LOVELY PROFESSIONAL UNIVERSITY

# ECONOMIC DEVELOPMENT STRATEGIES

Edited By

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# SYLLABUS

## Economics of Growth and Development

**Objectives :**

The purpose of this course is to introduce students to issues and problems related to economic development. Specifically, we will discuss the characteristics of developing nations as well as alternative theories of economic growth. Student will examine some of the dominant domestic problems faced by developing countries, such as, low levels of human capital, urbanization, rural transformation as well as different policies to resolve them.

| Sr. No. | Description |
|---|---|
| 1 | Social and Institutional Aspects of Development: Difference between Development and Underdevelopment, Measurement and Indicators of Development, Population and Development, Economic Development and Institutions |
| 2 | Approaches to Development : Vicious Circle of Poverty and Unlimited Supply of Labor, Lewis Model, Ranis and Fei Model, Big Push Theory of Growth |
| 3 | Balanced Growth and Unbalanced Growth, Critical Minimum Efforts Thesis, Low - Level Equilibrium Trap |
| 4 | Dualism and Dependency Theory, Theories of Development: Classical Theories of Development, Schumpeter Model of Growth |
| 5 | Theories of Underdevelopment, Development Strategies: Allocation of Resources, Cost-Benefit Analysis, Role of planning |

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# Unit 1: Social and Institutional Aspects of Development: Difference between Development and Underdevelopment

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## Objectives

After reading this unit students will be able to:

- Learn about poverty and inequality and the nature of poverty.
- Know about inequalities of income.
- Understand poverty, inequality and welfare and policy options.

## Introduction

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

## 1.1 Poverty and Inequality

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

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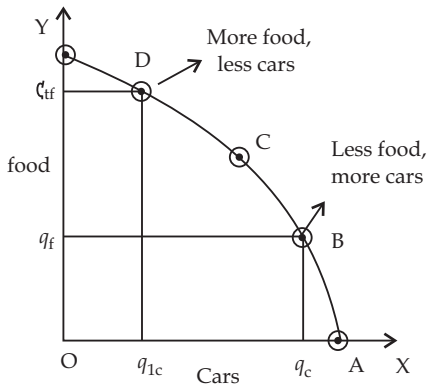



PPC with cars on X-axis and food on Y-axis

In the figure 1 cars are shown on X-axis and food on the Y-axis. Car is a symbolic of luxuries and food is symbolic of necessities. Curve AE is production possibility frontier showing various combinations of food and car that economy can produce with given resources which are fully utilized in a state of technology. All combinations A, B, C, D, and E are conceivable for the economy and are all efficient.

If the economy is relatively poor, and income is relatively equitably distributed, then it will, operate at some point like D where, it will produce more of food and less cars.

If income is inequitable distributed then production will take at some point around B where it is producing more of cars and less food.

It is so because allocation of resources depends upon effective demand which in turn depends upon distribution of national income.

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

## 1.2 Nature of Poverty

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

***Absolute and Relative Poverty***

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

Notes

*Measurement of Poverty*

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

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

Head Count Ratio = $\frac{M}{N}$ where M is the number of poor and N is population.

The biggest limitation of Head count ratio is that it does not reflect the intensity of poverty. It may be desirable to know who are the poorest of the poor. The division of poor into the most destitute, destitute, and poor is useful for following purposes.

It may help us to formulate a suitable minimum wage policy. This division may help to draft different policies for different levels of poverty.

Other issues related to poverty like, insufficient development of mental faculties, can be tackled better.

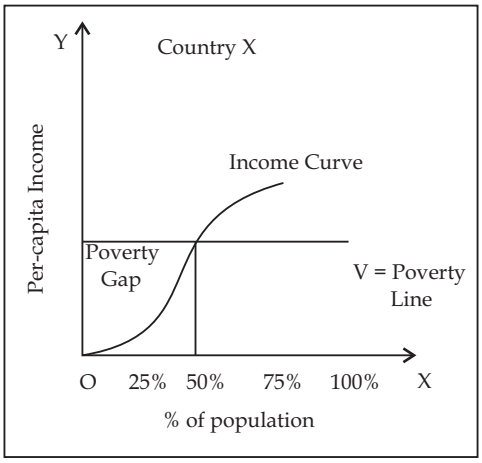
**(b)** **Poverty Gap:** It is a measure which helps in measuring magnitude of effort required to eradicate poverty. Poverty gap is defined as the increase in national income required in order alleviating poverty. It is shown with the help of following diagram. It is shown in the diagram that poverty is equal in two countries X and Y but, poverty gap is more in country

X, hence, country X would require more effort to eradicate poverty.

Poverty Gap = $\frac{Z - X_p}{Z}$

Where, Z = poverty line

$X_p$ is the average consumption expenditure of the poor.



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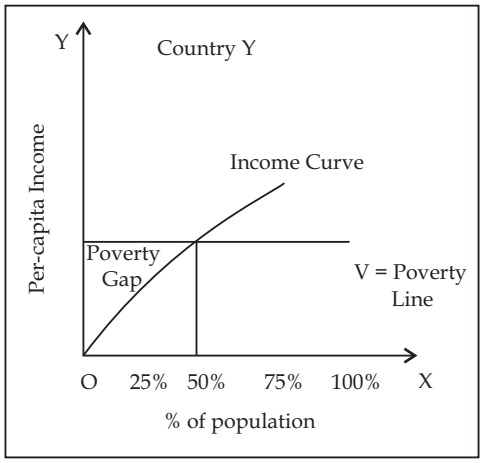


**(c) Squared Poverty Gap Poverty Gap Index:**

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

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

Symbols used signify the same as above.

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

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

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

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

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

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

***Functional Impact of Poverty***

Functional impact of poverty shows how the causes of poverty become its consequences as well making a vicious circle of poverty.

**Poor and Access to Credit:** Formal sources of credit are generally inaccessible for the poor due to following reasons:

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

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

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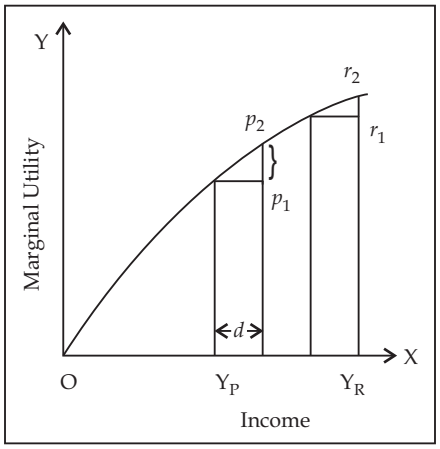



$p_2p_1$ = Loss to the poor if they repay the loan.

