrease. Ultimately, capital formation will also decrease.

These are the reasons for the reversal of expansionary process. If they fail to stop capital formation, expansion of the capitalist sector will continue until the entire surplus labour is absorbed. Afterwards the growth process will halt.

12.3 CAPITAL ACCUMULATION IN OPEN ECONOMY

In closed economy the capitalist sector expands due to the emergence of the capitalist surplus and its reinvestment. But the expansion comes to halt because of four reasons:

(i) Decrease in the number of surplus labour.

(ii) Increase in the price of consumption goods.
(iii) Increase in the productivity in subsistence sector
(iv) Increase in the wages.

Even then the capital formation may be encouraged by opening up the economy, which involves two measures:
(i) Encouraging mass immigration
(ii) Exporting capital to countries with abundant labour force.

Is mass immigration a practical proposition? Lewis himself rules out the possibility of mass immigration of unskilled labour to capital abundant countries. Such a migration will bring down the wages to subsistence level. Naturally the workers of high wage countries resist and trade unions oppose mass immigration. Hence the first one is an impracticable measure.

Then is it possible to export the capital? Export of capital will reduce the fixed capital at home.It will also reduce demand for labour. As a result the wages will fall in the capital exporting countries. If the capital export cheapens the goods, which the workers import, the reduction in wage is offset. If capital exports raise the cost of imported, wage reduction is further encouraged. So capital export is also not a solution for expanding the capitalist sector.

CHECK YOUR PROGRESS: I

- State the meaning of a dual economy ?
- What is meant by subsistence and capitalist sectors?
- What is meant by surplus labour?

12.4 CRITICAL APPRAISAL

The growth model of Lewis offers a penetrating analysis of the inter sectoral relationships in the LDC's and the mechanism of development thereof. It has attracted the attention of the LDC's as it provides a lot of insights for development.

12.4.1 ADVANTAGES OF THE MODEL

Lewis model makes clear certain essentials of development, which are helpful in designing development policies and programmes. The chief merits of the model are the following:

(i) Recommends balanced Growth: It shows very clearly the imbalances existing between subsistence sector and capitalist sector. By suggest-

ing a way for the absorption of surplus labour, Lewis recommends for the balanced growth of different sectors in an economy.

(ii) Highlights the importance of saving: Lewis pinpoints the necessity of expanding the capitalist sector in order absorbs the surplus labour. Expansion of the capitalist sector increases the savings. Increased savings when reinvested lead to further expansion of the capitalist sector. Lewis writes " If we ask why the LDC' save so little, the answer is not because they are poor, but because their capitalist sector is so small".

(iii) Highlights the importance of capitalist sector: Lewis model highlights the importance of the expansion of the capitalist sector in LDC's. It provides a framework for the analysis of modernising the economy. It explains the necessity of movement of labour, capital and output between two sectors, for economic development.

(iv) Provides solution to unemployment: In Lewis model surplus labour becomes the basis for capital formation. Lewis shows the way to convert labour with zero marginal productivity, a productive factor. His model provides a solution to large-scale unemployment existing in LDC's.

(v) Emphasizes the capital accumulation function: Lewis model emphasizes on the role of capital in economic development. It considers capitalist surplus as the main source of capital formation. It gives the technique of using bank credit for investment. It also incorporates recommendations about containment of inflation.

(vi) Highlights the role of Government: Lewis model makes the government a leader of initiating and sustaining growth by expanding the capitalist sector. It provides useful clues for ensuring development through proper fiscal management. It recognises the role of taxation and deficit financing in expanding the capitalist sector. It also provides the mechanism to fight out inflation. It is a very useful model with so many policy implications.

12.4.2 LIMITATIONS OF LEWIS MODEL

Lewis model has been criticised for its following defects:
(i) Availability of Labour is not unlimited: His model assumes the availability of surplus labour in unlimited quantity. But surplus labour is not available in unlimited quantity in all LDC;s. The density of population is quite thin in many of the Latin American and African countries. It is unrealistic to assume a perfectly elastic labour supply curve for all the LDC's.

(ii) Disguised unemployment is not a permanent phenomenon: Lewis model considers disguised unemployment existing in agriculture as the main source

of supply of surplus labour. This assumption is also far from truth. The entire agricultural labour is fully employed during planting and harvesting. So disguised unemployment is seasonal in character.

(iii) Transfer decreases output in the subsistence sector: Lewis model assumes that the output in subsistence sector increases when surplus labour is transferred to capitalist sector. Due to seasonality of disguised unemployment existing in farm sector, output decreases if the surplus labour is released to capitalist sector. If transfer of labour does not increase the output in subsistence sector, the mechanism suggested by lewis will become defunct.

(iv) Identification of surplus labour is not easy: Finding out the exact number of surplus labour is assumed to be zero.

But Schultz discards this assumption. In his opinion if marginal productivity of labour is zero, the subsistence wage will also be zero. But in reality, every worker receives a positive subsistence wage. Hence it is very difficult to find out the exact number of surplus labour which can be employed in the capitalist sector.

(v) Immobility of labour: even if the surplus labour is identified can it be easily migrated? Certainly not several socio cultural barriers come on the way of migration of surplus labour from subsistence sector. Migration of women labour from subsistence sector is much more difficult.

(vi) Problem of unskilled labour: Lewis considers the problem of unskilled labour as a quasi bottleneck, which could be overcome by imparting training. But skill formation in LDC's is not an easy task. A very long time is required to educate and train the unskilled labour.

(vii) Wage level cannot remain constant: Lewis assumes a constant real wage level in subsistence sector. If wage rises above the subsistence level, the growth process stops.

But this assumption is also unrealistic. The LDC's are welfare states characterised by the existence of labour laws and trade unions. In welfare states, payment of a mere subsistence wage amounts to the exploitation of labour. Hence wage level cannot remain constant in the subsistence sector.

(viii) Lack of Entrepreneurs: Lewis mechanism works in an economy endowed with enterprising capitalists. But the LDC's lack capitalists with entrepreneurial zeal and foresightedness.

(ix) Multiplier does not operate: Lewis model is based on the reinvestment of capitalist surplus. Such reinvestment expands the capitalist sector only when the keynesian investment multiplier operates. But a number of bottlenecks

and leakages make the multiplier inoperative in the LDC's.

(x) Increase in income disparities: Lewis model perpetuates the income disparities. Migration of labourers from subsistence sector increases the supply of labour in capitalistic sector. Competition reduces the wage in the capitalistic sector and widens the income gap. Simon Kuznets, Meire and Baldwin criticised the Lewis model on this ground. They have pointed out the possibility of increase in unproductive expenditure with an increase in the income of the capitalist class.

(xi) Neglects the savings of other groups: Lewis model assumes that the bulk of savings are done by the capitalist sector alone. It ignores the part played by low income groups in the supply of savings. In the LDC's the low-income groups play a major role in the supply of the savings while the high-income groups spend most of their income on status symbol goods.

(xii) Adoption of Capital intensive techniques: If the capital sector expands by the absorption of surplus labour Lewis model solves the unemployment problem. On the other hand, if the capital-intensive techniques are employed for the expansion of capitalistic sector, surplus labour cannot be absorbed.

(xiii) Existence of surplus labour in other sectors: Lewis model assumes the existence of surplus labour only in the subsistence sector. But according to Subrata Ghatak and Ken Ingersent " surplus labour can be found not only in the agricultural sector, but also in the industrial towns and cities in many LDC's. Surplus labour of cities then, has to be absorbed within the industrial sector. This may affect adversely the process of labour transfer from agricultural to industry".

(xiv) Neglects aggregate demands: Lewis model neglects the demand aspect completely. It presumes that it is supply bottleneck that has got to be overcome. He believes that the capitalist sector can either consume the product itself or can export to other countries.

Thus, in his model aggregate demand is not at all a problem. He ahs not taken note of the demand for capitalist sector products by the subsistence sector. But in reality, if aggregate demand is deficient, the expansionary process stops well before the absorption of entire surplus labour.

(xv) Inflation is not self liquidating: In Lewis model inflation created by the bank credit is self liquidating as the increased supply of consumer goods absorb the additional income but Lewis failed to provide statistical evidence to the self destructive nature of inflation

In reality market imperfections inelastic supply of working capital

limited productive capacity and high propensity to consume accentuate inflation the national governments can not control the inflation caused by external factors Inflation is self cumulative and not self destructive

(xvi) Defective tax administration: In Lewis model taxation has the capacity to mop up increasing income but the tax administration in LDC's is very inefficient and underdeveloped. It lacks the efficiency and will to collect taxes sufficient to fulfill the capital requirements for economic development.

(xvii) This model cannot be implemented in free economies. In the free economies no set up can keep the wages fixed at that standard level, i.e. 30% above subsistence level. Such a thing will happen only in highly regimented economies.

12.6 LET US SUM UP:

Lewis model explains the role of capital formation in less developed countries where there is surplus labour supply compared to capital. According to Lewis excess pressure on land can be reduced by transferring the surplus labour from subsistence sector to capital sector. This helps in the expansion of capital sector and increases the rate of economic development. It highlights the importance of capital formation, investment of profits, technical progress. Thus it has analytical value.

Lewis model has some limitations. It neglects demand aspect. Mobility of of surplus labour is not an easy task. It can not be applicapable to those economies following capital intensive techniques.

12.7 KEYWORDS

- Capital goods: Goods used in the process of production
- Capital Intensive Technology: A technique of production, which employs capital goods.
- Capital Formulation: Accumulation of savings or capital.
- Capitalistic Sector: A segment of the economy, which uses capital for profit motive.
- Closed Economy: An economy, which has closed its doors to foreign sector.
- Consumer goods: Goods used for consumption.
- Disguised Unemployment: Hidden unemployment existing particularly in the agricultural sector of LDC's. A situation in which the marginal productivity of labour is zero.
- Dual Economy: An economy characterised by simultaneous existence of traditional primary sector and modern industrial sector.

- Entrepreneurial Capitalist: A dynamic Capitalist who bears risks to innovate and get profit.
- Free Economies: Economics devoid of government controls and regulations.
- Indigenous sector: Domestic sector of an economy.
- Inflation: A sustained rise in general price level.
- Investment Multiplier: A device used by Keynes to show the multiplicative effect of investment.
- Marginal productivity: Additional or extra productivity of any factor.
- Open Economy: An economy, which is having external trade.
- Subsistence wage: Wage necessary to sustain a 'survival' standard of living.
- Surplus Labour: Excess labour than actually required.

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CHECK YOUR PROGRESS - II

1. Critically examine Lewis model of unlimited supply of labour?
2. How does capital accumulation take place in closed and open economies in Lweis model?
3. Write short notes on:
   a. Lewis model of unlimited labour surplus.
   b. Expansion of capitalist sector in Lewis model.
   c. Beginning and end of growth process in Lewis model.
   d. Role of capitalists and bank credit in Lewis model.
   e. Capital accumulation in closed economy.
   f. Capital accumulation in closed economy.
   g. Acheivements of Lewis model.
   h. Limitations of Lewis model.

NOTES

Unit: 13 BALANCED VS UNBALANCED GROWTH

STRUCTURE

Unit: 13 BALANCED VS UNBALANCED GROWTH

13.0 OBJECTIVES:

Important objectives of the study of this unit are:

- To make a comparative study of the balanced and unbalanced strategies of economic growth.
- To find out their relative advantages and loopholes
- To analyse the relevance of these strategies to LDC's.

13.1 INTRODUCTION

A controversy still persists on the adoption of a strategy by less developed countries in the initial stages of development. The strategic game plans of action or models of development are very broadly classified into two categories balanced and unbalanced strategies. The debate on balanced versus unbalanced growth approach is still going on in academic and bureaucratic circles. Economists like Rosenstein, Arthur, Lewis, Ragnar,Nurkse, and several others strongly argued in favour of balanced growth strategy. Hirschman , Kindleburger, Singer, Rostow, Paul streeten and others have strongly advocated the unbalanced growth strategy. 'Balanced growth' allows for the participation of all the people in the growth process. Balanced growth argument rests on the equilibrium and stability of economic activities. 'Unbalanced growth' treats growth as a dynamic process of changes and bottlenecks. According to unbalanced growth strategy, the dynamic and unstable nature of exogenous variables [like population, technology, tastes etc] often forms the basis for long run progress. Here a presentation of both the strategies are made with special reference to their applicability aspect.

13.2 BALANCED GROWTH:

The balanced growth strategy aims at an economic growth that moves along with a balanced path. It emphasises on the need to make simultaneous investments in a number of industries in order to enlarge the size of the mar ket and provide for inducement to invest. Balanced growth implies investm ent in the depressed sector on one hand and a harmoneous development of different sectors on the other.

13.2.1 MEANING AND INTERPRETATIONS

According to Samuelson and Solow " balanced growth implies growth in every kind of capital"

In the opinion of the United Nations " balanced growth refers to full employment, a high level of investment, overall growth in productive capacity, equilibrium. It should aim at investment in depressed sector"According to Alak Ghosh " planning with balanced growth indicatesthat all sectors of the economy will expand in the same proportion so that consumption, investment and income will grow at the same rates"

$$\frac{\triangle C}{C} = \frac{\triangle I}{I} = \frac{\triangle Y}{Y}$$

Balanced growth implies the following:
(i) Simultaneous development of agriculture, industry, trade and services.
(ii) Balance between agriculture and industry.
(iii) Balance between different consumer good industries.
(iv) Balance between consumer goods and capital goods industries.
(v) Balance between domestic sector and foreign sector.
(vi) Balanced regional development.

Thus, the balanced growth strategy states that " there should be simultaneous and harmoneous development of different sectors of the economy so that all sectors grow in unison"

How to achieve this? To achieve a balanced growth, a balance is required between demand and supply sides. The supply side emphasises on increased supply of goods by simultaneous and harmonieous development of
(i) Intermediary goods
(ii) Raw Materials
(iii) Power
(iv) Agriculture
(v) Irrigation
(vi) Transport
(vii) Industries producing consumer goods.
The demand side emphasises on the need to create employments and enhance the income of the people.

Simultaneous setting up of industries provides ample employment opportunities, increase the income of the people and enhance the demand for goods and services. A balance between supply side and demand side is required for balanced growth.

13.2.2 INTERPRETATION OF THE THEORY

Rosenstien Rodan, Ragnar Nurkse and Arther Lewis are the chief exponents of the strategy of balanced growth.

Rosenstien Rodan's Explanation: Rosenstien Rodan's balanced growth strategy implies planned industrailisation. In his article " problems of industrailisation of eastern and south Eastern Europe" published in economic Journal 1943, a balance was suggested between many light goods or consumer goods industries. A single factory even it uses more efficient methods of production, would fail to set up on its own because of the limited extent of market. [He gives the example of single shoe factory]. If a number of factories producing different consumer goods are set up simultaneously, they create enough employment and extend the market by increasing the purchasing power. The multiplier process will expand all the industries. Complementarity of the industries will lead to a planned large scale industrailisation. Ragnar Nurkse has developed this very idea in his thesis later.

Nurkse Explanation: Nurkse pleads for synchronised application of capital to wide range of industries in order to break the vicious circles of poverty and to enlarge market. As put by Nurkse " vicious circles of poverty are at work in underdeveloped countries that pull back economic development. If they are broken economic development will take place.

Vicious circle of poverty is a circular phenomenon in which poverty leads to further poverty. It works both on demand side and supply side. On the supply side, low level of income and low productivity lead to the small capacity to save. On the demand side low inducement to invest due to low income leads to low purchasing power. To break the vicious circles Nurkse supports the balanced growth approach.

How to break the Vicious Circles? In the opinion of Nurkse the vicious circles can be broken by enlarging the size of the markets. Enlargement of markets is possible only when more or less synchronized application of investments are made in a wide range of different industries.

According to Nurkse " more or less synchronized application of capital to a wide range of different industries is the only way to come out of this critical position.....Every increase in production..... creates or rather constitutes its own demand .....Balanced growth is a good foundation for international trade as well as a way of filling the vacuum at the periphery".

Lewis Explanation: Lewis in 1955 was of the opinion that " the various sectors of the economy must grow in the right relationship to each other or they cannot grow at all" However he has changed his stance in 1966 by recognizing the necessity of imbalances in the initial stages of economic growth.

Lewis approach is associated with development programmes. He stresses on the simultaneous and harmonious growth of all sectors of the economy in order to maintain a balance between:
(i) Agriculture and industry
(ii) Material capital and human capital
(iii) Exports and imports.

Lewis version of balanced growth is not equal growth. It is the proportionate growth of different sectors of the economy dictated by their growth of demand. Bottleneeks and shortages will creep in if out puts are not matched with growing demand. To strike a balance between demand and supply a central planning authority should guide the growth of agriculture industry trade services consumption and production.

Lewis sums up his explanation in these words. In development programmes all sectors of the economy should grow simultaneously so as to keep a proper balance between industry and agriculture, and between production for some consumption and production for export ..... the logic of this proposition is as unassailable as its simplicity.

13.2.3 CONDITIONS FOR BALANCED GROWTH

It is very difficult to bring out a balance among different sectors in the initial stages of development due to paucity of resources. Yet the balanced growth can be achieved with much difficulty if the following requirements are fulfilled:

1.Large scale investment: Supply of capital in large quantity is a precondition for balanced growth. Simultaneous development of complementary indus-

tries depends on large-scale investments.

2.Resource Allocation: Balanced growth is easier if the factors of production are in plenty. Moreover, proper allocation of resources rather than availability in plenty, is an essential condition for essential growth.

3. State Intervention: State intervention is a must for balanced growth. State intervention is essential:
(i) To maintain law and order
(ii) To mobilise resources through taxes, borrowings and deficit financing
(iii) To induce domestic private investments through pump priming and compensatory spending.
(iv) To regulate the economy through monetary, fiscal and other policies and
(v) To obtain international cooperation through trade and foreign policies.

4. Central Planning: Balanced growth requires formulation and implementation of plans by a central authority. Planning is necessary:
(i) To fix financial and fiscal targets to different sectors and
(ii) To allocate the resources judiciously.

Without proper planning it is impossible to achieve and maintain consistency among various sectors of an economy. Besides, balanced growth also requires co-operation, co-ordination and proper understanding among various government departments and state agencies. Since these departments and agencies execute the plans, coordination among them is a must for realising the objectives of planning.

5.Public Cooperation: Success of balanced growth strategy depends on public co-operation or popular participation. Economic advancement and political stability depends on public co-operation. Japan has become one of the super powers after the Second World War due to public co-operation. It is needed to optimise the resource allocation and realise the objectives of the plans. In development economics public cooperation is considered a dynamic force that makes everything possible. As observed by W A Lewis, public cooperation "is both the lubricating oil for planning and the petrol of economic development a dynamic force that almost makes all things possible".