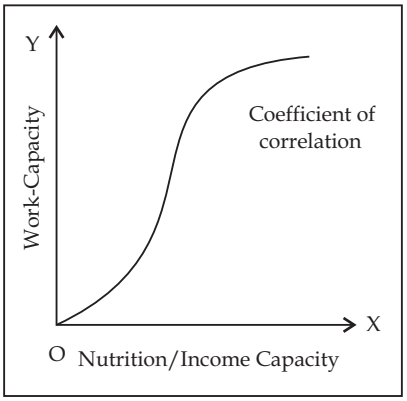
$r_2r_1$ = Loss to the rich if they repay the loan.

$r_2r_1 = p_2p_1$

**Poor and Insurance:** Like credit, poor are also denied access to insurance to which poor are rather more vulnerable, due to following reasons:

1. Illiteracy prevents them from understanding the mechanism of insurance;
2. They can't afford to pay premium.

**Poverty and Nutrition:** There exists a vicious circle between poverty and majnourishment. Malnutrition leads to low productivity and low income due to increase in vulnerability to infection, general weakness, retardation of physical and mental growth, With the increase in nutrition level, work capacity also increases, which leads to increase in income. It is shown as a positively sloped curve through following diagram.




**Poverty and the Household:** Even within a poor family, resources are unequally allocated. Some enjoy more income than other members of the family. Generally male members of the family get a higher share than female and dependent old members because they must maintain their minimum diet intake in order to maintain their productivity necessary to get some work.

## 1.3 Inequalities of Income

Notes

### Self-Assessment

1. Fill in the blanks:
   - *(i)* Poverty and ..... are two related problems.
   - *(ii)* ..... is a phenomenon in which a section of the society is unable of fulfill even its basic necessities of life concerning food, clothing, housing, education and health.
   - *(iii)* Poverty gap is defined as the increase in ..... required in order allerating poverty.
   - *(iv)* ..... shows how the cause of poverty become its consequences as well as making a vicious circle of poverty.
   - *(v)* Head count Ratio = $\frac{M}{N}$ where M is the number of ..... and N is .....

*Did u know?* When private ownership of resources is prevalent along with the law of inheritance, it gives birth to antagonistic economic system.

India's per capita income (nominal) is $ 1219, ranked 142nd in the world, while its per capita purchasing power parity (PPP) of US $3,608 is ranked 129th. It is estimated that India's Per Capita Income will register an average growth rate of 13% during 2011-20 so as to reach $ 4,200 by 2020. In the year 2020 India's real GDP is projected to be at $5 trillion, and per capita Nominal GDP at $ 3,650. India's per capita purchasing power parity (PPP) will be at $ 12,800 in the year 2020. States of India have large disparities. One of the critical problems facing India's economy is the sharp and growing regional variations among India's different states and territories in terms of per capita income, poverty, availability of infrastructure and socio-economic development. Although income inequality in India is relatively small (Gini coefficient: 32.5 in year 1999- 2000); India's nominal Gini index rose to 36.8 in 2005, while real Gini after tax remained nearly flat at 32.6.

Despite significant economic progress, a quarter of the nation's population earns less than the government-specified poverty threshold of $0.40/day. 27.5% of the population was living below the poverty line in 2004-2005.

Reforming cumbersome regulatory procedures, improving rural connectivity, establishing law and order, creating a stable platform for natural resource investment that balances business interests with social concerns, and providing rural finance are important.

**—World Bank: India Country Overview 2008**

Between 1999 and 2008, the annualized growth rates for Maharashtra (9.0%) Gujarat (8.8%), Haryana (8.7%), or Delhi (7.4%) were much higher than for Bihar (5.1%), Uttar Pradesh (4.4%), or Madhya Pradesh (3.5%). By 2010, economically backward states start to catchup up with developed states with Bihar with an impressive 11 percent growth rate. This is said to be due to better governance.

According to a World Bank paper Development Policy Review, $1 a day poverty rates in rural Orissa (43%) and rural Bihar (40%) are some of the highest in the world. Seven low-income states - Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, and Uttar Pradesh - are home to more than half of India's population. Bihar's 80 million people are by far the poorest in India.

On the other hand, rural Haryana (5.7%) and rural Punjab (2.4%) compare well with middle-income countries.

The Economic Survey of India 2007 by OECD concluded:

At the state level, economic performance is much better in states with a relatively liberal regulatory environment than in the relatively more restrictive states".

Notes

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

## States by GDP per capita

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

## Rural-urban gap

Like in other countries, cities provide a better standard of living.

Towns and cities make more than two thirds of the Indian GDP, even though less than a third of the population live in them.

India has a high rate of migration from rural areas to urban cities. A major reason for the massive migration to cities was the Partition of India. More than half of the refugees from Pakistan settled In urban areas such as Delhi. It is estimated that up to 590 million people, or 40% of the Indian Population will be living in cities by 2030, much higher than the current 28%. Also, it is estimated that six states, including West Bengal, Tamil Nadu, Gujarat, Maharashtra, Karnataka and Punjab will have more than half of their total population living in Urban areas by 2030.

In India, urban areas have seen a much higher growth rate as compared to rural areas. Despite up to three-fourths of the population living in rural areas, rural areas contribute to only one-third of the national income. The main reason for rural India's poor performance in terms of income is the fact that rural India is mostly dependent on agriculture. The agriculture sector in India grew at a rate of only 1.6% in 2008-09, while the Indian Economy grew at a rate of 6.7%, despite the 2008 Financial Crisis. An extremely slow rate of growth in the agriculture sector of the Indian economy has serious implications for the rural-urban divide, both in terms of income and GDP. Some estimates say that that the average income of a person living in an urban area may be up to 4 times higher than that of a person living in a rural area. The rising levels of urbanization in India is a major reason for the rising levels of income disparity in the country. Despite the fact that up to four-fifths of Indian households save money, almost a quarter of them spend more than they earn.