13.3 MERITS OF BALANCED GROWTH

Several arguments are put forth in support of the balanced growth strategy. These arguments uphold the significance or advantages of a bal-

anced approach for development. Following are the advantages of balanced growth.

(i) Balanced Regional Development: Balanced growth of all sectors of the economy leads to balanced regional development. Balanced growth strategy believes in indiscriminate resource allocation to all sectors and all regions. Balanced regional development is the outcome.

(ii) Extension of Market: The problem of market imperfections is a growth-retarding factor in underdeveloped countries. Balanced growth strategy solves the problem of market imperfections.Balanced growth approach accelerators the production, enhances the consumption and enlarges the markets. Increased competition increases the quality of products, creates employment opportunities and provides for the mobility of factors of production.

(iii) Division of Labour & Specialization: Extension of markets leads to a greater division of labour and specialization. Greater division of labour which leads to specialization, ultimately encourages exports based on comparative cost advantages. The success of the policies of export promotion and import substitution depends on simultaneous development of all sectors, which invariably requires a balanced growth strategy.

(iv) External economies: External economies are the benefits arising due to interdependence of industries. Balanced growth leads to the emergence of external economies. Simultaneous establishment of several industries provide scope for sharing the economies of transport, marketing, advertisement, information etc.

(v) Balance on the demand side: Balanced growth helps to establish balance on the demand side.Balance on demand side refers to attainment of sufficient profits to the newly started industries or projects. Balanced growth strategy emphasises the need to increase the income and demand through income effect. Then only the newly established industries can make enough profits.

(vi) Balance on Supply Side: Balanced growth approach recommends simultaneity of investment in all interdependent aspects of development programmes. Supply side balance is achieved through coordination between production of light consumption goods, heavy capital goods, socio-economic overhead capital, industry and agriculture. Balance on supply side ensures wide expanding demand through price and income elasticities.

(vii) Creation of Social Overhead Capital: Balanced growth creates social overhead capital like transport, credit, electricity, fiscal concessions etc. Social overhead capital refers to basic facilities.

(viii) Research & Development: Simultaneous development of industries increases the competition. Industries will resort to cost control and cost reduction measures. Severe competition forces them to undertake and innovations, researches and development programmes in order to reduce the costs and improve the quality. Efficient and optimum industries only survive while the inefficient ones exit from the market. Cost reduction reduces the price and promotes economic welfare by enhancing the purchasing power.

13.4 CRITICAL APPRAISAL [LIMITATIONS]

Balanced growth strategy is treated as a long-term ideal rather than a short run remedy. Economists like Hirschman, Singer, Kurihara, and others criticised it on the following grounds.

(i) Capital deficiency: Balanced growth requires huge investments in all sectors simultaneously. The capital poor countries cannot afford the luxury of balanced growth in the initial stages of development.

(ii) Wrong Assumptions: The balanced growth approach is based on the assumptions of complementarity of industries and wide extent of market. Infact, industries are usually competitive. Besides markets will not extend in the initial stages of development. Thus both these assumptions are wrong.

(iii) Rise in Costs: Costs of production rise when a number of industries are simultaneously established. Absence of sufficient capital equipment, skill, cheap power, finance and other raw materials increase the cost of production.

(iv) Cost reduction neglected: Nurkse's model of balanced growth neglects the cost reduction aspect completely. Kindleberger feels that Nurkse's model lays greater emphasis on new industries and ignores the cost reduction aspect of existing industries.

(v) Ignores the existing industries: Establishment of new industries decreases the demand for the products of existing industries. Hence the latter will become unprofitable units.

(vi) Not a pure theory: Hirschman questions the very nature of the doctrine

of balanced growth, which believes in the simultaneous establishment of new industries. He considers development a process of change from one type of economy to a new type. Such a transition is not included in balanced growth approach. So Hirschman concludes " This is not growth, it is not even the grafting of something new on to something old; it is a perfectly dualistic pattern of development".

(vii) Resource Shortage: Balanced growth is possible on countries endowed with abundance of resources. Actually majority of the countries suffer from the problem of resource shortage. The doctrine of balanced growth fails to solve the problem of shortage of resources.

(viii) Inflation: Balanced growth generates inflation. Simultaneous development of industries expands the capital investment and increases the circulation of money. Increased money supply increases the effective demand. But due to structural obstacles supply of goods lags behind. Hence inflation creeps in.

(ix) Neglects the role of Labour: The balanced growth approach highlights the role of capital and ignores the role of labour altogether.
Economic development is also possible if human resources are properly used, manpower planning is made and labour intensive techniques are judiciously employed.

(x) No Historical Proof: According to Paul Streeten, there is no historical proof to support the strategy of balanced growth. In his opinion scarcities and obstructions encourage growth.

(xi) Ignores Planning: In Nurksian concept of balanced growth economic planning has no place as he is concerned with private enterprise economy. In reality, planning, direction and coordination by government are essential features of balanced growth.

(xii) Role of Entrepreneur sidelined: According to Schumpeter economic development depends on entrepreneurial act or innovations. Balanced growth strategy does not highlight the role of entrepreneur in economic development.

13.5 RELEVANCE TO LESS DEVELOPED COUNTRES

Many development economists have expressed doubts about the relevance of the doctrine of balanced growth to LDC's. Their arguments are

based on following facts:

(1) Limited Capabilities: Balanced growth strategy is applicable to countries endowed with skills and resources. LDC's lack both. Dr Singer puts: " The advantages of multiple development may make interesting reading for economists, but they are gloomy news indeed for the underdeveloped countries. The initially resources for simultaneous developments on many factors are generally lacking".

(2) Factor Disproportionality: Some countries are endowed with labour and some with natural resources. But majority of them lack the skill and zeal needed for development. Disproportionality in factors is a great hindrance to the practical application of balanced growth strategy.

(3) Wrong Assumption: The balanced growth strategy assumes the existence of increasing returns. But in LDC's simultaneous investments in all sectors will lead to decreasing returns due to the appearance of bottlenecks of raw materials, prices, factor shortages etc.

(4) Problem of Resource Allocation: Shortage of resources in LDC's makes the problem of resource allocation very complicated. According to Singer, " Think Big is a sound advice to underdeveloped countries but Act Big is unwise counsel if it spurs them to do more than their resources permit"

(5) Static Environment: Balanced growth strategy is successful only in a dynamic economy, which welcomes changes. But in LDC's economic activities are static and the people resist changes. So it is not possible to apply the doctrine of balanced growth to LDC's. According to Paul Streiten scarcities and bottlenecks encourage unbalanced growth in LDC's.

Thus, the doctrine of balanced growth has little relevance to LDC's.

Check your progress: I

1. Explain the doctrine of balanced growth?
2. Critically analyse the merits & demerits of the Balanced growth?

13.6 UNBALANCED GROWTH

The unbalanced growth strategy is just the opposite of the balanced growth strategy. It was profounded by economists like Singer, Hirschman, Kindleberger, Streeten and Rostow. According to unbalanced growth strat-

egy, investment should be made in a few selected sectors [industries] and the economies accruing from them should be utilised for the development of other sectors [industries].

13.6.1 MEANING AND INTERPRETATIONS

The doctrine of unbalanced growth is interpreted in different ways by different economists.

(1) Hirschmen Profounded the doctrine in a systematic way. According to him, "development is a chain of disequilibria that must be kept alive rather than eliminate the disequilibrium of which profits and losses are the symptoms in a competitive economy. If economy is to be kept moving ahead, the task of development policy is to maintain tensions, disproportions and disequilibria".

Thus, according to Hirschmen, imbalances and tensions should be created in an economy to attain economic growth. By giving priority to leading sectors [i.e. capital goods sectors] in the matter of development and investment allocations imbalances and tensions may be created.

(2) According to W W Rostow unbalanced growth refers to the development of 'leading sectors. He has pinpointed on two conditions, which release the forces of stimulants in the economy: (i) Raising the rate of productive investment from 5% or less to 10% or more of the national income.(ii) Making productive investment for the development of leading sectors.

(3) H W Singer supports unbalanced growth by stressing on investments in overhead capital and removal of bottlenecks. According to him, unbalanced growth is a "better development strategy to concentrate available resources on types of investment, which help to make the economic system more elastic, more capable of expansion under the stimulus of expanded market and expanding demand"

(4) According to Alak Ghosh " Planning with unbalanced growth emphasises the fact, that during the planning period investment will grow at a higher rate than increase and increase at a higher rate than consumption".

Alak Ghosh's definition explains unbalanced growth in terms of:

(i) Growth rate of investment $\left[\frac{\triangle I}{I}\right]$

(ii) Growth rate of income $\left[\frac{\Delta Y}{Y}\right]$

(iii) Growth rate of consumption $\left[\frac{\Delta C}{C}\right]$

To Alak Ghosh,unbalanced growth implies:

$$\left[\frac{\Delta I}{I}\right] > \left[\frac{\Delta Y}{Y}\right] > \left[\frac{\Delta C}{C}\right]$$

These three growth rates are not equal. They are unbalanced.

(5) Meier and Baldwin: interpret unbalanced growth in a different manner. They have stressed the need for concentrating on certain focul areas by the planners to achieve rapid economic development. By 'focul areas' they meant the projects which create external economies and general demand for supplementary goods and services. Development of focul areas is essential for the gradual development of other areas of the economy.

13.6.2 EXPLANATION OF UNBALANCED GROWTH STRATEGY

A.O. Hirschman has popularised the strategy of unbalanced growth. In the opinion of Hirschman, the best way to achieve economic development is deliberately unbalancing the economy according to a predesigned strategy. In his view, " development has of course proceeded in this way, with growth being communicated from the leading sectors of the economy to the followers from one industry to another, from one firm to another"

Hirschman makes a distinction between (i) Convergent series of investments. (ii) Divergent series of investments convergent series of investments appropriate more economies than they create. Divergent series of investments create more economies than are appropriated.

The convergent series of investments are made by private individuals. The convergent series of investments are made in directly productive activities [DPA]. They are influenced by profit motive. The divergent series of investments are undertaken by public agencies. Divergent series of investments are made in social overhead capital [SOC]. They are influenced by social profitability. Thus, both the series of investments are influenced by

definite motives. Both are required for unbalancing the economy.

Unbalancing the Economy with SOC: Unbalancing the economy with divergent series of investments leads to the creation of social overhead capital [SOC]. SOC refers to " those basic services without which primary, secondary and tertiary productive activities cannot function". Such services include education, public health, transport, communications, power, etc.

Expansion of social overhead capital encourages the development of industries by cheapening inputs like electricity. The private investment in DPA will be encouraged when basic services are made cheap through investments in SOC. Thus to stimulate private investments in DPA, basic services should be expanded through investments in SOC. As observed by Hirschman " some SOC investment is required as a prerequisite of DPA investment". This sequence of investment from SOC to DPA is known as 'pressure relieving investments." It is also called ' development via excess capacity of SOC'.

Unbalancing the Economy with DPA: An imbalance can also be created in the economy by making investments first in DPA. Investments in DPA include investments in machines, plants and factors, which directly add to aggregate production. DPA include all the manufacturing and constructional activities.

Expansion of investments in DPA increases the demand for SOC. DPA industries may run in to difficulties due to shortage of SOC. As a result the cost of production and price level rise, which hamper the process of development by creating an atmosphere of uncertainties. So political pressure would be built up to increase SOC. Thus, during the course of development, pressures and tensions are bound to arise. Hence the sequence of investment from DPA to SOC is known as 'pressure creating investment'. It is also called ' development via shortage of SOC'

Paths to Development: which sequence should be followed first for economic development? Development via execess capacity of SOC or via shortage of SOC? Hirschman prefers that sequence which is vigorously self propelling. He analyses the sequence of investment in a more systematic manner with the help of a diagramme [fig13.1]

In Fig13.1 units of new investment in SOC are measured on OX axis. Units of new investment in DPA are measured on OY axis. The curves AA_1,BB_1,CC_1 are isoquants. They show various combinations of DPA and

SOC which will give the same gross national product at any point of time.Higher isoquant represents a higher gross national product. The isoquants are so

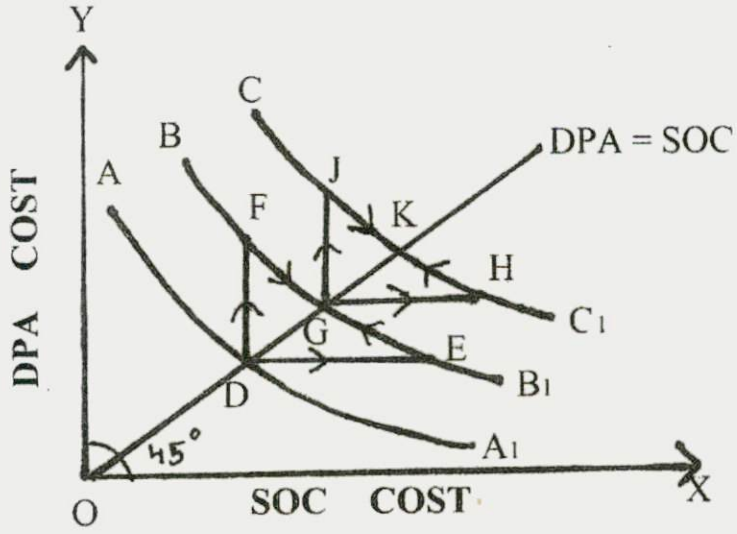

Fig13.1 Unbalanced Development Path

drawn that the 45 degrees line through the origin connects the optimal points on different curves. The 45 degrees line shows the balanced growth of DPA to SOC.

The less developed countries [LDC's] cannot expand SOC and DPA simultaneously. So Hirschman advises to adopt that sequence of expansion which maximises induced decision making. Since capital is scarce factor the LDC's have to choose between investments in SOC or in DPA. The former is called development via excess capacity. The latter is known as development via shortage of SOC.

(i) Development via Excess Capacity: If the economy follows the path of development via excess capacity of SOC, it will follow the line DE, GHK. When the economy increases SOC from D to E the induced DPA increases to F. The balance is restored to G where the whole economy is on a higher level of output. Thus achieved higher gross national product induces the government to increase SOC further to H. DPA increases to K via point J. Thus excess capacity of SOC leads to development.

(ii) Development via shortage: If the economy follows the path of development via shortage of SOC it moves along the line DF, GJK. When DPA is increased to F the SOC has to move to E and then to G. When DPA is further increased to J the SOC increases to K via H. Thus shortage of SOC also leads to development.

Among the two paths which is a better one? The development path via excess SOC capacity is continuous and smooth. It is a self-propelling path. The development path via shortage is disorderly and troublesome. According to Hirschman, " Development via SOC shortage is an instance of the disorderly, compulsive sequence while via excess capacity is essentially permissive" Definitely the development via excess is better than development via shortages.

13.6.3 FORWARD AND BACKWARD LINKAGES

'Linkage effect' is the concept used by Hirschman to find out the best kind of imbalance. He makes a mention of forward linkage effect and backward linkage from any investment.

Forward linkage refers to the effect of an investment in subsequent stages of production. Any investment, which encourages the investments in the subsequent stages, enjoys forward linkage effects. The investment in iron and steel industry induces investments in steel furniture industries, automobile industries etc. These industries use iron and steel as raw materails. This type of inducement is called forward linkage effect.

Backward linkage refers to the effect of an investment in the earlier stages of production. Any investment, which encourages the investments in the earlier stages of production, enjoys backward linkage effects. The investments in iron and steel encourages investments in coal industries, lubricant industries etc. Coal and lubricants are used as raw materials in steel manufacturing.

Those projects, which ensure maximum total linkage, are conclusive for unbalanced growth. To find out such projects empirical studies, involving input – output analysis or inter industry analysis are to be conducted. In LDC's the degree of interdependence of industries of very less. Besides socio-economic conditions also play a very important role in determining the linkage effects in these countries. In the opinion of Hirschman total linkage is higher in the middle of production process, than at the beginning and end of the operations.

Agriculture and mining industries are weak in forward and backward linkage effects. According to Hirschman " The industry with the highest combined linkage score is iron and steel. However, the industrial development clearly cannot be started every where with an iron and steel industry just because this industry maximises the linkages". Industrialisation in LDC's depends upon the prevailing socio economic conditions.

To overcome the problems existing in LDC's, Hirschman advocates

the setting up of ' last stage industries first' Last stage industries are the import enclave industries. They are different from export enclave industries. Import enclave industries produce for import substitution whereas export enclave industries produce for export promotion. The exports of LDC's fail to produce linkage effects within the economy. Hence Hirschman favours export promotion via import substitution.

Hirschman's unbalanced growth strategy may be summed up as follows:

(i) Economic development typically follows a path of uneven growth.
(ii) Balance is restored as a result of pressures, incentives and compulsions.
(iii) The efficient path towards economic development is apt to be somewhat disorderly.
(iv) The path of development is strewn with bottlenecks and shortages of skills, facilities, services and products.
(v) Industrial development will proceed largely through backward linkage.
(vi) Backward linkage will work from the 'last touches' to intermediate and basic industry.

13.7 MERITS OF UNBALANCED GROWTH

The advantages of the unbalanced growth are :

(1) Short run Strategy: Development is a long run process. But unbalanced growth is a short run development strategy. This approach is advantageous in LDC's as it makes the people to enjoy the returns on their labour and capital in short period.

(2) Less Capital: LDC's lack capital. Huge capital required for balanced growth cannot be easily mobilised in LDC's. Unbalanced growth requires less capital in short period. So LDC's treat it as a convinient strategy to adopt.

(3) Skill Formation: The strategy of unbalanced growth stresses on the investment in social overhead capital. Such investments create basic facilities like health, education, transport, communication, housing and sanitation etc.

These basic facilities promote skill formation and improve the manpower. Ultimately unbalanced growth increases the labour efficiency.

(4) Generates Surplus: Unbalanced growth helps to generate economic surplus. Unbalanced growth strategy stresses on the need of establishing capital good industries, which help to the establishment of subsidiary indus-

tries. The series of investments result in the operation of multiplier in forward direction. Expansion of income, out put and employment generate higher economic surplus. Economic surplus accelerates the speed of economic development.

(5) Creation of Economics: Unbalanced growth strategy generates both forward and backward linkage effects. Interdependence of industries helps in the horizontal transmission of external economies. Investment in capital goods industries widens the market through increased output and employment. Extension of market creates vertical transmission of external economies.

(6) Self-reliance: The LDC's strive hard to achieve self reliance in the shortest possible time. The development plans of the LDC's are designed to attain self-reliance. Expansion of the leading sectors and high rate of capital investment are the requirements to attain self reliance. Unbalanced growth strategy fulfills both these requirements and paves way for self reliance.

(7) Equal Importance: This strategy attempts to unbalance the economy with SOC and DPA. SOC symbolises the public investments where as DPA represents private investments. Thus the strategy recognises the importance of government and popular participation in economic development. Unbalanced growth approach gives equal importance to public and private investments.

(8) Applicability: It is a pragramatic approach, which finds applicability in LDC's. Unbalanced growth strategy emphasises on the need for establishing industries generating maximum total linkages. Hirschman strongly recommended for the establishment of iron and steel industry as it generates maximum total linkages. This argument found favour in LDC's including India. India has adopted the policy of industrialization in the second five-year plan owing to Hirschman's reasoning.

13.8 CRITICAL APPRAISALS

The unbalanced growth strategy is criticised for following limitations.

(1) Neglects the Degree of Imbalance: This strategy has not given sufficient attention to composition, direction and timing of unbalanced growth. Since it has not explained the degree of imbalance among various sectors Paul Streen has raised an objection. According to him, "The crucial question is not whether to create imbalance, but what is the optimum degree of imbalance, where to imbalance and how much in order to accelerate growth; which are the growing points; where should the spherehead be thrust, on which

slops snowballs grow into avalanches".

(2) Sidelines the Resistances: Unbalanced growth strategy stresses on the need for establishment of capital good industries for achieving the goals of development. When development is attempted through unbalancing the economy affected parties resist. Hirschman neither analyses the resistances nor suggests the way out. As pointed out by Streeten " the theory concentrates on stimuli to expansion and tends to neglect or minimize resistances caused by unbalanced growth.

(3) Lack of Inducement: Unbalanced growth creates pressures and tensions in the economy. To overcome such imbalances a strong inducement mechanism is required. Such a mechanism is lacking in LDC's.

(4) Lack of Basic Facilities: The success of unbalanced growth strategy depends on the availability of basic facilities like raw materials, power, expertise, transport, communication, marketing etc. It is very difficult to get such facilities in the initial stages of development. Lack of basic facilities is responsible for the failure of India's second five-year plan.

(5) Immobility of Factors: Mobility of resources makes inducement mechanism operative. But in LDC's factors lack mobility. It is very difficult to transfer resources from one sector to another.

(6) Disadvantages of Localisation: Heavy industries concentrate at a place where external economies are available. Localisation is responsible for creation of slums, over crowding, health problems and pollution. Localisation of industries is very dangerous.

(7) Generates Inflation: Unbalanced growth may generate inflationary pressure. If only capital goods industries are established at the cost of consumer goods industries, shortage of consumption goods will generate inflation. In LDC's the fiscal and monetary measures are not powerful enough to control inflation.

(8) Lacks Empirical Evidence: Hirschman has emphasized on the establishment of such industries, which generate maximum linkage effects. His analysis of linkage effects is not supported by empirical evidences. Besides it is not possible to collect data on linkage effects in LDC's.

(9) Over Emphasis: Hirschman over emphasises on investment decisions, in his analysis. Infact decision making is very crucial for economic development. LDC's have to make several administrative, managerial and policy decisions along with investment decisions. Hirschman neglects other

decisions and overemphasises only the investment decisions.

(10) Suits to Totalitarian Countries: Unbalanced growth strategy is considered unsuitable to democratic countries like India. Unbalanced growth strategy is successful in countries, which can lower the consumption levels in the initial stages. Such experiments can be made only in totalitarian countries. The consumption levels cannot be kept abnormally low in democratic countries like India where a large percentage of population lives below the poverty line.

Despite these limitations unbalanced growth strategy has some appeal because of its ability to come closer to economic realism. The communist models of planned development do come nearer to unbalanced growth strategy. The Mahalanobis model has some element of imbalance because of its accent on heavy industry investment. Unbalanced growth strategy suits better to the LDC's, if effective measures are introduced to eliminate the problems associated with it.

13.9 BALANCED VERSUS UNBALANCED GROWTH

Let us have a comparative study of balanced growth and unbalanced growth strategies. We can observe three similiarities between them.

(1) Both the strategies believe in the existence of a private enterprise system based on market mechanism under which they operate. At the same time, both the strategies imply the operation of state planning.

(2) Balanced growth strategy as well as the unbalanced growth strategy ignore the role of supply limitations and supply in elasticities.

(3) Both the strategies assume interdependence of different degrees. Balanced growth strategy believes fully in the interdependence of the sectors and hence pleads for simultaneous investments. Unbalanced growth strategy believes in linkage effects. Thus both the strategies involve interdependence of different degrees.

However one can note following differences between these two strategies:

(1) Balanced growth strategy emphasises on the simultaneous developments of all the sectors of an economy. Unbalanced growth strategy aims at the development of only leading sectors of the economy.

(2) Balanced growth strategy aims at harmony, consistency and balance in the growth rates of different sectors of the economy. Unbalanced growth strategy suggests the creation of disharmony, inconsistency and imbalance in the growth rates of different sectors of the economy.

(3) Balanced growth requires huge capital investments. Unbalanced growth requires comparatively less capital investments.

(4) Balanced growth is a long run economic phenomenon. It is impossible to achieve balanced growth in the short period. Unbalanced growth is a short run economic phenomenon. Development of leading sectors is possible even in the short period.

(5) Balanced growth suggests the policy of frontal attack to minimise or eliminate the widespread bottlenecks. Unbalanced growth assumes that bottlenecks are not widely spread in the economy. So it is not suggesting any frontal attack to eliminate the bottlenecks.

(6) Balanced growth strategy assumes that the supply of factors of production is highly elastic. Such a condition is essential for simultaneous investment in all sectors. Unbalanced growth strategy assumes that the supply of factors of production is inelastic in some sectors and elastic in others. So it suggests investments in sectors with elastic supply conditions.

(7) Balanced growth doctrine assumes that all sectors generate external economics. Unbalanced growth doctrine assumes that some sectors generate larger external economies than the other.

(8) Balanced growth advocates the use of labour intensive techniques, greater employment generation and promoting social productivity. Unbalanced growth advocates the use of capital intensive techniques and higher profitability through economic productivity.

(9) Balanced growth aims at attack on poverty through social support. It gives top priority to the development of agriculture and industry. Unbalanced growth aims at the development through self-financing technique. It gives priority to such industries, which yield reinvestible funds.

(10) Balanced growth process is sponsored by a planning machinery. Unbalanced growth process is dictated by the market mechanism.

13.10 LET US SUM UP

According to Lewis, balanced growth means simultaneous development of all the sectors of an economy. Rosenstein Rodan interprets it as planned industrailisation. Nurkse says that this strategy implies the breaking of vicious circles and extending markets by synchronised application of capital to a wide range of industries. It implies balance between agriculture, industry, consumer and capital goods, domestic and foreign sectors etc. The sucess of balanced growh strategy depends on large scale growth strategy depends on large scale investment, proper allocation, state intervention, central planning etc. Balanced growth increases employment opprtunities, income, purchasing power and demand. Similarly, it increases the supply of

capital goods. Consumption goods, social overhead capital, internal economies and encourage innovations and also reduces costs. Inspite of these merits it is not relevant in the case of LDCs due to lack of skill, resources, capital.etc. It creates inflationary pressure, neglects the role of labour, planning etc.

Unbalanced growth: means development of a few selected sectors. Hirschman says that it refers to debt acheived through the creation of disequilibrium in the economy. According to Hirschman, two types of investments viz convergent series investment made by private individuals leads to direct productive activities. Divergent series of investments made by the government creates social over head capital(SOC). Excess capacity of SOC leads to development. Unbalanced development also creates forward linkage effect i.e. investment at earlier stages of development. Unbalanced strategy is a short run strategy and requires less capital and relevant in LDCs. But it generates inflationary pressure and also neglects the degree of imbalance. It finds applicability in LDC's.

13.11 KEY WORDS

- Backward Linkage Effects: Effects of an investment at the earlier stages of production.
- Balanced Growth: Simultaneous growth of different sectors of an economy.
- Capital goods: Goods which are made for the purposes of producing consumers and producers goods [eg. Machinery]
- Compensatory spending: Expenditure done by the government, of compensatory nature.
- Consumer goods: Finished goods, which are ready for consumption.
- Convergent series of investment: Investments, which appropriate more economics than they create.
- Directly Productive Activities [DPA]: Activities, which directly add to the aggregate production. [e.g. All manufacturing activities].
- Divergent series of investment: Investments, which create more economics than are appropriated.
- Economic planning: Coordination of the productive activities, especially production and distribution.
- External Economies: Benefits arising due to concentration of industries or benefits arising due to external factors.
- Forward Linkage Effects: Effects of an investment at the subse-

quent stages of production.

- Intermediary goods: The goods, which find usage at some point in the production process before becoming finished products.
- Internal Economies: Benefits arising due to internal factors.
- Linkage effects: Effects of investment at earlier and subsequent stages of production.
- Localisation of Industries: Concentration of industries in definite regions.
- Pump Priming: Government spending on public works to increase aggregate demand and stimulate economic activity.
- Resource Allocation: The allocation of scarce factors of production amongst alternative and complete uses.
- Social Overhead Capital: Investment on basic services such as education, health and sanitation, transport, communication, power etc.
- Unbalanced Growth: A development strategy, which suggests investments only in leading sectors.
- Vicious Circle of Poverty: A cyclical phenomenon in which poverty leads to more poverty.

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Check your progress: II

1. Critically examine the strategy of unbalanced growth?
2. What are the advantages and limitations of unbalanced growth approach?
3. What are the linkage effects? How do they fit into unbalanced growth strategy?
4. What is balanced growth? How is it different from unbalanced growth?
5. Write short notes on:
   a) Balanced Vs Unbalanced growth.
   b) Limitations of Balanced growth.

NOTES

Unit-14 LEIBENSTEIN'S - CRITICAL MINIMUM EFFORT

Structure

14.0 OBJECTIVES

Important objectives of the study of this unit are:

- To understand the interrelationship between growth stimulating and growth retarding factors.
- To know the determinants which make the critical minimum effort essential.
- To understand the conditions essential for sustained growth.
- To know the relationship between minimum effort and motivation.
- To understand the difficulties and limitations of critical minimum effort.

14.1 INTRODUCTION:

Dr.Harvey Leibenstien has developed the critical minimum effort theory for his Ph.d thesis. The essence of the thesis is that if the development efforts are of the size less than the 'critical minimum size' they will not generate the momentum required for growth in LDC's. In these countries crucial variables like savings, population investment, employment etc. change; but the per capita real income remains almost at the same real subsistence level. To come out of the vicious circle of poverty by rising the per capita income, Leibenstein suggests a critical minimum effort. According to Leibenstein, " In order to achieve the transition from the state of backwardness to the more developed state, where we can expect steady secular growth, it is necessary, though not always a sufficient condition, that at the same point or during same period, the economy should receive a stimulus to growth, that is greater than the minimum size".

The LDC's can successfully put themselves on the path of self accelerating development, if the initial dose of investment is sufficiently large. 'Critical minimum effort' refers to that size of investment, which is indispensable for breaking the vicious circle of stagnation. Utter neglect of standard of living, extreme poverty and low per capita income create an atmosphere of inertia among the people in LDC's. Leibenstien calls for a minimum effort to overcome the inertia and to achieve steady secular growth. Leibenstien's critical minimum effort [CME] doctrine is nothing but the further elaboration of the ideas contained in Rosenstien Rodan's big push theory. CME doctrine is in certain respects resembles Nelson's low equilibrium trap.

14.2 EXPLANATION OF CME THESIS

Harvey Leibenstien holds that there is direct relationship between the growth rate of per capita income and that of the population. He argues that the population growth tends to do away with any small increase in the per capita income that may occur. A critical minimum effort will increase the per capita income and release the economy from the bonds of population upsurge. Then the economy will be well set on the path of self-sustained growth.

14.2.1 LEIBENSTIEN'S PROPOSITIONS

Leibenstien rests his CME thesis on the following two basic propositions:
(i) LDC's are poor because they have low capacity to save and invest.
(ii) Population upsurge is the main obstacle to the economic growth of LDC's.

While illustrating CME thesis, Leibenstien recognises the functional relationship existing between per capita income and population growth rate in the following three stages:

(i) In the first stage both the birth and death rates are very high but the per capita income is very low. Every addition to the family is treated as a source of income.
(ii) In the second stage per capita income increases mortality rate decreases but birth rate increases. Now every addition to the family is treated as burden.
(iii) In the third stage per capita income further increases.
Increased awareness decreases both the birth and death rates.

According to Leibenstien the LDC's are characterised by the first two stages. Population growth rate is limited to 3% to 4% by biological factors. Yet growth rate above 2% is alarming. Population growth is a function of the level of per capita income. Critical minimum effort is needed to increase the per capita income and decrease the population growth rate in LDC's

Rationale [Need]: Leibenstien upholds his doctrine for four reasons:
(i) In LDc's indivisibilities in the factors of production generate internal diseconomies. To overcome them a critical minimum effort is needed.

(ii) External interdependence generates the external diseconomies. A critical minimum effort is needed to overcome them.

(iii) Growth process declines the mortality rate. But the fertility rate cannot be decreased so easily. To check the population growth and increase the per capita income a critical minimum effort is required.
(iv) The LDC's suffer from cultural and economic inertia. A critical minimum effort is needed to generate sufficient momentum in the system and make the growth process self sustained.

14.2.2 LEIBENSTIEN'S HYPOTHESIS

The hypothesis is a theoritically obtained proposition, which can be tested. Leibenstien's CME doctrine is based on the following four hypothesis:

(i) A backward economy is an equilibrium system whose equilibrium possess a degree of quasi stability with respect to per capita income.

(ii) If the equilibrium of a backward economy is disturbed, forces or influences that tend to raise per capita incomes set in motion, directly or indirectly, forces that have the effect of depressing per capita income.

(iii) 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 income raising forces.

(iv) During any period, there is some absolute maximum to the effects of the income depressing forces, but the absolute minimum (if there is one) of the effects of the per capita income creating forces is greater than that.

The LDC's are the quasi-stable systems permit for an increase in per capita income but return to the initial equilibrium level eventually. The growth agents, which are also known as income raising forces create the incentives necessary for economic development. Growth inhibiting forces, which are called income-depressing forces, create the shocks, which result in the return of the economy to the initial equilibrium level. The quasi stable system involves latent dynamism necessary for development. A critical minimum effort converts the quasi-stable system into dynamic one by providing the necessary impetus.

14.2.3 GROWTH AGENTS [STIMULANTS AND SHOCKS]

According to Leibenstien in an economy the growth agents like entrepreneurs, investors, savers and innovators create the favourable economic conditions for development. Growth agents are also known as the per capita income rising forces, who provide the necessary stimulant or incentive to growth. They create the entrepreneurship, increases the stock of knowl-

edge, expand the productive skills of the people and crease the savings and investment rates. Leibenstien defines growth agents as " those individuals who have the capacities to carry out growth-contributing activities." They create a development atmosphere by expanding the income increasing forces at a higher rate than the income depressing forces.

Income Increasing Incentives or Stimulants:

Sustained growth requires stimulants of sufficient magnitude. Such stimulants are called incentives or income increasing or growth promoting agents [factors]. According to Leibenstien, " whether or not the growth agents expand will depend on the anticipated outcome of such activities, the actual result and on the incentives for further expansion or contraction generated by the interaction of the anticipation, the activities and the results."

Leibenstien makes a distinction between two types of incentives zero sum and positive sum.

Zero sum incentives: The stimulants, which do not raise income but have only a distributive effort, are zero sum incentives. They include:

(i) Non-trading activities, for securing a greater monopolistic power and social prestige;

(ii) Trading activities, leading to a greater monopolistic position that do not add to the aggregate resources;

(iii) Speculative activities which do not utilize savings but do waste scarce entrepreneurial resources; and

(iv) Activities that do not use up net savings, or the investments of zero social value or their social value may be much lower than their private value.

Positive sum incentives: The stimulants that lead to the expansion of national income are positive sum incentives. They include:

(i) Productive investments
(ii) Use of technical know-how
(iii) Exploration and exploitation of new markets.
(iv) Use of inventions and innovations.

Zero sum activities are not real income creating activities but positive seen activities are very essential for economic development. In stagnant LDC's the scope of positive sum activities in promoting development is very limited. The positive sum activities may be directed towards zero sum activities, in the absence of net growth in the economy. Hence is the necessity of a critical minimum effort to create a congenial atmosphere for the persistence of posi-

tive sum activities.

Income Depressing Influence or Shocks:

According to Leibenstien several growth inhibiting factors act as stumbling blocks in LDC's. They are also called shocks or influences or growth retarding or income depressing factors. The influences averse to change are the following:

(i) The dominance of zero sum entrepreneurial activities.
(ii) Conservativeness of attitudes towards change.
(iii) Aversion to the adoption of new ideas and knowledge.
(iv) Wastage of scarce resources in conspicuous consumption.
(v) Growth of population and labour force in an undesirable rate.
(vi) High capital output ratio.

All these influences together with internal and external diseconomies keep the LDC's shackled in a vicious circle. Therefore, the LDC's have to resort to a big endeavour of a 'critical minimum size' on order to overcome these depressant forces.

Objectives of CME: The necessary condition for a sustained growth is going to be created when income-increasing forces outweigh income-depressing forces. To sustain a rapid rate of economic growth a sufficiently large critical minimum effort is required. Such an effort should stimulate the positive sum stimulants and create forces for counteracting zero sum activities. Besides the critical minimum effort will increase the per capita income, the level of savings and the rate of investment.

All these lead to:

(i) An expansion of growth promoting agents.
(ii) A decrease in the capital output ratio, which increases the contribution of growth agents to per unit of capital.
(iii) A decrease in the effectiveness of growth retarding factors.
(iv) Impetus to factors permitting social and economic mobility.
(v) Promotion of the division of labour with the expansion of secondary and tertiary sectors.
(vi) Creation of an atmosphere conducive to economic and social improvement that eventually leads to a reduction in fertility rates.

The application of a 'critical minimum effort' in the form of big doses of investment helps the LDC's to jump over its low equilibrium trap. If the impact of shocks is stronger than the stimulants, the country is said to be underdeveloped. A critical minimum effort makes stimulants stronger than the shocks. Thus, Leibenstien's thesis offers a way to break the vicious

circle and shows the path of steady growth.

14.3 GRAPHICAL REPRESENTATION:

Leibenstien's theory may be explained diagrammatically also. Fig. 14.1 shows the critical level to which per capita income should be raised in order to generate the stimulants necessary for growth.

In Fig. 14.1 the 45 degrees line measures induced increases and decreases in per capita income. OX scale shows the stimulants and OY scale represents the shocks. The curve At represents all the per capita income raising forces. The curve Bt represents the per capita income depressing forces. At original equilibrium point E both the forces are in balance.