## Bridging the Urban-Rural Gap

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

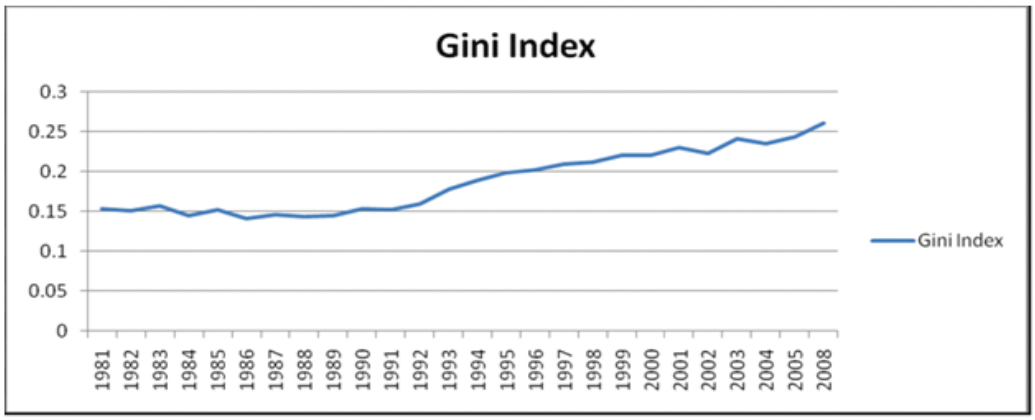
## Inequality of Income across Indian States

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

**Notes**

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

The Inter-State Gini for 2008, namely, 0.2608 is far lower than the Gini for India as a whole (0.36) given by UNDP's Human Development Report revealing that the geographic disparity of income is much lower than the social disparity between the richest and poorest people in the country.




**Eastern states of the country are lagging in growth as compared to the richer western states**

The development divide in India does not lie along a North-South basis, but rather an east-west basis. The 82.5 parallel which is used to determining Indian Standard Time (IST) is arguably the dividing line between the more developed west and the less developed east. A comparison of states lying wholly to the west of this line with states which partly or wholly lie east of this line illustrates this divide.

The average per capita GDP (at current prices) of western states to eastern states from 1981 to 2008 is shown in the diagram below. The gap between per capita incomes of eastern and western states grew by an average of 11% in the 1980s, 19% during the 1990s and slowed down to 10% in the early 2000s. This reflects that eastern states are now getting richer at slower pace but still they lag far behind the western states. These states need to focus on their economic development to reduce their poverty levels which decrease the income disparity and eventually increase their per capita income.

On an average, Easterners grew slower and Westerners faster than the national growth rates for the period of 1991-2009. The average growth rate of the eastern states during 2003-2009 was 7.5% and western states were 8.5% against the overall growth rate of 7.9%. Some low income states like Bihar grew rapidly in the 2000s though the remaining BIMARU states - Madhya Pradesh, UP and Rajasthan grew at a rate slower than the national average. Looking at the Human Development Index scores, an alternative development indicator also reflects this phenomenon. The average HDI score for western states of 0.53 is higher than the average HDI score of 0.46 which shows that slower growth of eastern states has also affected the social development in these states.

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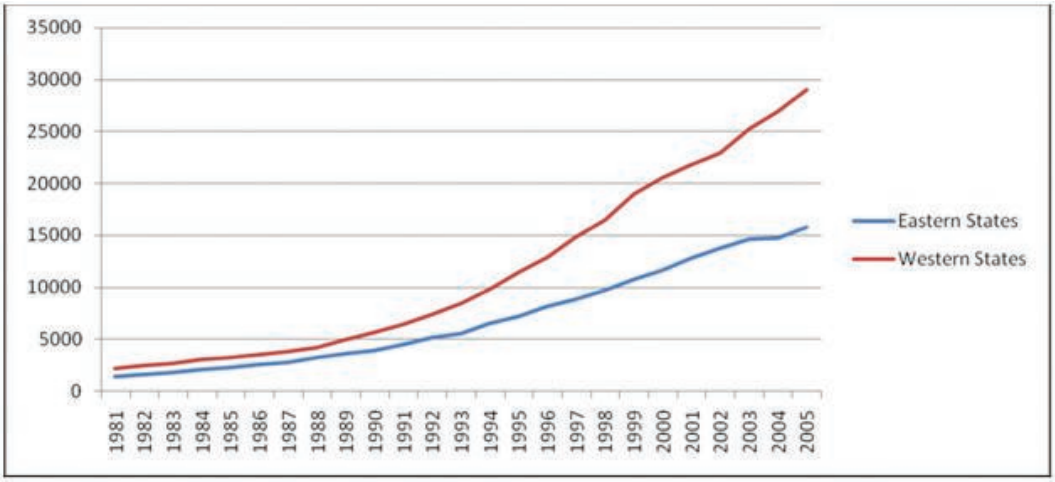



**The Road Ahead and Strategy to reduce the income inequality**

India needs to look at the holistic view of the inequality existing across the states. Special assistance and focus is required on the eastern states on their poverty reduction and skills development. India needs to develop an integrated mechanism where eastern states can be benefited from the greater economic development of the western states by sharing different economic activities. The current need is to balance economic growth with social development and more emphasis should be given on the wider reach of government schemes and equitable distribution of resources. Social entrepreneurship which focuses on developing innovative solutions to solve the social problems with sustained revenue growth can be the possible solution. The companies need to create shared value for all stakeholders rather than just investing in corporate social responsibility programmes which can help them to increase their future income and wealth.

*Caution* Equality of incomes does not and cannot mean that each and every worker in the economy gets exactly equal earning irrespective of the skill, qualification, and risk involvement of his job.

***Measurement of Inequalities of Income***

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

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

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

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

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

**Two Approaches to Measurement:**

(a) Personal distribution of income

(b) Functional distribution of income.

Notes

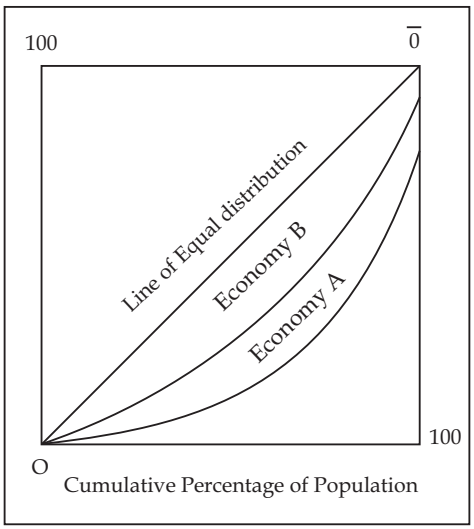
*(i) Personal Distribution*

> *Notes* At micro level, inequalities of income are measured to know the differences in incomes of individuals. It is called personal approach and is based on the income earned by individuals.

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

**(a) Lorenz Curve:** Lorenz curve is a statistical tool developed by an American statistician Prof. Max D Lorenz to measure inequalities of income. The data relating to population and income distribution is transposed into percentage and arranged into cumulative frequency distribution. A straight line joining the two origins is drawn which represents 100% population and 100% of income. This line is called Line of Equal Distribution. This line acts as a reference point for comparing and knowing the extent of inequalities. If the actual distribution of income line coincides with this line, it shows perfect equalities of income in the economy. Greater is the gap between the line of actual distribution of income and Line of Equal Distribution, greater are the inequalities in the economy and *vice versa*.

It is shown with the help of following diagram. Percentage of income is taken along Y-axis and percentage of population is taken along X-axis. Joining 100% of both the axis we get ED. ED is the line of equal distribution. If two Lorenz curves of two economies are such as shown in the diagram then inequalities of income are greater in economy A than Economy B.




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

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

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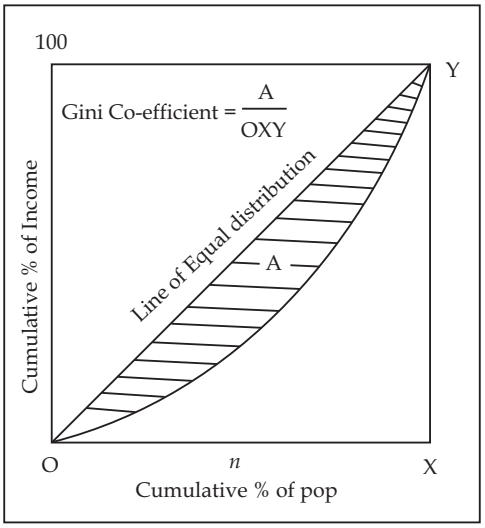
It can be shown with the help of a diagram as shown in figure given below:

$$\text{Gini Concentration Ratio} = \frac{\text{Shaded Area A}}{\text{Total Area OXY}}$$

Gini coefficient can vary between 0 and 1.0 indicates perfect equality. 1 indicates perfect inequality.




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

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

***(ii) Functional Distribution***

Functional distribution gives us the relative share of profits, interest, wages and rent in the national income. For our discussion, we are considering the percentage share of income received by labour in comparison to the percentage share received by other three factors of production. Functional distribution of income is explained with the help of a diagram. We can merge natural and man made resources into capital and labour and organization into one labour. Now there are two factors of production labour (variable factor) and capital (fixed factor). X-axis shows the number of workers employed and *y* axis shows the wage rate. $D_1$ is demand curve of labour derived from Marginal productivity of labour. $S_1$ is supply curve of labour. Equilibrium gets established at point E where ON number of labourers are employed and they get wages equal to OW. Total output generated by all labour employed is OWRN. Out of it, OWEN is the share of labour. Hence, capital gets residual amount which is equal to area WER.

**Criticism:** It ignores the role of non market forces e.g. collective bargaining, monopoly powers etc.

***Growth and Inequalities***

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

Notes

of development, the income differentials start to narrow down. Therefore, after this level, inequalities of income start to decrease.

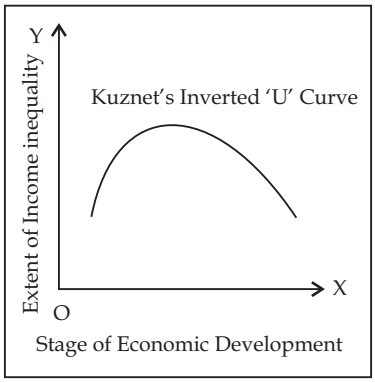
(ii) **Gary S. Fields' prediction:** Gary S. Fields made use of Lorenz curve to explain how inequalities of income change during the course of economic growth. He gave three situations :

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

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

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

It is shown with the help of the diagram given below:




*Task* What are the two approaches measurement of inequalities of income

## 1.4 Poverty, Inequality and Welfare

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

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

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

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

Notes

## 1.5 Policy Options

Since the problems of poverty, inequality and welfare are very closely related, these problems need to be addressed together. Following policy initiatives can help to tackle the problems :

**(a)** **Levelling down excessively large wealth and income:** In order to reduce the income of the rich state can:

(i) Keep a strong check on unearned income. Law of inheritance may be removed or a heavy wealth tax or death duty can be imposed.

(ii) Make use of progressive tax structure.

**(b)** **Levelling up the lowest incomes:** In order to increase the income of the poor state can :

(i) Enact and enforce Minimum Wage Act

(ii) Ensure Equal Opportunity for All

(iii) Extension of Social Benefits

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.

*(i)* "Labourers get wages" is the example of unearned income.

*(ii)* Anonymity principle states that a measure of inequality must remain silent about the quality of people.

*(iii)* Lorenz curve is a statistical tool developed by an American Statistician Prof. Max D Lorenz to measure inequalities of income.

*(iv)* Functional distribution didn't give us the relative share of profits, interest, wage and rent in the national income.

*(v)* In order to reduce the income of the rich state can make use of progressive tax structure.

## 1.6 Summary

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

Notes

## 1.7 Key-Words

- starvation : the state of suffering and death caused by having no food.
- deprived : withoug enough food, education, and all the things that are necessary for people to live a happy and comfortable life.
- methodology : a set of methods and principles used to perform a particlar qctivity.
- alleviate : to make something less serve.
- vulnearable : weak and easily hurt physically or emotionally.

## 1.8 Review Questions

1. Distinguish absdute poverty and relative poverty.
2. Describe in brief the functional impact of poverty.
3. What do you mean by inequalities of income?
4. Explain in brief the Gini coefficient.
5. Explain in brief the relationship between povery, inequality and welfare.

### Answers: Self-Assessment

1. *(i)* inequality *(ii)* Poverty *(iii)* national income
   *(iv)* functional impact of poverty *(v)* poor, population
2. *(i)* F *(ii)* T *(iii)* T *(iv)* F
   *(v)* T

## 1.9 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

Notes

# Unit 2: Measurement and Indicators of Development

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2.2 Growth and Development
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## Objectives

After reading this unit students will be able to:

- to know about the development GAP and growth and development.
- to understand indicators of economic welfare.
- to know about the alternative measures of economic welfare.

## Introduction

There are wide gaps in the standards of living of the people in different countries. It is so because countries are at different stages of economic development. The core issue of this unit is what economic development is; how it is different form economic growth and welfare; various indicators of economic welfare. Economic development is wider than economic growth and a better indicator of economic welfare. With economic growth many institutional and social changes take place in the economy which are considered in estimation of economic development and welfare.

## 2.1 Development GAP

Development gap refers to the difference between the standards of living of richer and poorer countries of the globe. In other words, it is the difference in the living standards of countries at either end of the income distribution.