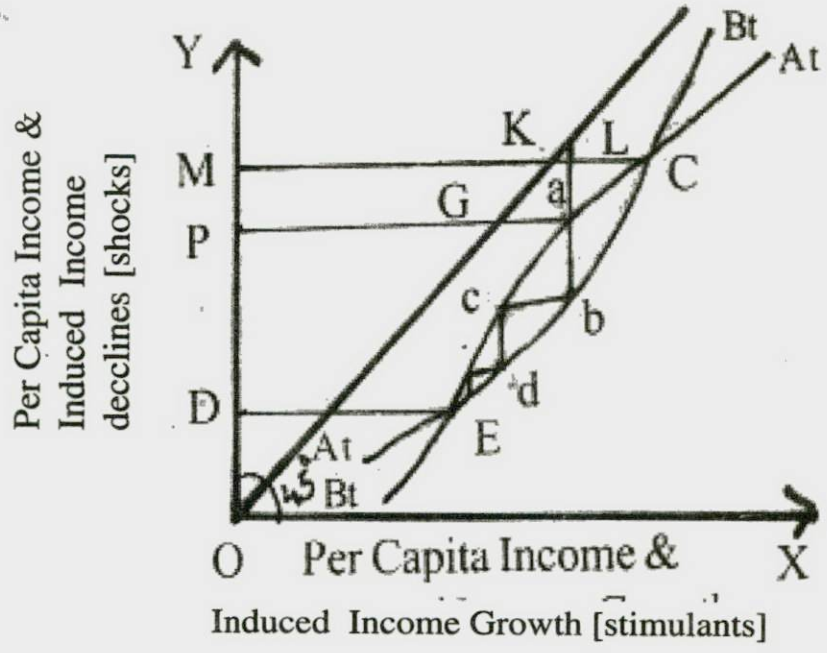

Fig 14.1 Motivation and CME

OP is the level of income in the initial period due to some investment. In the next period, the stimulants will raise the income level by Ga. But the shocks will reduce the income by Lb. Now the multiplier will operate in the backward direction as the decrease in income is greater than the increase [Lb > Ga]. The initial income level OP will generate the path abcd [indicated by arrows] until it eventually settles at E.

The income level is to be raised to reverse the downward trend. If the income level is higher than OM per capita income would increase by

KC. Then an explosive income path will be generated as shown by the arrows starting from point C. Point C is the critical level to which income must be raised in order to outweigh the effects of shocks. Investment higher than OJ level will generate stimulants of sufficient magnitude to break the vicious circle. So C is the point of critical minimum effort.

Raising the per capita income to OM level and beyond point C is the critical minimum effort case. According to Leibenstien, critical minimum effort is " a minimum minimorum of all possible efforts that would lead to sustained income growth involving an optimum time pattern of expenditure or effort."

14.4 INVESTMENT PHASING & CME

Critical minimum effort is very essential for achieving a sustained economic development. Critical minimum effort refers to the quantum of initial investment required to overcome the shocks or income depressing forces. According to Leibenstien it is not necessary to make critical minimum effort in a single stroke. If it is broken up into a series of optimally timed smaller efforts, it would be more effective. Splitting up the CME into smaller effort is known as investment phasing.

In fig 14.2 horizontal axis OX shows time and vertical axis OY shows per capita income. OE is the equilibrium per capita income and OM is the critical per capita income. EE represents low per capita income level.

MM represents critical per capita income level. Area I and II are the gaps between low and critical per capita income levels. The area III above MM is of self sustained growth.

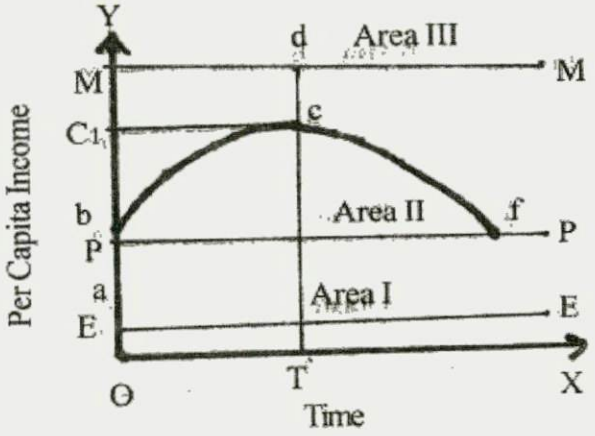

Fig 14.2 Investment Phasing

Suppose the level of per capita income is Oa. It is so low to generate

stimulants overweighing the shocks. If Ob is the income level the growth curve will follow the path of bcf. Ob level of investment also fails to generate growth momentum as indicated by the decline of growth curve after point C. Sustained growth will occur if the injected investment is capable of raising the per capita income to OM.

In this instance, the total effort is broken up into a series of smaller efforts. The initial injections of investment would raise the per capita income to Ob level. The second injection of investment at time T would raise per capita income by cd. It enables the growth path to reach the critical minimum level MM. While untimely investment reduces the per capita income, timely investment takes the economy to the critical minimum level of income required for self sustained growth.

14.5 MOTIVATION THEORY & CME

Leibenstien's critical minimum effort doctrine is based on the motivation theory of population. His motivation theory explains the functional relationship between population growth [Pg] and per capita income [Yc] Symbolically Pg = f [Yc]. Population growth is an increasing function of per capita income up to a certain level of income. Afterwards, due to high cost of rearing large families, population growth would become a decreasing function of per capita income.

The relationship between population growth and per capita income, as visualised by Leibenstien's motivation theory is illustrated in Fig 14.3..

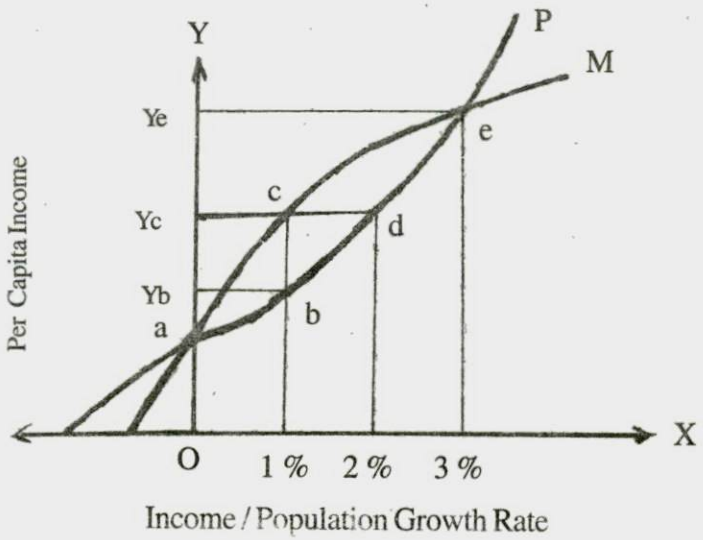

Fig.14.3 Motivation and CME

OX horizontal scale shows income or population growth. The per capita ncome is shown on OY vertical scale. Curve P indicates population growth and M indicates the level of per capita income. Point 'a' represents the subsistence equilibrium point where population growth and income growth is zero.

At Yb level of per capita income both population and income growth rate are equal, i.e. 1%. At Yc level of per capita income population growth rate is 2 % whereas national income growth rate is 1 %. This disequilibrium state cannot sustain growth. At Ye level national income raises more than the rate of population growth is 3%. It is the biologically determined growth rate of population assumed by Leibenstien. Thus Ye is the critical minimum per capita income level to generate the process of sustained economic development.

Leibenstien makes several projections based on different assumptions. One of them appears to be relevant to LDC's. It can be summarised in three points:

(i) The required rate of investment for the first five-year period is 13.2% with annual growth rate of population is 2.03% and capital out put ratio 3:1. The required annual national income growth during this period is 4.4%.

(ii) In the 25^{th} – 30^{th} years, the population growth rate is maximum, 2.42% which requires an investment of 14.5%. The required annual national income growth rate during this period is 4.84%.

(iii) In the 50^{th} –55^{th} years population growth rate is 1.49% and the requiring investment rate is 13.08%. The annual rate of national income growth required during this period is 4.36%.

These projections are summarised in the table 14.1

Years	Population Growth rate	Required Investment rate	Required National income growth rate annually
1-5	2.03%	13.20%	4.40%
25-30	2.42%	14.50%	4.84%
50-55	1.49%	13.08%	4.36%

Check your progress: I

1.Explain the critical minimum effort theory?

2. Explain the role of growth agents in CME?

14.6 IMPORTANCE OF CME DOCTRINE:

CME thesis enjoys certain advantages as it finds applicability. Following are the usefulness of CME thesis.

(i) Balanced Growth: Development depends upon the balanced growth of different sectors of an economy. A critical minimum effort creates a conducive atmosphere for balanced growth.

(ii) Generates Internal Economies: In LDC's the internal diseconomies create several problems. A critical minimum effort eradicates the internal diseconomies and generates more internal economies congenial for sustained growth.

(iii) Eradicates External Diseconomies: External diseconomies act as obstacles of growth in the LDC's. A critical minimum effort is necessary to solve the problems created by external diseconomies.

(iv) Promotes Growth Stimulants: In the LDC's growth retarding factors or the shocks play havoc. They are the income depressing factors which add to the inertia of the people. A critical minimum effort creates the necessary incentives or stimulants required by sustained growth by strengthening the growth promoting agents.

(v) Optimization: The main objective of the critical minimum effort is achieving self-sustained growth. Optimization of the use of scarce resources is one of the prerequisites of self-sustained growth. A critical minimum effort optimises the use of factors of production.

(vi) Self sustained Development: CME is very much required to attain self-sustained development. CME eradicates the inertia created by the growth retarding factors or shocks by generating strong stimulants. Development is possible only when the stimulants outweigh the shocks.

(vii) Self-reliance: The CME helps to attain self-reliance. Excess external dependence is a common characteristics of the LDC's. To attain self-reliance the positive sum activities should be increased. Positive sum activities increase employment, income, domestic production, savings and investment. The CME increases the positive sum activities in the LDC's.

14.7 SHORT COMINGS OF THE CME THESIS:

Leibenstien's CME thesis is subject to criticisms on the following grounds:

According to Leibenstein an increase in the income above the subsistence level increases the population. He also assumes that the population declines beyond a particular level of income. His assumption is invalid in

LDC's. The growth of population in these countries is influenced much by attitudes, customs and traditions. Such a simple relationship as visualised by Leibenstien does not exist between population and per capita income in LDC's.

Myint criticises Leibenstien's thesis for ignoring the complixity existing in the relationship between per capita income and income growth rate. Myint illustrates this complex relationship in two stages. (a) The level of per capita income influences the rate of saving and investment. The saving and investment rate depends on the pattern of income distribution and the effectiveness of financial institutions in mobilizing savings. (b) The relation between investment and resultant output depends on the ability of entrepreneurs in overcoming the tendency of diminishing returns on additional investment. Therefore, the functional relationship between per-capita income and income growth rate is not so simple as assumed by Leibenstien.

Leibenstien ignores the role of state in bringing down the birth rate. In his opinion the population growth declines when the per capita income rises above the critical minimum level. Practically, no government can afford to wait for the per capita income to rise above the critical minimum level so that the birth rate may decline automatically. Role of state is very essential to tackle the population problem in LDC's.

Leibenstien assumes that the biologically determined maximum growth rate of population is 3%. According to him, the process of endless expansion starts when the growth rate of national income exceeds this population barrier. But in reality there is no guarantee for endless expansion when national is higher than 3 %. eg:- India has not yet attained sustained growth the national income which is higher than 3 % of GDP. According to Hla Myint " It is not difficult to find examples of abortive take off in which a country may for a time succeed in raising its savings and investment ratio above 10% to 12% and raising the rate of growth of its total income above 3% level, but subsequently relapse into a slower rate of growth and stagnation".

The CME thesis fails to take into account the time elements, which is required for a sustained growth. Myint asks: " How long must a country sustain its rate of growth above 3% level before it can be sure of breaking through the population barrier? "Leibenstien fails to make any distinction between the short run economic activities of the developed countries and long run economies activities of LDC's.

The CME doctrine fails to recognise the role of external forces in the

economic development of LDC's. External forces like foreign capital, foreign trade, lateral and multilateral agreements etc play a key role in the development of the LDC's. Therefore Leibenstien's thesis is applicable to closed economies rather than to open economies.

Specific Problems of LDC's: A critical minimum effort requires investment in huge amount and a zeal for development. Both are lacking in the LDC's. Lack of entrepreneurship, limited investment opportunities, deficiency of capital, lack of technical know-how and skill, social backwardness, mental stagnation and economic inertia are the growth inhibiting factors dominating the LDC's. It is very difficult to overcome these problems and sow the seeds of stimulants.

14.6 LET US SUM UP:

According to Leibenstein's critical minimum theory, to break the vicious circles of LDCs and to sustain rapid rate of growth, sufficiently large critical minimum effort is required. According to him growth agents viz, entrepreneurs, investors and innovators provide stimulants (i.e. positive incentives which increase income). The investment should make the stimulants strong enough to out weigh the shocks i.e. zero-sum incentives which do not increase the income.

Critical minimum doctrine aims at reducing population, increasing the effectiveness of growth promoting agents (stimulants) and decreasing the effectiveness of growth retarding factors. To attain these objectives Leibenstein calls for minimum effort. This doctrine allows for phased investment or a series of smaller efforts which suit to the conditions of LDCs, but it over simplifies the relation between per capita and population, ignores time element, role of state in tackling population problems and external forces and specific problems existing in LDCs which make the doctrine impracticable .

14.7 KEY WORDS

- Capital out put Ratio: A measure of how much additional capital is required to produce one unit of extra out put.
- Conspicuous consumption: Any consumption aimed towards increasing the social prestige.
- Critical Minimum effort: The term used by Leibenstien to de-

note that the level of investment necessary for breaking the vicious circle of poverty.

- Cultural inertia: The lethargy existing in the cultural life.
- Economic inertia: Lack of motivation in economic front.
- External diseconomies: Decreasing returns caused by external factors.
- Functional relationship: The cause and effect relationship existing between variables.
- Hypothesis: A theoritical proposition, which can be empirically tested.
- Internal diseconomies: Decreasing returns caused by internal factors.
- Investment phasing: Stage wise injection of the investment or breaking the total effort into smaller efforts.
- Low equilibrium trap: A term used by Nelson to describe the fate of LDC's caught in the vicious circle of poverty.
- Motivation theory: A theory advocated by Leibenstien, which illustrates how the per capita income motivates the population growth.
- Optimisation: Obtaining the best possible outcome in a given set of circumstances.
- Positive sum incentives: The economic activities, which lead to the expansion of national income.
- Secular growth: Long run slow growth of an economy.
- Shocks: A term used by Leibenstien to donate income-depressing factors.
- Stimulants: A term used by Leibenstien to denote income-raising forces.
- Zero sum incentives: The stimulants, which do not raise income but have only a distributive effort.

14.8 REFERENCE BOOKS

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- Dewett, Varma & Wadhavan –
  Economics of Growth and Development.
- Harvey Leibenstien – Economic Backwardness and Economic

Growth.
- Hla Myint – The Economics of Developing Countries.
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- Srivatsava O.S – Economics of Growth, Development & Planning.
- Taneja & Myer – Economics of Development and Planning.

Check your progress:II

1. Explain the merits & demerits of critical minimum effort

2. Write Short Notes On:
   a) Stimulants and Shocks
   b) Growth promoting and retarding agents.
   c) Zero sum and positive sum incentives.
   d) Role of incentives in development
   e) Motivation theory and CME

NOTES

Unit –15 ROSENSTEIN RODAN'S BIG PUSH THEORY:

Structure

Unit –15 ROSENSTEIN RODAN'S BIG PUSH THEORY:

15.0 OBJECTIVES

Important objectives of the study of this unit are:

- To illustrate the need for a big push in LDC's
- To examine the external economies or indivisibilities in the context of the development of LDC's
- To analyse the implications of the big push theory and
- To find out the limitations or loopholes of the big push theory

15.1 INTRODUCTION

The big push theory was first put forward by Prof.P.N.Rosenstein Rodan. According to him the LDC's are in the grip of gravitational pull of stagnation and backwardness. The growth process is a series of discontinuous jumps and the growth activities are full of lumps and discontinuities. The policy of big push is needed to solve these problems as any piece meal effort fails to ignite the spark of development. A big push is required to undo the initial inertia of the stagnant economy and to take to the heights of sustained development. Big push refers to a sudden jerk or big thrust, which overcomes the various discontinuities and diseconomies. As stated by Benjamin Higgins, " leaving on a stalled car with gradually increasing weight will not get it started, for example; it needs, a big push."

As approved by Rodan " launching a country into self sustaining growth is a little like getting an aeroplane off the ground. There is a critical ground speed which must be passed before the craft can become airborne." Rodan approvingly quotes this from a MIT study. The critical ground speed required for sustained developed is termed as a big push by Rodan. It is similar to the Rostow's stage of preconditions for take off.

The big push theory belongs both to the category of balanced growth and unbalanced growth. It is balanced growth variant because it talks about:
(i) The vicious trap of stagnation.
(ii) Overcoming indivisibilities and establishing complementarities among the industries and
(iii) Massive investment in socio-economic infrastructure or external economies. Hence it is said that 'the balanced growth plus indivisibilities means a big push.

It also belongs to the unbalanced growth because it is silent about the balance between:

(i) Agriculture on the one hand and industrial and tertiary sector on the other.

(ii) Between backward and developed regions, sectors or groups of people.

Big push remains concentrated only in some parts of the economy.

For all these reasons big push theory is put in a different category of all or nothing approach. However, most of the economists treat Big Push Theory as a theory belonging to balanced growth category.

15.2 EXPLANATION OF THE THEORY:

Rosenstien Rodan's big push theory stresses on a big thrust needed to overcome the indivisibilities. In the LDC's sufficient initial momentum can be created only by a big push. It provides the jerk required to pull the LDC's out of the vicious grip of stagnation and backwardness. Thus 'big push' refers to the initial jerk or massive attempt required to overcome the inertia and attain self-sustained growth.

15.2.1 RATIONALE FOR THE BIG PUSH:

The basic rational of Rosenstien Rodan's approach is based upon the idea of 'external economies'. According to Rodan " the explanation of the theory of big push turns essentially on external economies, discontinuities, indivisibilities, complementarities, imperfections and asymmetries".

Rosenstien Rodan explains the emergence and transmission of external economies by considering two industries A and B. Industry A derives certain internal economies in the process of expansion aimed at overcoming the technical indivisibilities. It lowers the price of product A. If A's output is B's input, A's economies shall then be passed on to B in the form of pecuniary external economies.

Thus, according to Rosenstien Rodan, " the profits of industry B created by the lower prices of factor A, call for investment and expansion in industry B, one result of which will be an increase in industry B demand for industry A's product. This in turn will give rise to profits and call for further investment and expansion of industry A".