Notes

The magnitude of development gap can be understood from the table given below:

| Income Groups by GNI per capita | Number of Countries | GNI (US$m) | Population on | GNI per capital | %of World Population | %of World GNI (US$) |
|---|---|---|---|---|---|---|
| Countries with less than $785 Low income countries | 63 | 917 | 2460 | 410 | 41 | 3.2 |
| Countries between $786 ans $3115 Lower Middle | 54 | 2324 | 2048 | 1130 | 34 | 7.4 |
| Countries with $3116-9635 Upper Middle | 38 | 3001 | 647 | 4040 | 11 | 9.6 |
| More than $ 9635 High income | 52 | 24994 | 903 | 27680 | 15 | 79.4 |
| World | 207 | 31315 | 6053 | 5170 | 100 | 100 |

## 2.2 Growth and Development

Earlier economic growth and economic development were taken as synonyms. Economic growth is increase in country's real per capita income which is sustained over a number of years.

1. It is important to note that economic growth is a dynamic and continuous increase in per capita income. Dynamic implies that growth is a process that takes place over a period of time and not at appoint of time.
2. An increase in total output is significant when economies of scale are important. It is per capita output that matters when we want to know to increase in standard of living of the population.
3. There is a difference between output and output capacity. Most of the growth theories have emphasized on increasing the total production capacity of the economy but the actual growth depends on how efficiently this production capacity is utilized.

***Modern View***

Modern economists do not agree that economic growth and economic development are synonyms. They claim that economic growth is not same as economic development. Economic development is a much broader term than economic growth. As said above economic growth is increase in country's real per capita income which is sustained over a number of years. But economic development refers to increase in standard of living with improvement in quality of life. Growth is a means to attain the ultimate end of economic development. It is very much possible that a country's real per capita income has increased but it has massive poverty, unemployment, high crime rate, low level of nutritional status and so on which indicates that it has grown but not developed.

In fact, the traditional economists viewed that economic growth and economic development mean the same on the ground that they believed in trickle down effect. It states that the benefits of growth will automatically trickle down to all sections of society. Economic development, hence, meant reduction in inequalities, poverty and unemployment.

Prof. Dudley Seers states that the questions to ask about a country's development are therefore : what has been happening to poverty ? What has been happening to unemployment ? What has been happening to inequality ? If all these have declined from high levels then beyond doubt there has been a period of development for the country.

Notes

*Notes* we can say that economic development implies a whole gamut of change in socially, economically, politically and spiritually that makes life better than before.

**Economic Growth:** Economic growth refers to a rise in national or per capita income and product. If a production of goods and services in a country rises, by weather means and along with it average income increases, the country has achieved economic growth.

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

Economic growth on the other hand, is a narrower concept than economic development. It is defined as the increase in the value of goods and services produced by every sector of the economy. It is usually expressed in terms of the gross domestic product or GDP of the country.

Economic growth is defined by increases in GDP. Whereas, economic development is more of a vague measure usually incorporating social measures such as literacy rates or life expectancy as a means of measuring a country's level of development.

Economists often tend to use the two terms economic development and economic growth interchangeably, as they appear to be synonymous with each other.

Economic growth is defined by increases in GDP. Whereas, economic development is more of a vague measure usually incorporating social measures such as literacy rates or life expectancy as a means of measuring a country's level of development.

Economic development is a qualitative measure while economic growth is a quantitative measure.

***Concept of Economic Development***

Economic development implies more, particularly improvements in health, education and other aspects of human welfare. Countries that increase their Income but do not also raise life expectancy, reduce infant mortality, and increase literacy rates are missing out of some important aspects of development. The economic development of a country is defined as the development of the economic wealth of the country. Economic development is aimed at the overall well-being of the citizens of a country, as they are the ultimate beneficiaries of the development of the economy of their country.

Economic development is a sustainable boost in the standards of living of the people of a country. It implies an increase in the per capita income of every citizen. It also leads to the creation of more opportunities in the sectors of education, healthcare, employment and the conservation of the environment. Economic Development can be defined as a process whereby the productivity of the resources of an economy improves which leads to increase in economic welfare of the community by accelerating the growth of national income.

Hence, economic development aims at attainment of three objectives simultaneously.

(a) Increasing the availability of basic needs of life and ensuring these are distributed equitably.

(b) Raising the standards of living *via* higher incomes, better education and health facilities, enhancing individual and national self-esteem.

(c) Expanding the range of variety to individuals and nations economically as well as socially. It must eliminate ignorance and human misery.

Hence, quality of life is an important consideration in economic development.

**Economic Development and Structural Change:** In chapter 18, it has been explained through various theories that development brings about structural changes. Some pioneers works in this field has been done by Kuznets and Hollis Chenery. Following changes can be seen in an economy with economic development:

Notes

(a) **Constituents of GDP Change:** With economic development, savings rate increase, government revenues increase, the share of income spent on food items decrease and on industrial goods and services increase.

(b) **Employment Changes:** The labour force starts to shift from primary sector to secondary and territory gradually.

(c) **Shift in Composition of Exports:** With development, a country starts to export more of manufactured goods and the share of primary goods decreases in exports.

(d) **Rate of Increase in Population:** With development, in initial phases, population rises but gradually it starts falling due to change in social attitudes.

(e) **Distribution of Income :** Inverted-U shaped curve given by Simon Kuznets claims that initially income inequalities increase with increase in per capita income and start to fall after a certain level.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* Economic development is wider than economic growth and a better ..... of economic welfare
   - *(ii)* Development gap refers to the difference between the standards of living of ..... and .....countries of the globe.
   - *(iii)* Earlier economic growth and development were taken as .....
   - *(iv)* Economic development is a qualitative measure while economic ..... is a quantitative measure.
   - *(v)* Economic development is a sustainable boost in the standards of living of the people of a .....

## 2.3 Indicators of Economic Welfare

Economic development takes into account economic growth which is quantitatively measurable and economic welfare which is qualitative in nature. Since, economic welfare is a qualitative aspect of development; it needs to be measured in some way or the other. Some indicators of economic welfare with their respective limitations are discussed below.

***GNP as an indicator of Economic Welfare***

GNP is expected to ensure greater availability of goods and services to a larger portion of society with higher standards of living. It means it is expected to bring about economic welfare but it is subject to following conditions.

1. **Changes in Size of GDP and Economic Welfare**

   Increase in Size of GDP does not necessarily mean greater availability of goods and services.