Rosenstien Rodan supports his argument in favour of a big push through the very famous example of the shoe factory. If a shoe factory alone is established in a rural area, the workers of the factory cannot buy all the

shoes. The shoe factory would not be much of a success. If complementary industries are also established, then workers of all factories will become each other's customers.

Thus, expansion of industries generate external economies. But unless the initial roadblocks are overcome mutually beneficial way of output expansion will not occur. A bit by bit approach would not enable the economy to cross the hurdles of development. The hallmark of big push theory lies in reaping of external economies through the simultaneous installation of a host of technically interdependent industries.

The big push approach is needed for three reasons:
(i) A big push generates the external economies.
(ii) A big push expands the markets and looks after the demand aspect of the balanced growth.
(iii) A big push overcomes production function indivisibilities, demand indivisibility, indivisibility in the supply of savings.

15.2.2 THE THREE INDIVISIBILITIES:

Risenstien Rodan stresses that the need for big push in LDC's arises from at least three indivisibilities which give rise to external economies. These indivisibilities are:

(i) Indivisibilities in the production function, i.e. the lumpiness of capital especially in the creation of social overheads.
(ii) Indivisibility of demand, i.e. the complementarity of demand and
(iii) Indivisibilities in the supply of savings.

Indivisibilities in Production Function: By 'indivisibilities in production' function Rosenstien Rodan meant the indivisibilities of inputs, output and production processes. Indivisibilities in production function lead to increasing returns.
(i) By raising output, income and employment and
(ii) By lowering the capital output ratio.

In Rodan's opinion, social overhead capital [health, education, power, transport, housing etc.] is the most important instance of production. According to Rodan, social overhead capital is characterised by four Indivisibilities.
(i) Indivisibility of Time: The creation of social overhead capital is irreversible or indivisible in time. It must precede other directly productive investments.

(ii) Indivisibility of durability: The durability of social over head capital is long. Lesser durability is either technically impossible or much less efficient.
(iii) Indivisibility of long gestation period: The investments in social overhead capital involves a highly protracted period of time for their fruition.
(iv) Indivisibility of irreducible industry mix: The public utilities must grow collectively. All the social overhead capital have to be created at one stroke. Irreducible minimum social overhead capital industry mix is a condition for getting off the dead end.

These Indivisibilities make heavy initial investment or a big-push inevitable. The infrastructure facilities cannot be imported from abroad. Hence, the first prerequisite of growth programme is massive investment on the creation of infrastructure facilities, in order to overcome the Indivisibilities in production function.

Indivisibility of Demand: The Indivisibility of demand refers to the complementarity of demand arising from the diversity of human events. The Indivisibility of demand necessitates simultaneous setting up of interrelated industries. According to Resenstien Rodan, the importance of Indivisibilities of demand lies in the expansion of market size.

Indivisibility of demand leads to interdependencies in investment decisions. To prove this Rodan gives his famous example of the shoe factory. In a closed economy, a new shoe factory is set up. It employs 100 workers who were previously in disguised unemployment. Their marginal productivity was zero when they were in disguised unemployment. But now their wages will constitute an additional income. The shoe factory will succeed by finding a market, if these newly employed workers spend all of their additional income on the shoes they produced. But no worker will spend his entire additional income on shoes. Thus the new investment in a single project fails to widen the market.

Instead, if the country puts 10000 workers in 100 factories and firms, the market will expand. The complementarity of demand solve the problem of finding market, automatically. The 100 firms and factories will produce the bulk of the wage goods on which the newly employed workers will spend their wages. Thus, a big push in a number of industries is needed to initiate the process of development in the LDCs.

Entire discussion hitherto made may be illustrated diagrammatically.

Fig 15.1 illustrates the unprofitability of a single firm started in isolation and its profitability when many factories are started simultaneously.

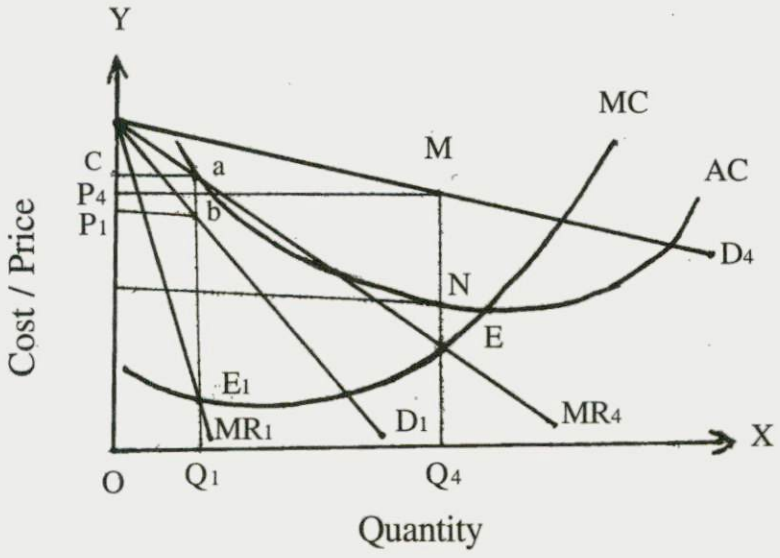

Fig.15.1 Demand Indivisibilities

In Fig.15.1 the curves AC and MC represent respectively the average cost and marginal cost of the plant. The plant is a little smaller than the optimum size plant. D_1 and MR_1 are the demand and marginal revenue curves of the shoe factory when investment is made only in it. The shoe factory produces OQ_1 shoes and sells at OP_1 price, which does not cover the average cost [AC]. So the shoe factory incurs a loss to the extent of $CabP_1$.

But the market for shoes expands when simultaneous investment is made in a number of industries. As a result the demand for shoes raises to D4 [four times] and the quantity of shoes increases to OQ4. Hence the shoe factory makes a profit to the extent of P4MNT. Similarly, all the other industries also earn profits.

Rosenstien's model assumes a closed economy. But in an open economy the shoe factory may either replace former imports or may find export market. So market expansion is indispensible for overcoming demand Indivisibility. But, according to Rosenstien Rodan, even the international trade does not dispense with the need for a big push.

Indivisibility of Supply of Savings: A high level of savings is required for substantial investment in a number of industries at one and the sametime. In

LDC's due to low income, the savings are also low. A high-income elasticity of savings constitutes the third Indivisibility in Rosenstien Rodan's system. He remarks: " The way out of the vicious circle is to have first an increase in income.....and provide mechanism which assure that in every second stage the marginal rate of savings will be very much higher than the average rate of savings".

Thus, Rodan upholds the necessity of increasing income in order to increase the savings. An initial big injection of investment increases the income. In other words, a big push through a minimum indivisible step forward, in the form of a high minimum quantum of investment could alone provide the vigour and vitality to the LDCs to jump over the obstacles to development.

Another important factor connected with big push is the psychological Indivisibilities. The creation of a conginial psychological atmosphere is one of the essentialities of development. The people should be made to realise the significance of development. To mould the people's psychology progressive institutional framework should be evolved. The people should be thus prepared mentally for a big push.

A big push leads to the following three sets of balanced growth relations.

(i) A balance between the social overhead capital and the directly productive activities [SOC = DPA] in both the consumer and capital goods industries.
(ii) A vertical balance between capital goods industries including intermediary goods on the one hand, and the consumer goods on the other.
(iii) A horizontal balance between various consumer goods industries due to the complementarity of expanding consumer demand.

Check your progress - I

1. State the rationale behind a Big Push Theory ?
2. Explain the three Indivisibilities that give rise to external economies?

15.3 MERITS OF BIG PUSH THEORY:

The big push theory implies the following arguements in favour of it:
(1) Role of the Government: Rosenstien Rodan recognises the role of the government in carrying out the task of development in a planned manner. The

big push required for sustained development is generated only when the complementary system of industrialization takes place. High quantum of investment and its rational allocation are the requirements of the big push. The price mechanism itself is not a guiding force to attain development through a big push. Interference of the government through its planning machinery is very much required for a big push.

The role of the government is very crucial for:
(i) Overcoming various indivisibilities
(ii) Increasing the marginal rate of savings and taxation and
(iii) Taking loans from outside for lumpy plants and technology.

(2) Role of Savings: The big push theory recognises the importance of savings as the source of investment. A big push, which depends on a high minimum size of investment requires a high volume of savings. If required saving is not available for planned investment, the big push theory will remain as a beautiful dogmatic proposition.

(3) Role of Foreign Capital: The theory also recognises the role of foreign capital in the context of the industrialization of the LDCs. Investment in social overhead capital sets the ball of big push rolling. Since the LDC's face the problem of lack of capital for investment, they have to relay on foreign capital. Foreign capital occupies a very significant place in the theory of big push.

(4) Role of International Trade: The big push theory never undermines the role of international trade in creating a jerk in the stable equilibrium systems of the LDCs. International trade may be used as an engine of growth. It increases both the SOC and DPA. International trade is essential for enlarging the size of the market.

(5) Necessity of Planning After Big Push: Big push keeps the wheels of development in motion. The process of planning cannot be dispensed with even after the attainment of stage of take off [big push]. Planning and state action are necessary to sustain the development process. Development planning is must both in the initial stages and in the later stages of growth.

15.4 CRITICAL APPRAISAL:

It is primarily a theory of investment concerned with imperfect markets in LDCs. It is based on more realistic assumptions of Indivisibilities and non-appropriabilities in the production functions. However, it is not free from

defects. Economists like Myint, Ellis and Jacob Viner criticised the big push theory for its following loopholes.

(i) Neglects the problem of shortage: LDCs are characterised by scarcity of development variables. Implementation of big push programmes is not easy in LDCs suffering from lack of dynamic entrepreneurs, skilled labour, domestic capital and zeal to develop. Hla Myint criticises big push theory for neglecting the problem of shortage only by emphasising the need for large quantum of investment. H.E.Ellis criticises the big push theory for ignoring the risks involved in investment and shortage of capital. As pointed out by E.Gudin " the big push theory is somewhat unreal because it pre supposes not only an ample supply of capital but also other scarce factors in underdeveloped countries." The LDCs plagued by shortages of resources cannot launch a massive industrialization programme.

(ii) Problem of Coordination: As noted by H.Myint the governments of LDCs find it very difficult to coordinate various development plans started under the programme of big push. Lot of problems arises in the execution and supervision of various time bound projects. In carrying out a complex set of projects, there are bound to be various revisions of the original plans, delays and departures. The governments of the LDCs are generally inefficient and corrupt. Hence the problem of coordination creates serious administrative, managerial and economic problems in the implementation of programmes of large-scale industrialization.

(3) Neglects the social Reforms: The theory of big push lays too much emphasis on the problem of the Indivisibility of processes, both on supply and demand sides. It totally neglects the broader aspects of social reforms, which are vital, if a stationary economy is to begin to develop on the basis of its own resources and incentives. As pointed out by Celso Furtado, " the recognition and identification of these necessary reforms is of fundamental practical importance, both for countries which are anxious to change from stagnation and for those desirous of intensifying their development."

(4) Neglects the Techniques: In its over enthusiasm for capital formation, the big push theory neglects the importance of techniques in economic development. Infact, capital formation is the main vehicle of the assimilation of new techniques. But in the LDCs separate treatment is required in the development of:

(i) Techniques increasing the productivity

(ii) Techniques decreasing the cost of production and
(iii) Techniques which are eco friendly and which reduce the social costs.
Celso Furtado, in the historical context of today, development depends increasingly upon technique and less on direct capital formation in productive processes.

(5) Neglects the Agricultural sector: The big push theory ignores the development of agricultural sector completely. It is a comprehensive programme for industrialization. It emphasizes on the lumpiness of investment in capital goods industries, consumer goods industries and social overhead capital etc. But the LDCs are largely agricultural countries. The success of the big push programme or industrialization in these countries depends on the modernization and development of agriculture. It is impossible to raise the superstructure of industrialization on depressed agriculture in LDCs as agriculture and industry are complementary to each other. H.Myint criticises the big push theory for its neglect of the agriculture.

(6) Ignores other determinants: According to H.E.Ellis, The big push theory stresses only on the lumpiness of capital by ignoring other determinants of development. Development is a dynamic process which also depends on honest and efficient administration, control of inflation, reorganization of agriculture, development of technology, creation of human capital, institutional and structural changes, stability at home and peace abroad. Unfortunately these factors are not considered by the big push theory.

(7) Danger of Inflation: Any programme of big push will generate inflationary pressures. The simultaneous development of complementary industries creates inflation through increased volume of employment and expansion of effective demand. Food prices go up due to food shortage as agriculture does not find a place in the programme of big push. Investments in social overhead capital increase the prices due to their long gestation period. Cost escalations may lead to the postponement of a number of development programmes. All these enhance the miseries of the people of the LDCs.

(8) Ignores the problems of mixed economies: A mixed economy is characterised by the coexistence of public sector and private sector. When the two sectors are complementary to each other, the process of big push will have a smooth sail. If they compete for scarce resources, markets and external assistance, then the problem becomes formidable. Competition between them leads to a cold war. As pointed out by H.Myint " the government

departments tend to keep their plans and intentions secret from the private businessmen because they fear speculative activities which will disrupt their plans. On the other hand, private enterprise is inhibited by uncertainties not only about the general economic situation but also about the future change in government regulations". The big push programme will not succeed in such an atmosphere of mutual suspicion and distrust.

(9) Stresses on cost reduction: Rosenstein Rodan's theory is built on the foundation of three indivisibilities or external economies. External economies as pointed out by Jacob Viner, decrease the costs rather than increasing the output. The LDCs need a development theory which stresses both on the reduction of costs and expansion of out put but big push theory ignores the aspect of output expansion and stresses only on the aspect of cost reduction.

(10) Ignores the role of small investments: J.H Ader's statistical analysis of economic development reveals that " a relatively low level of investment pays off well in the form of additional output". He points out that in the LDCs investment in cottage, rural and small-scale industries could also create an atmosphere required for development. A small push can also set the ball of economic development rolling. Gandhiji through his concept of rural industrialisation and Schumacher in his book 'Small is Beautiful' have shown the role of small push in economic development. The big push theory is not comprehensive in nature as Rodan fails to explore the possibility of small push as a force of development.

(11) No Historical Support: The big push theory lacks historical support. As stated by Furtado, " in no country was development due to massive industrialization programmes of the nature advocated by big push theory". The progress of any developed countries over the last two centuries lend no support to big push theory.

Conclusion: These loopholes would not make the big push theory outdated. The LDCs should definitely make bold and tremendous efforts to attain sustained growth. Hence all those who are in favour of balanced growth supported the big push theory. On the basis of this theory Leibenstien developed the critical minimum thesis and Nelson developed his 'low equilibrium trap'. Gunnar Myrdal also supports the need of a big push in these words: " Once a plane is established, it is vital that it be given a big push; unless the push is hard enough, no development occur. But too often the discussion of

big push are confined to economic factors. Instead this idea must extend to all parts of social life."

15.5 LET US SUM UP

Big Push Theory, advocated by Rosenstien Rodan refers a big investment, which provides a big jerk to the economy. Big push is needed for a take off. It is based on three Indivisibilities viz;

1. Indivisibility of production which refers to indivisibility of input, output and production process.
2. Indivisibility of demand - referes to high level os savings required for sustained growth.

Big push generates external economies expands market, but the main limitations of big push theory are:
1. It neglects the problems of shortage of resources, neglects social reforms needed to break mental stagnation, it neglects the role of technical development and ignores the importance of small investments in economic development. It generates inflationary pressures inspite of these limitations all balanced growth economists favour the big push doctrine.

15.6 KEY WORDS:

- Big push: The thrust required for a take off. It refers to the lumpiness of investment.
- Cost reduction techniques: Measures employed to reduce the cost of production.
- Gestation period: The time required for the fruition of an investment project.
- Indivisibilities : The term used by Rosenstien Rodan to denote the external economies.
- Indivisibility of Demand: It refers to the complementarity of demand arising from diversified human wants.
- Indivisibility of durability: Long life span of the social overhead capital.
- Indivisibility of irreducible industry mix: It refers to the interdependence of social overhead capital which are to be created simultaneously.
- Indivisibility of gestation period: It refers to the fruition period of

investments.

- Indivisibility of supply of savings: It refers to a high level of savings required for a sustained growth.
- Indivisibility of time: It refers to the irreversible nature of time in the creation of social overhead capital which must precede the directly productive industries.
- Industrial democracy: Worker participation in corporate decision making.
- Inflation: An increase in the general level of prices in an economy.
- Mixed economy: An economy where there is some role for market mechanism and some role of for planning machinery. It is an economy characterised by the coexistence of public and private sectors.
- Psychological indivisibilities: Mass mentality of the people, which acts as an obstacle to growth.
- Rate of return: The net profit after depreciation as a percentage of average capital employed in business.
- Specialization: Division of labour that allows the allocation of scarce resources more efficiently.

15.7 REFERENCE BOOKS:

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Check your progress - II

1. Critically examine the theory of Big-Push
2. Discuss the merits and demerits of the Big Push Theory.

Unit 16: NELSON'S LOW LEVEL EQUILIBRIUM TRAP

Structure

Unit 16.0 OBJECTIVES

Important objectives of the study of this unit are:

- To analyse the need for development through the concept of low equilibrium trap.
- To understand the conditions conducive for trapping.
- To know about the factors to escape the low level of equilibrium trap and
- To make a critical evaluation of Nelson's doctrine.

16.1 INTRODUCTION:

R.R.Nelson has developed the theory of low level equilibrium trap in 1956. It was developed almost simultaneously with Leibenstien's critical mini mum effort thesis. Nelson's 'trap' is similar to Nurkse's 'circle' and Myrdal's 'back wash effect' or 'cumulative causation'. Nelson's low-level shows how the LDCs are caught in the vicious circle of poverty and backwardness due to a high rate of population growth, which pushes the per capita income, back to its stable equilibrium level.

The stable equilibrium or subsistence level of per capita income in which the LDCs are caught is called the low level equilibrium trap. It is a concept used by Nelson. According to Nelson, " the malady of underdevel oped economies can be diagnosed as a stable equilibrium level of per capita income at a close to subsistence requirements." A stable equilibrium level is characterised by low levels of savings and investment. Any effort made to raise the levels of savings and investment results in the increased national income accompanied by a high rate of population growth. As a result the per capita income decline to its original stable equilibrium level. Hence, the LDCs are caught in a low level equilibrium trap.

16.2 EXPLANATION OF THE THEORY

Nelson's low-level equilibrium trap theory is based on two basic propositions:

(i) The population will increase when the per capita income of the country rises above the minimum subsistence level. But beyond a limit a rise in per capita income may be accompanied by a declining population growth rate.

(ii) At low level of per capita income people are too poor to save and invest. The low level of investment results in a low rate of growth in national income.

On the basis of these basic propositions Nelson profounded the theory of

low level equilibrium trap. It can be explained as follows:

(i) A stable equilibrium level of per capita income close to subsistence requirements is the malady of LDCs.
(ii) The rate of both savings and investment are low at this low stable equilibrium level.
(iii) An increase in per capita income above the minimum subsistence level encourages a population growth.
(iv) The population growth pushes down the per capita income again to the minimum subsistence level. The economy is thus caught in the low-level equilibrium trap.

Conditions : According to Nelson the following four conditions lead to the trapping of economy:
(i) A high correlation between the level of per capita income and the rate of population growth.
(ii) A low propensity to direct additional per capita income to increasing per capita investment.
(iii) Scarcity of uncultivated arable land and
(iv) Inefficient production methods.

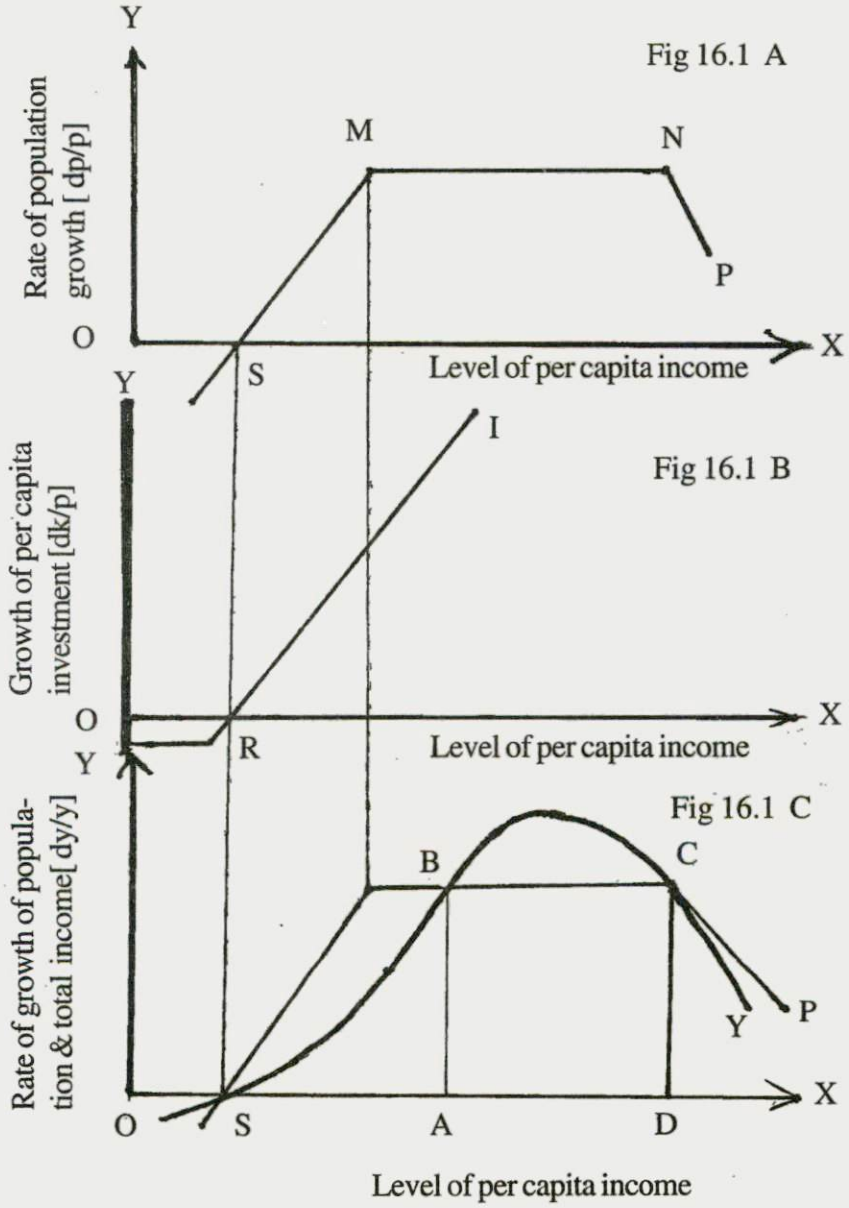
These are also the reasons for the return of the economy to the original stable equilibrium level of per capita income. Besides, Nelson also points towards cultural and economic inertia as the factors conducive for trapping.

Richard Nelson uses a model of three sets of relationships to show the trapping of an economy at low level of income.
(i) Income depends on the stock of capital, the level of technology and size of population.
(ii) Net investment consists of capital created out of savings plus additions to the amount of land under cultivation. The capital created out of savings is the same as investment in the industrial sector. It is in the form of additions to the stock of tools and equipment in the industrial sector.
(iii) Population growth is a function of per capita income. Population growth depends on death rate. The increase in per capita income above the subsistence level have a negligible effect on the death rate. Changes in the level of per capita income causes changes in the death rate. So at higher per capita income levels, the population growth rate will be constant.

Ultimately, it is the high degree of correlation existing between per capita income and population growth rate that leads the LDCs to low level equilibrium trap.

16.3 GRAPHICAL REPRESENATATION:

Richard Nelson uses a set of three diagrammes to illustrate the low-level equilibrium trap.[Fig.16.1A; Fig.16.1B; Fig.16.1C]



OX horizontal line measures the level of per capita income. In Fig 16.1A point S on OX axis denotes the subsistence or minimum level of per capita income. P is the population growth curve. We can draw four inferences from Fig16.1A.

(i) To the left of point S, population growth rate is negative. Per capita income is below the subsistence level.

(ii) S is the subsistence level per capita income. At point S population is

stationary and population growth rate is zero.
(iii) Above the subsistence per capita income level, or to the right of point S, the rate of population growth rises till it reaches the maximum point M.
(iv) Population growth rate remains constant between points M and N. Beyond point N the population growth rate declines.

In Fig.16.1B point R indicates zero-saving per capita income level as the entire income is spent on consumption. So at a point R investment per capita is also zero. We can draw four inferences from Fig.16.1B.

(i) R is zero saving and investment per capita level.
(ii) Savings are negative to the left of point R and the people live on past capital.
(iii) To the right of point R investment is positive as rises with a rise in the per capita income.
(iv) So the investment curve I is below the OX axis in the beginning. Here the points S and R coincide. Investment curve I has no upper limit.

In Fig16.1 C point S denotes low level equilibrium trap. Following inferences may be drawn from Fig.16.1C.

(i) At low level equilibrium trap point S population and income growth rates are zero.
(ii) Between points S and B the rate of population growth is higher than the rate of national income growth rate. So per capita income will fall to the initial low-income equilibrium level OS.
(iii) For per capita income below OS, negative population growth rate is more than the negative income growth rate. So the per capita income will have a tendency to rise to the equilibrium level OS.
(iv) The economy can break the low level income trap only when it succeeds to raise the income beyond OA. Between A and D curve Y is above the curve P or rate of national income growth exceeds the rate of population growth.

Following the logic of Leibenstien, if the upper limit of population growth rate is taken as three percent, then an income growth rate in excess of 3% per annum is required to break the low-level equilibrium trap.

Richard Nelson suggests six measures to escape the low level equilibrium trap:
(i) A favourable social and political environment should be created in the country.
(ii) Greater emphasis on thrift and entrepreneurship should be laid in order to change the social structure. Besides production should be increased by giv-

ing greater incentives.

(iii) The inequalities in income should be removed by changing the system of distribution.

(iv) The government should make efforts to break the trap, through timely autonomous investments.

(V) Efforts should be made to increase the income and capital even by obtaining external funds.

(vi) Fuller utilization of the existing resources by the adoption of improved production techniques in order to increase the income.

Check your progress -I

1. What do you mean by low level of equilibrium trap?
2. State the conditions for low level equilibrium trap?

16.4 CRTITICAL APPRAISAL

The theory of low level equilibrium trap has become very popular in development economics. Most of the economists agree with Nelson on the necessity to breakCHECK YOUR PROGRESS the trap through massive investments in order to attain the sustained growth.

However, economists like H.Myint have pointed out certain limitations of Nelson's trap, important being the following:

(i) Functional relationships is not rigid: The functional relationship between population growth and per capita income not so rigid as supposed by Nelson. In LDCs per capita income is not an incentive to increase the number of children. The increase in population in the LDCs in recent years is attributed to reduction in the death rates due to improvements in public health and control of epidemics and endemics.

(ii) Ignores the complexities : The trap theory assumes a simple functional relationship between per capita income and rate of income growth. This functional relationship is complex in two stages: (a) The level of per capita income influences the savings and investment rates. Besides the pattern of income distribution and the effectiveness of institutions in mobilising the savings also influence the rates of savings and investments.

(b) Constant capital output ratio cannot decide the relationship between income and resultant output. Instead, the ability of the productive organizations in overcoming the tendency of diminishing returns decides this relationship. Nelson has not considered these factors.

(iii) Neglects time element: Nelson's trap theory assumes a set of timeless functional relationships between per capita income and growth of population as well as growth of income. Nelson's timeless approach fails to make any distinction between short run economic activities of the developed countries and long run economic activities of the LDCs.

(iv) Neglects the role of the state: Richard Nelson has ignored the role of state in controlling the population growth. But the governments of the LDCs are taking all the possible measures to check the population growth now a days. So the logic underlying the trap theory is falsified.

16.5 LET US SUM UP

Nelson's low level equilibrium trap refers to the original stable equilibrium level of per capita income in the LDCs. His theory explains how the growth of population pushes the economy of LDCs to the low level equilibrium trap by decreasing the per capita income. Besides, low capital formattion, inefficient method of production, low yield, cultural & economic inertia - all these are responsible for low equilibrium trap.

Nelson suggests some measures to avoid the low level equilibrium trap viz. creating favourable socio-political enviornment, laying greater analysis on enterpreneurship, improved production techniques etc.

Nelson's theory ignores the role of state in economic development, neglects time element etc.

16.6 KEY WORDS:

- Arable Land: Cultivable land.
- Autonomous investment: A part of investment expenditure that is independent of national income.
- Back wash effects: The unfavourable effects of flow of primary products from the backward regions to advanced regions.
- Correlation: A term used in statistics to signify the degree of linear association between two variables.
- Cumulative causation: A concept used by Myrdal to show how the market forces tend to increase economic inequalities between regions of the same economy.
- Entrepreneurship: The skill to organise the factors and face the

uncertainties of business.

- Equilibrium: A position of rest or balance between two variables.
- Functional relationship: A concept used to show the cause and effect relationship between variables.
- Low level equilibrium trap: The stable equilibrium at which the rate of increase in per capita income is zero.
- Per capita income: Average income per head. To obtain per capita income, total income should be divided by total population.
- Product mix: The combination of products offered by a firm.
- Production function: A functional relationship that specifies the quantity of out put that can be obtained from each combination of factor inputs that go into the production process.
- Subsistence level: Minimum level of consumption necessary for very survival.

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16.8 QUESTIONS:

1.Bring out the essential elements of Nelson's low level equilibrium trap theory?

2. Critically examine the theory of low level equilibrium trap?

3. Write short notes on:

a.Low level equilibrium trap

b.Loopholes of the theory of low level equilibrium trap?

Unit: 17 DUALISTIC THEORIES

Structure

17.0 OBJECTIVES

Main objectives of the study of this unit are:

(i) To analyse the dualistic nature of economies of LDCs.

(ii) To understand the characteristics of dualistic economies

(iii) To evaluate the important dualistic theories and their implications.

17.1 INTRODUCTION:

'Dualism' refers to the development of modern sector along with the simultaneous development of the traditional indigenous sector in the LDCs. Dualism is characterized by the coexistence of modern sector and backward sector. By 'dualism' Singer meant the:

(i) Coexistence of superior and inferior sets of conditions at the same time.

(ii) The existence of chronic disparity in socio-economic arena.

(iii) Increasing degree of difference between the superior and inferior

(iv) The efforts of superior element to push down the inferior element.

There are six types of dualism.They are:

(i) Socio cultural dualism analysed by Borke in 1953. According to him social dualism refers to socio-cultural differences between the pre capitalistic traditional society and the modern capitalistic society.

(ii) Ecological dualism, illustrated by Geertz in 1963. It refers to the dualism created by climatic conditions and natural resources.

(iii) Technological dualism, explained by Enckaus and Higgins. It refers to the differences in production functions and factor endowments.

(iv) Enclave dualism, a variant of technological dualism. It refers to the coexistence of capital intensive and labour intensive technology in extractive industry such as mines, oil wells, plantations, etc. Here the capital-intensive sector becomes an enclave to export.

(v) Financial dualism emphasized by Myint and Bottomley. It refers to the coexistence of developed capital market and non-monetised or indigenous money market.

(vi) International dualism, analysed by the development economists. It refers to the coexistence of developed and under or less developed countries simultaneously.

Economists like Lewis, Nurkse, Rosenstein Rodan, Leibenstein and Myrdal have propagated the theories of economic dualism. The writers on the economic dualism have become automatically the protagonists of balanced growth. J.H.Boeke talks about social or behavioral dualism, while

Enckaus and Higgins stress more on the technological dualism existing in the LDCs. Myint and others make a very serious discussion about the financial dualism of the LDCs.

17.2 SOCIALOR BEHAVIOURAL DUALS

The Dutch economist J.H.Boeke has been the leading exponent of the theory of social dualism. It is a general theory of social and economic development applicable only to the LDCs. His theory is largely based on his studies in Indonesia the erstwhile Dutch colony. According to Boeke "Social dualism is the clashing of an imported social system with indigenous social system of another style. Most frequently the imported social system is high capitalism. But it may socialism or communism just as well, or a blending of them".

Social system or social style refers to the interrelationship between social spirit, forms of organization and productions techniques. Existence of a single social system makes it a homogeneous society. Simultaneous existence of two or more systems makes the society dualistic or pluralistic. A dual society is characterized by the existence of an advanced imported western system and indigenous pre capitalistic agricultural system.

According to Bocke " Social dualism is a form of disintegration which came into existence with the appearance of capitalism in pre capitalistic countries. Many LDCs have highly capitalistic 'imported segments' in their economies. He calls the developed sector 'west' and backward sector 'east'. Dualism appears from a clash between the social systems of West and East. The blend is far from ideal. Boeke to substantiate his view point, quotes the famous phrase of Rudyard Kipling". East is East and West is West, and never the twain shall meet". Clash between East and West is responsible for the emergence of social dualism in the LDCs. Hence they are known as dualistic or eastern economies.

17.2.1 Characteristics of Dualistic Economy

Dr.J.H. Boeke has mentioned the following three features of a dualistic economy:

1. Limited needs: The needs of the people of an eastern society are limited. They are satisfied when their immediate needs are met. Their simple habits and simple way of life make them content with limited aspirations.

The behaviour of the people of eastern society is explained as follows by Boeke:

(i) When the price of coconut is high, the chances are that less of the commodities will be offered for sale.
(ii) When wages are raised the manager of the estate risks that less work will be done.
(iii) If three acres are enough to supply the needs of the household, a cultivator will not till six acres.
(iv) When rubber prices fall, the owner of a grove may decide to tap more intensively whereas high prices may mean that he leaves a larger or smaller portion of his tappable trees untapped.

The people are influenced more by social than by economic needs. Their behaviour is controlled and guided by social customs and traditions. Social or prestige value becomes main consideration rather than the use value, while goods are evaluated. People would prefer leisure when wages rise. Consequently the supply of labour fall as wages rise. Hence the eastern economies are characterized by backward sloping supply curves of effort and risk taking. In contrast to this, the needs of the people of the western society are unlimited.

2. Absence of entrepreneurship: The people of a dualistic society are not adventurous and lack entrepreneurship. They lack initiative and organizational skills. They indulge more in speculative activities. Philosophically they are fatalists or escapists and risk averters. Absence of entrepreneurship leads to industrial backwardness. Domestic industries suffer from four problems.
(i) Lack of organizational skills.
(ii) Lack of capital
(iii) Technical helplessness
(iv) Lack of marketing skill and expertise:

According to Boeke, Eastern industry is characterized by " aversion to capital" in the same sense of 'conscious dislike of investing capital and of the risks attending this". Fatalism and resignation dictate the industrial activities of the eastern society. However, the western industry is dominated by rationality and adventurism. People are more adventurous, forward looking and risk takers in the western society.

3. Unorganized Labour: Labour in the eastern society is unorganized, passive, silent, casual, unskilled and immobile. The bargaining power of the labour is very weak. But the labour in the western economy are progressive, dynamic, forward looking and more organized.

In a dual economy the eastern sector subsidises the western sector. In fact, it should have been the other way round. Exports are from the east-

ern sector. But the foreign exchange earned by this sector is used for the capital goods and consumer goods needed by the western sector. Application of the western theories or policies will result in further polarization of difference between eastern and western sectors. Western theories and policies help in the development of western sector at the cost of eastern sector.

17.2.2 **Remedial Measures or Policy Implications :**

The eastern sector is totally different from the western sector. The distinctive features of the eastern society make western economic theory totally inapplicable to the LDCs. Boeke advances three reasons for the inapplicability of western economic theory:

(i) Western economic theory is meant to explain capitalistic society whereas the eastern society is pre capitalistic.

(ii) The dominating features of western society such as unlimited wants, monetary transactions and strong co-operative organizations are not found in the eastern society.

(iii) In a capitalist economy the resources are mobile. Hence the marginal productivity theory of distribution can be used to explain the allocation of resources. But in the eastern society resources are immobile. So marginal productivity theory cannot be used to explain the distribution of income. Hence Bocke warns: " 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."

Bocke discusses the policy implications of western economic activities in the LDCs:

1. Agriculture and western economic theory: Eastern economies are dualistic in nature. The western theory cannot bring any improvement in agriculture. The culture of entire village community in eastern economies is perfectly adapted to the environment of traditionalism. The agricultural operation is conventional, uneconomical and inefficient. Introduction of new techniques of farming requires a change in the mental reservation of the farmers does not allow them to expose themselves to the modern methods of cultivation, farming and irrigation. Hence any effort to develop the pre-capitalistic agriculture by adopting the western theory will prove abortive.

2. Industry and western economic theory: The eastern industrialist is not prone to adopt western technology. Technologically, economically or socially the eastern industrialist cannot adopt himself to his western counterpart. The eastern industrialist will suffer if he tries to imitate his western counterpart. The process of westernization has ruined the small industry in Indonesia. Hence Boeke cautions the eastern economies against imitation the western

technique of production.

3. Problem of unemployment: Boeke's dualistic theory touches the problem of unemployment as well. He makes a distinction among five types of unemployment:

(i) Seasonal unemployment,

(ii) Casual unemployment,

(iii)Unemployment of regular labourers,

(iv)Unemployment among white collared in urban areas; and

(v) Unemployment among Eurasians, disguised unemployment.

The problem of unemployment is difficult to solve as it involves large financial investment. Western theory becomes ineffective to solve this problem.