   - (i) Increase in GDP may be eaten away by increasing population leading to no increase or even decrease in per capita income.
   - (ii) If GDP is calculated at current prices, it might be increasing due to price rise and there may be no change in availability of goods and services.
   - (iii) Sometimes, production for self consumption is not included in GDP due to non availability of data. It makes GDP underestimated.
   - (iv) If increase in GDP is brought about by forcing labour to work for longer hours and thereby reducing their welfare, it can't reflect economic welfare.

2. **Changes in the Composition of GDP and Economic Welfare:** Composition means what kinds of goods and services are produced in the economic an din what ratio.

Notes

(i) If the share of capital goods is more in GDP, it will not increase Economic Welfare in the present but in the future.

(ii) If increase in output is because of increased production of defense goods, even then there will be no change in economic welfare.

(iii) If increased output is contributed by increase in the production of liquor, cigarettes, tobacco etc. It does not indicate economic welfare.

**3. Changes in the distribution of GDP and Economic Welfare:**

(i) If GDP increases and goes into the pockets of few rich leaving majority in the miserable condition, it can't be called an indicator of economic welfare.

(ii) Transfer of income from the rich to the poor will increase economic welfare; hence it is important to know who is getting the benefits of increased output in the economy.

***Per Capita Income as an Index of Economic Welfare***

Generally speaking, per capita income is taken as an indicator of the economic Welfare but it is not reliable due to the fact that it suffers from following limitation.

(a) Per capita income does not show the distribution of GDP whether it is equally distributed or unequally distributed. As mentioned above, if GDP increases and goes into the pockets of few rich leaving majority in the miserable condition, it can't be called an indicator of economic welfare.

(b) It does not reflect the kinds of goods and services that are being produced and consumed in the society. It may be so that the economy is producing pedigree, anti-aging creams on the one hand and 26% people are living below poverty line as it is happening in India.

*Did u know?* Economic Welfare also depends on the quality of public goods.

## 2.4 Alternative Measures of Economic Welfare

As explained above, GDP and Per Capita Income both are incapable of indicating economic welfare. Therefore economists have developed alternative indicators of economic welfare.

***Poverty-Weighted Index of Social Welfare:***

If we give weights according to the income share of that class in total GDP, then we shall get quintiles for different classes. Suppose income is distributed in following way:

**Table 1:** Table showing share of income in different income groups.

| Cumulative % of population | Quintiles % share in GDP |
|---|---|
| Bottom 20% | 5 |
| Less than 40% | 14 |
| Less than 60% | 27 |
| Less than 80% | 53 |
| Less than 100 | 100 |

In such situation, the total welfare of the society is equal to the sum total of simple weighted sum of the growth of income in each class.

$$G = w_1 g_1 + w_2 g_2 + w_3 g_3 + w_4 g_4 + w_5 g_5$$

$$G = 0.05 g_1 + 0.09 g_2 + 0.13 g_3 + 0.26 g_4 + 0.47 g_5$$

Notes

If income growth rate of bottom 40% population is zero and middle 20% is 5% and above 40% is 10%, then growth rate is equal to:

G = 0.05(0) + 0.09(0) + 0.13(0.05) + 0.26(0.10) + 0.47(0.10) = 0.0795 = 7.95%

It implies GDP will increase by 7.95 % but there will be zero change in income of 40% population and 5% in middle class. In order to make GDP a better indicator of economic welfare we can use Equal Weight index or Poverty Weight Index.

**Equal Weight Index:** It gives equal weightage to all classes. Hence, keeping the data given above unchanged, it will give growth rate equal to :

G = 0.20 (0) + 0.20 (0) + 0.20 (0.05) + 0.20 (0.10) + 0 .20 (0.10)

= 0 + 0 0.0010 + 0.020 + 0.020

= 0.041

4.1%

Therefore, equal weight index shows increase in GDP as 4.1% as against 7.95% shown by simple weighted index. It is a better indicator of social welfare.

***Poverty-Weight Index***

It makes use of 'Subjective' social value in income growth rates of bottom 40% and zero weights to upper 60%.

Hence G = 0.60 (0) + 0.40 (0) + 0.0(0.05) + 0(0.10) +0(0.10)

G = 0%. This index will not show any increase in GDP unless and until it has improved the living standards of the poorest section of the society.

It is an indicator of how much benefit of increase in GDP has gone to the weaker section of the society.

*Task* What is poverty weight index?

***UNRISD's Core Indicators of Development***

United Nations research Institute on Social Development selected the most appropriate indicators of development and analyzed the relationship between these indicators at various levels of development.

***List of Core Indicators of Socio-economic Development.***

Expectation of life at birth

Percentage of population in localities of 20,000 and over

Consumption of animal protein, per capita, per day

Combined primary and secondary enrollment

Vocational enrollment ratio

Average number of persons per room

Newspaper circulation per 1,000 population

Percentage of economically active population with electricity, gas, water, etc.

Agricultural production per male agricultural worker

Percentage of adult male labour in agriculture

Electricity consumption, *kw* per capita

**Notes**

Steel consumption, *kg* per capita

Energy consumption, *kg* of coal equivalent per capita

Percentage GDP derived from manufacturing

Foreign trade per capita, in 1960 U.S. dollars

Percentage of salaried and wage earners to total economically active population

These indicators are selected because of their high correlation with over all quality of life. Another similar study was conducted by Irma Adelman and Cynthia Morris who studied 74 countries according to 40 different variables.

***The Physical Quality of Life Index (PQLI)***

It was developed for the Overseas Development Council in the mid-1970s by Morris David Morris, as one of a number of measures created due to dissatisfaction with the use of GNP as an indicator of development. PQLI might be regarded as an improvement but shares the general problems of measuring quality of life in a quantitative way. It has also been criticized because there is considerable overlap between infant mortality and life expectancy. Life expectancy at age 1, infant mortality, and literacy are used as indicators of development, describing progress in health, sanitation, education, and women's status. Gross National Product (GNP) is the standard measure of progress but does not show how output is distributed. The Physical Quality of Life Index (PQLI) is a summation of complex social interrelationships on which no theoretical explanation imposes any given weights/biases. Equal weight is assigned to each component.