4. Problem of market gluts: If economic development in LDCs is attempted through large-scale production, it will create glut of commodities in the market. Market gluts decrease the price and investment and ultimately leads to depression. Hence Bocke warns against revolutionary improvements in industry and agriculture in a dualistic economy. Instead he advises for gradual approach to economic development.

5. Influence of international forces: Boeke was also against of allowing international forces to influence the nature and pattern of international community. Boeke was of the opinion that the basic character of the village should be kept intact. It should not be disturbed by forces of international trade. Hence he pleaded for village restoration and democratization of rural community. The former refers to the preservation of rural culture whereas the lather refers to providing equal opportunities for the emergence of new leaders.

Boeke's explanation leads us to two conclusions:

(i) In a dualistic economy, no single policy is sufficient to solve the problems; and (ii) If one section of the society benefits from any measure, another section may suffer.

Necessity of behavioural changes: Economic development lies in bringing socio-cultural changes in rural areas. Behavioural changes are very necessary to: (i) reduce the unproductive expenditure on marriages and other socio-religions ceremonies; and to (ii) reduce the propensity of begetting more children when income increases. Increased income should be utilized productively to increase employment opportunities. The rural sector should demand the goods produced by the capitalist sector. Social dualism leads to economic and technical dualism. Hence is the need for adopting a set of policies to overcome the challenges of social dualism.

17.3 CRITICAL APPRAISAL OF BOEKE'S THEORY

Boeke's theory of social dualism is criticized by different economists for reasons of their own. Benjamin Higgins, the main critic, find following loopholes in boeke's theory:

1. False assumption of limited wants: Boeke's theory is based on two assumptions:

(i)The people in LDCs have limited wants

(ii) The supply curves of effort taking and risk bearing are backward sloping.

Both the assumptions are wrong. In LDCs also, the people aspair for higher standard of living when their income rises. Due to demonstration effect the propensity to consume and import is very high in the LDCs. The assumption of limited wants is totally inconsistent with human nature.

2. Labour is not completely unorganized: Boeke assumes that the workers in eastern society are unorganized, passive, silent and casual. He fails to visualize the formation of trade unions. The workers in the urban areas are organized into strong trade unions. The eastern labour is also capable of increasing its bargaining power by forming labour associations.

3. Urban mobility Ignored: Boeke has neglected the rural to urban mobility of labour completely. The eastern labour is not immobile as visualized by Boeke. Urban migration is responsible for urbanization. Urbanisation encourages further urban migration.

4. Dualism is found in western countries also: Boeke assumes that the social dualism is peculiar only to LDCs. It is a wrong assumption. Dualism exists even in developed countries like the USA, Canada, Italy and Australia. So social dualism is a very common phenomenon.

5. Western economic theory is applicable: Boeke is of the firm opinion that the western theories and policies are inapplicable in the LDCs. This is a wrong belief because (i) Speculative activities are quite common in western economies also.(ii) The Principles of liquidity and safety are observed in long term investments in the western economies. (iii) Consumption of status symbol goods in the western economies is inspired veblen to coin the term conspicuous consumption. (iv) Backward sloping curve of effort is common in countries like the USA and Australia.

6.A Behavioural discription: The social dualism theory of Boeke simply describes the behaviour of the eastern society. It fails to furnish an integral approach to the problems of the LDCs. Therefore it is not a theory but mere description of the nature of the LDCs.

7.Fails to provide a solution to unemployment: Boeke explains five types of unemployment in his dualistic theory but fails to provide a solution to the

problem of unemployment. He believes that " it is not within the power of the government to remove them as it would entail a financial burden for beyond the government's means." But his argument is not supported by statistical data. Besides, he has ignored the attempts of LDCs to reduce poverty and unemployment through the development planning.

8.Eastern economies are also rational: Boeke believes that the people of eastern society are influenced more by social rather than economic needs. But in reality the eastern economies are also rational due to multiplicity of wants and scarcity of resources. Dynamism, rationality and entrepreneurship are common characteristics of the people muddling with problems. Hence Boeke's belief is wrong.

Boeke's theory of social dualism is important because it recommends a different set of programme for poverty and inequality eradication. But Higgins is not satisfied with the explanation provided by Boeke. According to Higgins " economic behaviour is much the same in underdeveloped as in advanced countries." Hence Higgins has developed the theory of technological dualism.

Check your progress: I

1. Critically examine the theory of socialism dualism?
2. State Boeke's reasons for the inapplicability of the western theory to the eastern society?

17.4 TECHNOLOGICAL DUALISM

The theory of technological dualism has been developed by Prof. Higgins, as an alternative to Boeke's social dualism. Boeke's theory explains the behaviour of rural and urban people. Higgins theory explains the pattern of techniques used in modern and traditional sectors of the LDCs. Technological dualism refers to the use of different production functions in advanced and traditional sectors of the LDCs. According to G.M. Meier " technological dualism is associated with structural 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."

Higgin's theory of technological dualism is based upon Eckaus article 'The Factor proportion problems in underdeveloped Areas.' The theory of technological dualism is related to the difficulties of unemployment in LDCs arising due to (i) market imperfection, (ii)limited opportunities for factor substitution and (iii) inappropriate factor endowments.

17.4.1 EXPLANATION OF TECHNOLOGICAL DUALISM

The LDCs are dualistic economies characterized by the existence of modern sector and traditional sectors. Technological dualism implies the adoption of different production functions by the modern and traditional sectors. Technological dualism is related to limited employment opportunities found in these two sectors. Unemployment is an out come of different production functions and factor endowments in these two sectors. Thus, the unemployment associated with the dualistic economy is structural or technological in nature. According to Kindle Berger," Disequilibrium in factor proportion, which is the cause of unemployment and under employment in the under developed areas, can arise due to two factors (i) imperfect functioning of price system (ii) limitations in the existing technology or the structure of demand."

Higgins explains his theory by taking two goods, two factors of production and two sectors viz the traditional and modern sectors.

Following are the characteristics of the traditional rural sector:

(i) It is engaged primarily in peasant agriculture and handicrafts or very small-scale industries.

(ii) There is flexibility in the techniques of production. Production is done with wide range of techniques and alternative combinations of labour and capital.

(iii) Production function in the traditional sector is characterized by the prevalence of variable technical coefficients of production.

(iv) Labour is an abundant and capital is the relatively scarce factor of production. Hence labour intensive techniques are chosen in the traditional sector.

The distinctive features of the modern industrial sector are the following:

(i) It consists of large scale industry oil fields, mines and plantations.

(ii) It uses fixed technical coefficients of production. The elasticity of substitution between the factors of production is almost zero.

(iii) The production process is capital intensive in nature.

17.4.2 TECHNICAL AND DISGUISED UNEMPLOYMENT

Higgins theory shows how the technological dualism increased the structural unemployment and under employment or disguised unemployment. The modern (industrial) sector develops and expands with the aid of foreign capital. The population growth rate exceeds the rate of capital accumulation.

Modern (industrial) sector is characterized by fixed technical coefficients. It uses capital-intensive techniques. So the modern (industrial) sector fails to create employment opportunities at the same rate at which population grows. Industrialisation leads to structural unemployment. The surplus labour existing in the modern (industrial) sector has to seek employment in the traditional (rural) sector.

In the beginning of the expansion process, the traditional (rural) sector is capable of absorbing the surplus labour by bringing more land under cultivation. Extensive cultivation leads to the optimal combinations of labour and capital (improved land) as out put increases. As a result good land becomes scarce. Cultivation of all available land by using highly labour intensive technology reduces the marginal productivity of labour to zero. It may become negative also. Disguised unemployment appears with continuous growth of population.

When the marginal productivity of labour is zero or nagative farmers lose interest in making new capital investments or introducing capital-intensive techniques. New techniques, which increase the marginal productivity of labour, are not available now. The labourers also lose initiative to increase their own productivity or efficiency at this juncture. Therefore (i) techniques of production (ii) man hour productivity and (iii) socio-economic welfare remain at a low level in the traditional (rural) sector.

Thus, technical dualism leads to disguised unemployment. Any technological progress is not capable of removing disguised unemployment or ending the technological dualism even in the long run. Technological progress is positively correlated with the disguised unemployment. More the technological progress more will be the disguised unemployment.

17.5 IMPACT OF TECHNICAL DUALISM:

Technological dualism is responsible for the following:

(i) It has increased the number of the disguised unemployed.

(ii) The activities of the trade unions and policy of the government i creased the wage rates artificially. Hence the dependence on labour saving techniques increased.

(iii)Introduction of labour saving devices reduced the capacity of the in dustrial sector to absorb surplus labour. The problem of disguised unemployment is further aggravated.

Thus, it is impossible to end the technological dualism. The structural isequilibrium, which leads to structural unemployment and disguised unemployment (under employment), is the direct outcome of technical dualism, with much effort the technical dualism may be narrowed down but can not be ended.

17.6 CRITICAL EVALUATION OF HIGGINS' THEORY

Higgins' technical dualism appears to be superior to Boek's social dualism. Higgins tried to demonstrate the seriousness of technical dualism which becomes the cause of economic dualism. His theory indicates that factor endowment and differences in production functions have resulted his torically in the increase of unemployment in the traditional (rural) sector. However, Higgins' technical dualism is criticized for its following imitations:

1. Questionable assumption of fixed coefficients:

Higgins assumes that the production in modern (industrial) sector is carried on with fixed proportions between labour and capital. G.M. Meier expresses doubts about this assumption.

The assumption of fixed technical coefficients in the industrial sector lacks empirical evidence. Modern world is so dynamic that nothing remains fixed. So the assumption of fixed coefficients is unconvincing.

2. Side lines the possibility of the use of labour absorbing techniques:

Higgins theory believes that the capital-intensive techniques used in industrial sector are generally labour saving. All capital intensive and imported techniques need not be labour saving. They may be labour absorbing also. Besides, in the long run, due to external economies,capital-intensive techniques create employment. Such possibilities are totally neglected by Higgins.

3. Institutional factors are neglected:

Factor proportions are influenced by a number of institutional or psychological factors. Higgins stresses that the factor proportions depends on factor endownment in the LDCs. He altogether neglects the role of institutional factors in deciding the factor proportions.

4. Ambiguity in the size and nature o;f disguised unemployment:

Higgins fails to identify the nature of disguised unemployment in rural sector and number of surplus labourers in the industrial sector. The concept

of disguised unemployment is not clearly discussed by Higgins. So G.M. Meier suggests that " greater clarity is needed on the nature of unemployment and under employment in the traditional sector."

5. Factor prices do not depend only on factor availability:

According to Higgins different production functions and factor endowments are responsible for disguised unemployment. It is actually connected with the factor prices. But factor prices are decided by

(i) factor endowments

(ii) quality, nature of work and working conditions

(iii) government policies and

(iv) natural factors. Factor prices as assumed by Higgins are not determined solely by factor endowments.

17.7 LET US SUM UP

Dualism implies the simultaneous existence and development of traditional sector and modern sector. There are different types of dualism viz, Social dualism, Technological dualism, Ecological dualism, Enclave dualism and Financial dualism. Among them Social & Technological dualism are important.

Boeke developed theory of Social dualism which refers to clash between indigeneous social system which implies limited needs & simple living. Social dualism leads to economic and technical dualism. Boeke's theory is based on the assumption that people in LDC have limited wants. He has neglected the urban mobility.

Theory of Technological dualism has been developed by prof.Higgins as an alternative to Boeke's social dualism. Technological dualism implies the adoption of different production functions by the modern and traditional sectors. His theory explians how the technological dualism leads to structural and disguised unemployment.

17.8 KEY WORDS

- Bargaining power: Strength to make peaceful negotiations.
- Casual unemployment: State of unemployed on an adhoc basis. Temporary unemployment.
- Conspicuous consumption: Consumption made on prestige grounds rather than on utility consideration.

- Consumption function: A functional relationship with aggregate consumption expenditure [C] as the dependent variable and income [Y] as independent variable [C= CCY)].
- Demand function: A functional relationship between demand and its determinants. The usual demand function is D = f(P). Demand is dependent and price, independent variables in this context.
- Democratisation: A process which provides equal opportunities to all.
- Demonstration effect: The effect of the goods consumed for status symbol on other consumers. Demonstration effect is responsible for unproductive consumption.
- Disguised unemployment: A situation of underemployment in which marginal productivity of labour is zero or negative.
- Dualism: Simultaneous existence of two opposite phenomenon.
- Extensive cultivation: Large scale farming by bringing more land under cultivation.
- Intensive cultivation: Application of science and technology to limited area of land in order to optimize the returns.
- Investment function: Functional relationship between dependent variable investment and independent variable income.
- Migration: Movements of the people out of a country [emigration] and into a country [immigration]
- Production function: Input out put relationship. A functional relationship that specifies the quantity of output that can be obtained from each combination of factor inputs that go into the production process.
- Propensity to consume: The proportion of national income that is spent by households on consumption of final goods and services.
- Seasonal unemployment: The unemployment related to seasonality of demand and supply.
- Social dualism: A term used by Boeke to indicate the coexistence of traditional eastern society and modern western society.
- Speculative activities: Purchase or sale of assets for the purpose of a capital gain.
- Status symbol goods: Goods possessing prestige value. Example: All luxuries.

- Supply function: A functional relationship with the quantity supplied as the dependent variable and determinants of supply as independent variables.
- Technological unemployment: Unemployment arising due to technical changes or adoption of capital-intensive techniques.
- Trade unions: Associations formed by workers to increase their bargaining power.
- Urbanisation: Conversion of rural areas into urban areas.
- Veblen effect: The effect of price changes on the consumption of status symbol goods. It is named after Thornstien Veblen for developing the theory of conspicuous consumption.

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17.10 QUESTIONS

1. Explain the theory of technical dualism of Higgins, What are its defects.
2. Write short notes on the following:

a.Theory of social dualism

b. Theory of technical dualism

Unit 18 FIE AND RANIS MODEL: PROCESS OF CUMULATIVE CAUSATION

Structure

18.0 : OBJECTIVES

Principal objectives of this unit are:

- To analyse the possibilities of transfer of excess labour existing in agriculture to industry, on Fei and Ranis lines.
- To find out the limitations of mobility of surplus labour from farms to industrial sector.
- To find out the causes for economic backwardness
- To find out the ways and means to break the backwash effect.

18.1 INTRODUCTION

John Fei and Gustav Ranis have converted the ideas of W.A. Lewis on surplus labour into stage theory of development. In an article entitled ' A Theory of Economic Development' Fei and Ranis analyse "the transition process through which an underdeveloped country hopes to move from a condition of stagnation to one of self sustained growth". Fei and Ranis developed a model of economic development for a labour surplus dual economy with a primitive agricultural sector and growing capitalist sector. Fei and Ranis model attempts to illustrate the possibility of rapid industrialization by reallocating the surplus labour from agricultural sector to industrial sector.

18.2 EXPLANATION OF FIE AND RANIS MODEL

Fei and Ranis model recognises the vital role of agricultural sector in the process of economic development. It relates to a dualistic underdeveloped stagnant agrarian economy. Such an economy is characterized by the existence of surplus labour, lack of resources, widespread unemployment and high rates of population growth.

"In such a dualistic setting" wrote by Fei and Ranis, " the heart of the development problem may be said to lie in the gradual shifting of the centre of gravity of economy from the agricultural to the industrial sector. Such a process can be gauged in terms of reallocation of population between the two sectors in order to promote a gradual expansion of industrial sector. Such a process can be gauged in terms of reallocation of population between the two sectors in order to promote a gradual expansion of industrial employment and out put. Simultaneously, increase in agricultural productivity must be sufficient to permit a relatively smaller percentage of the total population to support the entire economy with food and raw materials."

Fei and Ranis model can be summarised as follows:

(i) The underdeveloped, labour surplus, resource poor economies are characterized by the coexistence of stagnant agricultural sector and dynamic industrial sector.

(ii) Economic development requires the reallocation of surplus agricultural workers, whose contribution to output is zero or negligible, to the industrial sector where they become productive.

18.2.3 ASSUMPTIONS OF FEI AND RANIS MODEL

Fei and Ranis model is an improvement over Lewis theory of unlimited supply of labour. It maintains that the redundant labour in agriculture can be effectively employed for the expansion of industrial sector.

Fei and Ranis model is based on the following assumptions:

1.The economy is dualistic in nature. It is divided in to traditional stagnant agricultural sector and active, dynamic industrial sector.

2. The agricultural output is a function of two factors, viz land and labour.

3. There is no accumulation of capital in agricultural sector. However, capital may be accumulated in the form of land reclamation.

4. Land is fixed in supply. Supply of land is inelastic.

5. Land being fixed, labour becomes a variable factor. Agricultural activity is characterized by constant returns to scale.

6. The marginal productivity of the agricultural labour becomes zero at one level. The excess labour above that level can be shifted to industrial sector without decreasing the total agricultural output.

7. As a factor of production, land has no role to play. The output of the industrial sector is a function of labour and capital.

8. Population growth rate is very high. Population growth is an exogenous phenomenon.

9. The real wage in the industrial sector remains fixed. It is equal to the institutional wage. By 'institution wage' Fei and Ranis meant the initial level of real income in agricultural sector.

10. Workers in agricultural as well as in industrial sector consume the agricultural products only.

18.2.4 THREE STAGES

Fei and Ranis start with a description of the characteristics of the dualistic economies of the LDC's. They are characterized by:

(i) High rates of population growth.

(ii) Stagnant agriculture.
(iii) Low agricultural surplus.
(iv) Shortage of capital and skilled manpower.
(v) Low level of employment in off-farm activities.
(vi) Poor industrial structure.

A vast majority of people engaged in agriculture have zero or negative marginal productivity in physical or real terms. The agricultural workers get an institutional wage. The degree of the unemployment and underemployment is very high in the economy:

Stage I: In the first stage, the disguised unemployment workers whose marginal productivity is negative, but who receive positive institutional wage are to be transferred to industrial sector.

The marginal productivity of labour is zero or negative due to three reasons :

(i) High rate of population growth.
(ii) The operation of the law of diminishing returns in agriculture.
(iii) Limited supply of land and unchanged technology.

Stage II: In the second stage, workers whose marginal productivity is positive but who receive less than the institutional wage should be transferred.

The agricultural labourers receive less than institutional wage due to following three reasons:

(i) Excess supply of labour over demand
(ii) Reluctance of the labour to move to other sectors.
(iii) Inability of workers to find jobs in sectors other than agriculture.

The farm workers produce output equal to the institutional wage if migration to the industrial sector continues. This is the take off stage.

Stage III : Third stage marks the end of take off and the beginning of the self sustained growth. When the farm workers produce more than the institutional wage they get, the stage of self sustained growth starts.

In the third stage, the surplus labour is exhausted. The agricultural sector becomes commercialized. The marginal productivity of workers who are being transferred is positive. They receive higher than the institutional wage. Yet, they can be profitabily transferred to industrial sector, where wages as well as productivity will be higher.

Thus, Fei and Ranis model illustrates that the reallocation of labour or transfer of manpower from rural to urban sector is beneficial both to agriculture

and industry. The market rationality starts ruling in both sectors to the transfers of excess labour.

The model demonstrates the possibility of self-sustaining take off by balancing the growth rates of agricultural and industrial sectors. The agricultural sectors support the expansion of the industrial sector by offering redundant labour and by making available hidden rural savings. The allocation of redundant agricultural labour and the resulting total agricultural surplus together represent the contribution that agriculture makes to the expansion of the industrial sector.

18.3 CRITICAL APPRAISAL OF THE MODEL

Fei and Ranis model is superior to the theory of Lewis in four respects:
(i) Lewis has identified the growth with the capitalist sector only. Fei and Ranis model emphasises that a delicate balancing between the agriculture and industrial sectors is necessary for development.
(ii) Lewis never have analysed the role of agriculture in economic development. Fei and Ranis model demonstrates the crucial role of agricultural sector in the process of industrial development.
(iii) Lewis failed to show the interdependence of agriculture and industry. Fei and Ranis model is built on the interdependence of two sectors. Agricultural sector provides labour wage goods and savings to the industrial sector. The rate of growth of industrial sector depends upon the rate of reallocation of labour from agricultural sector.
(iv) Lewis never recognised the importance of decentralization and government interference in surplus labour absorption. Fei and Ranis model has emphasized the role of decentralized rural industry in absorbing the surplus agricultural labour. Besides, it has identified the role of government in the process of industrialization. The model emphasized the necessity of government interference in expanding the social and economic infrastructural facilities which hastens the industrialization process.

However, Fei and Ranis model suffers from following limitations:
(1) Land supply may be elastic: Fei and Ranis model assumes that supply of land is fixed. From the point of view of an individual, supply of land is elastic. The size of land is not fixed so far as the changes in the area under cultivation is concerned.
(2) Marginal productivity of labour is not zero. Fei and Ranis model is built on the assumption of zero marginal productivity of labour. Schultz however does not accept this assumption. According to him if marginal productivity is zero

the wage should be zero. In reality, every worker receives a minimum wage. Hence the marginal productivity cannot be assumed to be zero.

(3) Institutional wage is not above the marginal productivity: During the first two stages of development the constant institutional wage is above the marginal productivity. This is also a wrong assumption made by Fei and Ranis. It lacks empirical evidence. In the LDCs characterized by the existence of surplus labour, wages paid to agricultural labourers are much below their marginal productivity.

(4) Institutional wage cannot be constant: Fei and Ranis model assumes constant institutional wage during the first two stages even when agricultural productivity increases. But in reality, the farm wage rises, with a general rise in agricultural productivity.

(5) Lacks empirical evidence: Fei and Ranis model is developed on the assumption of unlimited supply of labour in LDCs. But the empirical evidence to support the existence of large scale disguised unemployment in LDCs is totally lacking.

(6) Ignores the institutional factors: The backwardness of the LDCs is attributed to a number of institutional factors. Fei and Ranis model fails to take note of them. Besides, the role of bank credit in economic development is also neglected altogether.

(7) Not closed economies: Fei and Ranis model failed to highlight the significance of international trade in development. The model assumes unfavourable terms of trade in industrial sector during the second stage when agricultural output declines and prices of agricultural products increase. Such phenomenon is peculiar to closed economy. The LDCs are not closed economies.

(8) Inflationary trends: Fei and Ranis model assumes that the agricultural sector becomes commercialised in third stage. Commercialisation of agriculture leads to inflation. The wages will rise in the agricultural sector due to the transfer of excess labour. The demand for agricultural products increases due to the increased wage. Hence prices of agricultural products will go up. Thus, commercialisation of agriculture will create inflationary pressures.

Fei and Ranis model uses diagrammes to make it more credible. These diagrammes are based on the assumption of static land supply. Hence their utility is very much limited. The model ignores the use of elasticity of land completely. Besides, the model fails to recognise the complementary and supplementary relationships existing in agriculture.

Despite these limitations, Fei and Ranis model is still relevant to LDCs suffering from the problem of disguised unemployment. It demonstrates the intersectoral relations between agriculture and industry. It highlights the role of

agriculture in economic development from take off to self-sustained growth.

18.4 PROCESS OF CUMALATIVE CAUSATION:

The theory of cumulative causation was profounded by the Nobel economist Gunnar Myrdal. His monumental work Asian Drama analyses the development process of the Asian countries. His book "Economic Theory and Underdeveloped Regions" furnishes a realistic approach to the growth problems of the LDCs. One of the striking features of the LDCs. One of the striking features of the LDCs is inequality at regional and international level. Myrdal attempts to give a new dimension to the problem of inequality through the theory of cumulative causation.

According to Gunnar Myrdal 'economic development results in a circular causation process whereby the rich are awarded more favours and efforts of those who lag behind are thwarted'. The process of circular causation explains the reason for interregional and international inequalities. The circular or cumulative process accompanied by backwash and spread effects is responsible for growing inequalities between the rich and poor, regionally and internationally.

Myrdal develops the theory of cumulative causation due to the impotency of traditional theories to solve the problem of economic inequalities. Traditional economic theory makes two unrealistic assumptions:
(i) Assumption of stable equilibrium: A stable equilibrium theory is inadequate to explain the changes in a social system. According to Myrdal " In the normal case a change does not call forth counter vailing changes but, instead supporting changes, which move the system in the same direction as the first change but much further. Because of such circular causation, a social process tends to become cumulative and often to gather speed at an accelerating rate".
(ii) Negligence of non-economic factors is another shortcoming of the traditional theory. Infact, " non-economic factors are among the main vehicles for the circular causation in the cumulative process of economic change".

The process of cumulative causation is similar to the vicious circle of poverty. Myrdal uses it to illustrate the difficulties in the path of attaining self-sustained growth. Myrdal uses the concepts of backwash and spread effects to explain the process of cumulative causation.

18.4.1 BACKWASH EFFECT & SPREAD EFFECT:

The process of cumulative causation explains that poverty is further perpetuated by poverty and affluence is promoted by affluence. The economic backwardness and regional disparities are due to strong backwash effects and weak spread effects. Poverty persists where backwash effects overwhelm the spread effects. The circular causation is the net result of backwash and spread effects.

Myrdal defines backwash effects as " all relevant adverse changes ..... of economic expansion in a locality..... caused outside that locality". Backwash effects refer, to the adverse effects of economic growth of one region on other regions. Myrdal includes the following in backwash effects:

(i) The effects of migration

(ii) The effects of trade between regions and nations

(iii) The effects of capital movements

(iv) The effects of circular causation between economic and non-economic factors.

Spread effects refer to the beneficial effects of the growth of one region or nation on another region or nation. Myrdal defines them as " certain centrifugal spread effects of expansionary momentum from the centres of economic expansion to other regions".

Backwash effect theory identified three problems faced by the LDCs:

(i) The developed countries exploit the LDCs in international economic relations.

(ii) The rich regions exploit the poor or backward regions.

(iii) The rich people mulct the poor people of the LDCs.

Among the three, the first one widens international inequalities and the second on regional inequalities.

Regional Inequalities: Regional inequalities are due to the free play of market forces. In a free capitalist system profit is the guiding motive. Market forces are the forces of demand and supply. Ultimately, the capitalist system guided by profit motive widens the disparities.

Myrdal says, " If things were left to market forces unhampered by any policy interferences, industrial production, commerce, banking, insurance, shipping and indeed almost all those economic activities which in a developing economy tend to give a bigger than average return and in addition, science, art, literature, education and high culture generally would cluster in certain localities and regions, leaving the rest of the country in backwater".

Regional inequalities are widened by the backwash effects of migration, capital movements and trade.

(i) Labour migrates from the backward regions to developing regions. This migration increases the regional disparities.

(ii) Capital moves from backward regions to the developing regions where it gets more returns. Movement of capital widens the regional disparities.

(iii) Trade operates with a fundamental bias in favour of developed regions. Hence regional disparities widen.

International Inequalities: International trade has a very strong backwash effect on the LDCs. According to Myrdal, "Trade operates with a fundamental bias in favour of the richer and progressive regions, and in disfavour of the less developed countries".

The manufacturing industries of the advanced countries have very strong effects. When trade takes place between a rich and a poor country, terms of trade will be unfavourable to the latter due to the following reasons:

(i) The developed countries export manufacturing items whereas the backward countries export primary products. The price of the former is more inelastic and of the latter more oscillating.

(ii) The import of manufactured items will destroy the small scale and cottage industries of the backward countries. So the dependence on advanced countries increases and the bargaining power of the poor countries decreases.

International inequalities are also thus due to strong backwash effects. Capital movements from advanced to poor countries also failed to decrease the international inequalities. International migration also did not succeed in lessening the inequalities.

18.4.2 GETTING OUT OF THE PROCESS:

The theory of cumulative causation is centre – periphery model. The periphery labour and primary products to the centre. The centre supplies technical know how and finished products to the periphery. Centre concentrates the core activities. Periphery is satisfied with subsidiary activities. The periphery due to backwash effects becomes the net loser. The centre due to spread effects becomes the net gainer. The centre will develop and the periphery will remain weak. Circular causation effects are the net result of backwash and spread effects. The cumulative causation keeps a LDC poor and backward.

How to break this vicious circle? According to Myrdal, " The role of 'big push' becomes obvious to break through the stagnation situation. Economic incentive to producers in terms of differential rates of capital subsidy, market subsidy, support price, fiscal support should be granted. These would generate rebound effects on the backwash effects".

State intervention becomes inevitable to get out of the cumulative causation of backwardness. Myrdal himself suggests the following measures:

(1) Providing incentives to the producers in the forms of capital subsidy, market subsidy, support price and fiscal support.

According to Myrdal, " The governments....would be wise to make more and better use of the price and market mechanism in their planning".

(2) Adopting egalitarian polices to weaken the backwash effects and strengthen the spread effects. According to Myrdal, " A higher level of development will strengthen the spread effects and tend to hamper the drift towards regional inequalities".

(3) Converting the state as welfare state. According to Myrdal " The more effectively a national state becomes a welfare state ..... the stronger will be both the urge and capacity to counteract the blind market forces which tend to result in regional inequalities".

18.5 CRITICAL APPRAISAL OF MYRDAL'S THEORY:

Myrdal's theory of cumulative causation is criticised for following reasons:

(1) The theory has been blown out of proportion. Set backs are common in centre and there can be development in periphery. Myrdal ignores these possibilities.

(2) Market mechanism need not increase the disparities between developed and developing regions. At times it may reduce the inequalities and disparities between two regions.

(3) Growth process does not depend only on accidental factors. Any development or expansion is not without limits. The factors responsible for the expansion may give rise to diseconomies as well. Myrdal over rules such possibilities. It is a limitation of Myrdal's theory.

These criticisms are not well received in academic circles. Myrdal's theory is appreciated for following reasons:

(i) Being a western economist, he has exposed the backwash effects of trade on the LDCs. It is great contribution to development theory.

(ii) He proved that the free capitalistic system or competitive markets accentuate the problems of the LDCs. He is one of the economists who support the protectionist policy.
(3) He is one of the advocates of the balanced growth approach. He wanted the government to initiate, direct and sustain the balanced growth. The theory of cumulative causation supports the theory of sponsored growth.
(4) His analysis is welfare oriented. He wanted the national states to be converted into welfare states.

18.6 LET US SUM UP

Fei and Ranis model is a stage theory of development. It implies three stages. The first stage refers to the transfer of disguised unemployment workers who recive positive institutional wage to industrial sector. The second stage relates to the transfer of workers with positive marginal productivity but who recive less than institutional wages to industrial sector. In the third stage, surplus labour is exhausted and agricultural sector becomes commercialised. Agricultural workers receive higher than institutional wage. They can be profitably transfered to industrial sector, where wages will be higher. Thus reallocation or transfer of labour from rural to industrial sector is beneficial to both agriculture and industry. Fei and Ranis' model is superior to Lewis model. But this model lacks empirical evidenses. It is based on some wrong assumptions viz. zero marginal productivity, constant institutional wage which are aganist to reality.

The theory of cumulative causation was propounded by the nobel economist Gunnar Myrdal. According to this theory, backwardness of LDC is due to dominance of backwash effect over spread effect. Strong backwash effect and weak spread effect are mainly responsible for regional and international inequalities. To get rid of this process of cumulative causation, Myrdal suggests state intervention, conversion of national state into welfare state, international co-operation, protection policy. He also advocates balanced growth.

18.7 KEY WORDS

- Backwash effect: It refers to the adverse effects of growth of one region nation) on other regions (nations).
- Constant returns: Equal proportional changes in inputs.
- Cumulative causation: Upward or downward movement of different effects.

- Disguised unemployment: Hidden unemployment or underemployment in which the marginal productivity of labour is zero.
- Diminishing returns: A situation in which an increased usage of inputs results in decreasing output.
- Diseconomies: Disadvantages of large-scale production.
- Dualistic economies: The economies characterized by the coexistence of traditional sector and a modern sector.
- Economies: The beneficial effects of large-scale production.
- Exogenous variable: A variable whose value is not determined from within a model. An exogenous variable is an independent variable in the system.
- Fiscal support: Government supports in the form of tax rebate, subsidy etc.
- Increasing returns: A situation in which an increase in inputs causes in a more proportional increase in output.
- Institutional wage: Initial level of real income in agricultural sector.
- Marginal productivity: Productive capacity of an extra or additional unit of a factor of production.
- Market forces: Refer to pressures which are produced by the free play of market supply and demand and induce adjustment in prices and qualities of goods. [Commodities / services] traded.
- Nation state: State unified on the basis of a single culture.
- Price mechanism: System adopted in a competitive economy for the distribution of scarce resources through the agency of price.
- Real wage: Wage rates or earnings, which could be measured in terms of goods and service they can purchase.
- Spread effect: The term used by Myrdal to indicate the beneficial effects of growth of one region on other regions.
- Stable equilibrium: Static equilibrium in which the variable does not change overtime.
- Support price: Minimum price fixed by the government.
- Welfare state: A state unified on the basis of the principle of 'maximum benefit' to maximum number'.

18.8 REFERENCE BOOKS

- Jhingan ML: The Economics of Development and Planning.
- Myrdal G: Asian Drama
- Myrdal G: Challenge to Affluence
- Myrdal G: Economic Theory and Underdeveloped Regions.

- Shrivatsava O P : Economics of Growth , Development and Planning.

QUESTIONS

1.Critically examine Fei and Ranis model of development?

2. Explain Myrdal's theory of cumulative causation.

3. Write short notes on:

a) Fei and Ranis model.

b) Process of cumulative causation.

c) Backwash effects and spread effects

d) International economic gap.

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NOTES

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ಮುದ್ರಿಸಿದ ದಿನಾಂಕ : 2006

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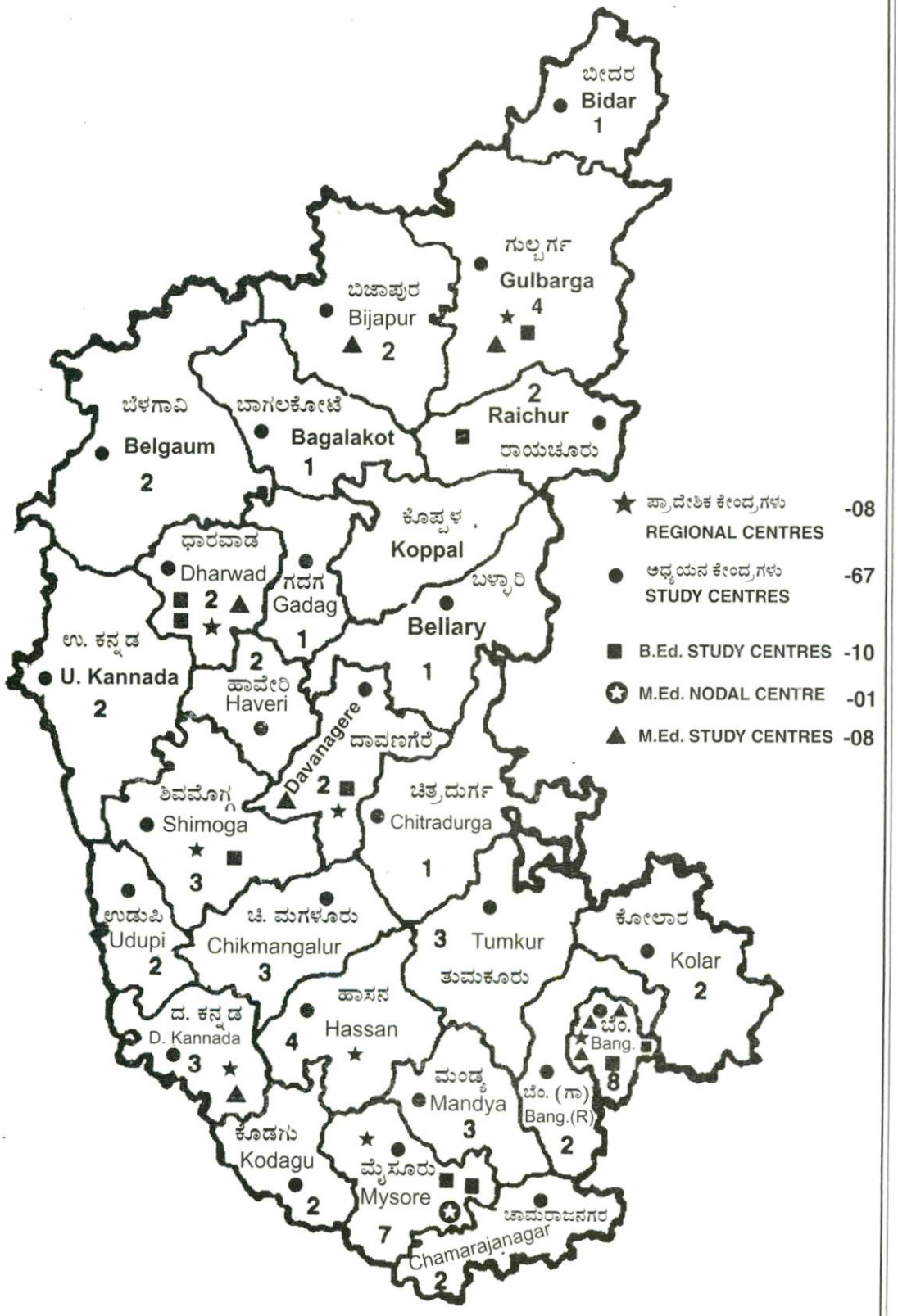

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