In the table given below the performance of third world countries is shown. It is clear that India's PQLI index is little higher than Pakistan and much lower than China. The striking contrast lies between Sri Lanka and India.

| Country | Per Capita GNP ($) | PQLI |
|---|---|---|
| Gambia | 348 | 20 |
| Angola | 790 | 21 |
| Sudan | 380 | 34 |
| Tanzania | 299 | 58 |
| Zimbabwe | 815 | 63 |
| China | 304 | 75 |
| Pakistan | 349 | 40 |
| India | 253 | 42 |
| Sri Lanka | 302 | 82 |
| Singapore | 5220 | 86 |
| Taiwan | 2503 | 87 |
| Saudi Arabia | 12720 | 40 |
| Iraq | 3020 | 48 |
| Brazil | 2214 | 72 |

**Source:** *Todaro M. P. Economic Development 5th Edition*

***The Human Development Index (HDI)***

United Nations Development Programme (UNDP) has made use of Human Development index to analyse the level of economic development. Like PQLI, HDI also lies between 0 and 1 with 0 showing the worst situation and 1 as the best on the basis of three criterions:

Notes

(a) Longevity of life measured by life expectancy at birth;

(b) Educational attainments measured by a weighted average of adult literacy rates and mean years of schooling; 2/3 weights are given to the former and 1/3 to the latter.

(c) Standard of Living measured by the level of real per capita income.

The countries with HDI ranking between 0-0.49 are called low human development countries; the countries with HDI ranking between 0.50-0.79 are called medium human development countries; and the countries with HDI ranking between 0.80-1 are called high human development countries.

The following table shows the comparison of HDI and CPM with real Per capita income:

| Country | Real GDP per Capita (PPP$) | HDI |
|---|---|---|
| USA | 24680 | 0.940 |
| Sweden | 17900 | 0.933 |
| Japan | 20660 | 0.938 |
| South Korea | 9710 | 0.866 |
| Sri Lanka | 3030 | 0.698 |
| Pakistan | 2160 | 0.442 |
| India | 1240 | 0.436 |
| Bangladesh | 1290 | 0.365 |
| China | 2330 | 0.309 |
| UK | 17230 | 0.924 |
| Germany | 18840 | 0.920 |
| Brazil | 5500 | 0.796 |
| Tanzania | 630 | 0.364 |
| Iraq | 3413 | 0.599 |
| Algeria | 5570 | 0.746 |
| Kuwait | 21630 | 0.836 |

**Source:** HDR, UNDP

Table above shows that there is no direct correlation between per capita income the rank of HDI. It shows GNP growth is not sufficient bring about positive changes in socio-economic scenario of the country.

***Limitations of HDI:***

(a) The three indicators used in HDI are good but not ideal.

(b) It does not consider distribution of income directly.

(c) The index is relative and not absolute and therefore the results derived from it may be misleading.

***The Capability Poverty Measure (CPM)***

Since poverty is often so linked with human development, or lack of it, the 1996 report took a special look at poverty and concluded that income poverty is only part of the picture. "Just as human development encompasses aspects of life much broader than income, so poverty should be seen as having many dimensions," says the report. As a result, the report introduced a new, multidimensional measure of human deprivation called the Capability Poverty Measure, (CPM). The CPM focuses on human capabilities, just as human development index does. Instead of examining the average state of people's capabilities, it reflects the percentage of people who lack basic, or minimally essential human capabilities, which are ends in themselves and are needed to lift one from income poverty and to sustain strong human development.

Notes

Indian Nobel Prize winning Economist Amartya Sen, had given his important contribution in developing a multi dimensional measurement called Capability Poverty Measurement.

The index measures human poverty in terms of deprivations.

*(a)* Deprivation of life (poor people are deprived a right to live by no provision for nutrition and medical facilities);

*(b)* Deprivation of Basic Education ( Particularly girls due to social attitudes are denied the opportunity to be educated).

*(c)* Deprivation of access to public and private resources.

CPM focuses on the lack of capabilities of some particular category of people in the country rather than average capabilities of the nation. The CPM of less developed countries is shown in the table given below.

**Table 2:** Table showing CPM of Less Developed countries

| Country | CPM |
|---|---|
| South Korea | 8.6 |
| Sri Lanka | 19.3 |
| Pakistan | 60.8 |
| India | 61.5 |
| Bangladesh | 76.5 |
| China | 17.5 |
| Brazil | 10.0 |
| Tanzania | 39.4 |
| Iraq | 39.9 |
| Algeria | 49.5 |
| Kuwait | 10.8 |

**Source:** HDR, UNDP

It is clear on comparing table 1 and 2 that high level of per capita income does not ensure high level of CPM.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.

*(i)* Economic development takes into account economic growth which is quantitatively measurable and economic welfare which is qualitative in nature.

*(ii)* Sometimes production for self consumptions is included in GDP due to non availability.

*(iii)* The physical quality of life index is a summation of complex social interrelationships on which no theoratical explanation imposes any given weights.

*(iv)* Equal weight is not assigned to each component.

*(v)* The striking contrast lies between Sri Lanka and India.

## 2.5 Summary

- There are wide gaps in the standards of living of the people in different countries. It is so because countries are at different stages of economic development.
- Development gap refers to the difference between the standards of living of richer and poorer countries of the globe.

Notes

- Earlier economic growth and economic development were taken as synonyms. Economic growth is increase in country's real per capita income which is sustained over a number of years.
- Economic growth refers to a rise in national or per capita income and product. If a production of goods and services in a country rises, by weather means and along with it average income increases, the country has achieved economic growth.
- Economic growth on the other hand, is a narrower concept than economic development. It is defined as the increase in the value of goods and services produced by every sector of the economy.
- Economic development takes into account economic growth which is quantitatively measurable and economic welfare which is qualitative in nature.
- It was developed for the Overseas Development Council in the mid-1970s by Morris David Morris, as one of a number of measures created due to dissatisfaction with the use of GNP as an indicator of development.
- United Nations Development Programme (UNDP) has made use of Human Development index to analyse the level of economic development.

## 2.6 Key-Words

- Measurement : the act or the process of sinding the size, quantity or degree of something.
- Indicator : a sign that shows you what something is like or how a situation is changing
- Globe : on object shaped like a ball with a map of the world on its surface
- Synonyms : a word or expression that has the same or nearly these same meaning as another in the same language.

## 2.7 Review Questions

1. Distinguish between economic growth and economic development.
2. What type of structural change take please in an economy as it develops?
3. Highlight import amt limitations at GDP as an indicator of economic welfare.
4. Bring out the limitations of per capita income as an index of economic welfare.
5. What is equal weights index? What is poverty-weight index.
6. What are the three indicators used to form a composite index for PQLI? The GNP and PQLI are highly correlated for all the contries. Is it true or false? Explain

### Answers: Self Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | indicator | *(ii)* | richer, poorer | *(iii)* | synonyms | | |
| | *(iv)* | growth | *(v)* | country | | | | |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | *F* |
| | *(v)* | T | | | | | | |

## 2.8 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 3: Population and Development

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## Objectives

After reading this unit students will be able to:

- Know about the human resources and economic development.
- Describe the malthus and the nature of population problem in developing countries.
- Learn the population poverty and environment and need for a population policy in a developing economy.

## Introduction

A large population can prove to be an asset as well as a liability for the economy depending upon how efficiently it is used. A large population may be an asset as it can provide more and if invested in then high quality human resources. But if they are not used efficiently, they can be a liability for the economy. There are many theories of development and growth which have considered the role of population in determining the rate of economic growth while others have taken it as exogenous variable. It is human capital whose intellect brings about technological progress which increases the growth rate for the economy.

## 3.1 Human Resources and Economic Development

Human resource is the resource which makes use of other resources to produce goods and services. Neither other resources can become useful on their own nor can they use human resource. Therefore, human resource is the most crucial of all resources. Even the objective of economic growth is to provide better living conditions to the human race. Thus, human resource has a dual role in the economy:

(a) As providers of factor services;

(b) As units of consumption.

Notes

*Notes* It is human capital that acts as labour or entrepreneur in the economy. More people means cheap and abundant labour and entrepreneurial skill.

***Human Resources as Factor Services***

**(a)** **Minimum Scales of Production:** When we provide infrastructure, it has a fixed cost which must be distributed amongst a large population to make it economically viable. An economy like Australia can certainly grow at a higher rate with higher availability of labour. It is for this reason that these countries have lenient immigration rules.

**(b)** **Demographic Transition and Savings:** With the increase in population, the age composition of population also changes. It increases the labour force and decreases the number of dependent members. Therefore, savings also increase.

**(c)** **Capital Formation in Agriculture:** In agriculture, there is family labour that works on farm. With the increase in number of persons in the family, total labour hours will increase. It will increase agriculture human capital stock. This relationship is presented as the "Boserup Sequence". According to Ester Boserup, with the increase in population, land and other natural resources become scarcer, leading to agriculture intensification. Relative price changes and food price goes up. This gives birth to institutions like private property rights. These new institutions facilitate more intensive farming techniques. It enhances the economies of large scale associated with the provision of infrastructure.

**(d)** **Labour Force Participation:** When there are more dependent members in the family, it motivates more women to work, postponement of retirement age, increasing number of child workers, and longer working hours for men all leading to increased participation of labour force.

**(e)** **Trade Specialization:** A labour abundant country can specialize in labour intensive industries and thereby increase its exports. Therefore, growing labour supply would enable the country to participate more in trade.

**(f)** **Technological Changes:** A higher population will be able to provide more geneous and it will increase the pace of technological progress. Simon Kuznets claimed that under following conditions a larger population can promote economic growth.

(i) Existence of a variety of unutilized resources;

(ii) Rising mobility of labour;

(iii) Easier division of labour;

(iv) An improvement in technology that facilitates better utilization of human resource.

***Human Resources as Units of Consumption***

It is the human resource which demands goods and services produced by the Economy. If population is more than the absorption capacity of nation (it depends on natural resources), then the country is over populated and *vice versa*. An excess population may create troubles and can hinder the growth process.

(a) A rising population increases current consumption and reduces the capacity to save and capital formation. R.H. Cassen called it a saving effect and investment effect. In saving effect, he states that population growth reduces the savings in the country because of 'burn of dependency'. In investment effect he says that with an increase in population will force the Economy to spend some resources to reproducing for the unproductive people. Some capital has to be spent to increase the productivity of existing capital.

Coale and Hoover compared the economy along two time paths. In a higher fertility economy, savings would be lower and a portion of investment would be used to increase the productivity of existing labour. In a lower fertility economy, GNP per capita will be higher.

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(b) With the rising population, an economy has to import more of machinery, raw materials etc. to support their increasing population. However, in domestic economy, there will be greater demand for food, clothing and other necessities. Hence, such an economy with limited foreign exchange has to choose between imports of capital goods imports and the imports of necessities. Since both seem to be unavoidable, it chooses to bear trade deficit.

(c) If economy is not able to absorb its increasing population productively it will lead to unemployment either open or disguised. Unemployment will create its social and economic side effects.

(d) With increase in population, social overhead cost keeps increasing.

Hence, a larger population is a mixed blessing. To some extent, a larger population will stimulate growth process but after a certain level it will start hampering the growth process.

*Caution* A rising population increases the demand for food stock of the economy; land is in limited supply and is subject to diminishing returns, therefore it causes shortages in food supply.

## 3.2 Malthus and Other's Views

Malthus was the first economist to raise the issue of over population. According to Malthus, population has a constant tendency to increase. But growth of means of subsistence particularly food is subject to diminishing returns. There is thus disequilibrium between increase in population and food production and this inequilibrium is tending to be wider with time.

According to Malthus, this equilibrium would create conditions of starvation and under nourishment leading to high mortality and low life expectancy. There could also be epidemics, famines, other man made and natural calamities. Malthus referred to these as 'positive checks' which follow inevitably if human beings do not take preventive measures. According to Malthus, preventive checks may be celibacy, late marriage, moral restraints etc.

***Optimum Theory of Population***

The concept was first conceived by Prof. Sidwick. Optimum population is defined as that level of population which enables a country to produce, with given resources, technology and capital stock, the highest per capita income.

Dalton has given a formula which tells how much actual population deviates from optimum population.

$M = A - O/O$

M is Maladjustment

A is Actual Population

O is Optimum Population

If M is negative country is underpopulated, If M is positive country is over populated.

**Theory of Demographic Transition:** Frank Notestein has envisaged three stages of demographic transition on the basis of the experiences of the developing nations.

**Stage One:** It is a situation of a very backward country. It generally happens in an agrarian economy. In this stage, both death rate and birth rate are high; hence population growth rate remains low. Birth rate is high due to illiteracy, absence of family planning programmes, early marriages, religious beliefs. Children are not taken as responsibility as parents do not spend on their education but as a helping hand as they start working at an early age. The death rate is also high due to poverty, low nutrition, epidemics, poor or no medical facilities, lack of proper sanitation facilities.

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**Stage Two:** Stage two is a stage of a developing country where resources are being utilized more efficiently and the process of industrialization has set in. The birth rate continues to be high as masses are still illiterate. On the other hand, death rate falls on account of better health facilities. It leads to population explosion. This stage is destructive for economic growth as the benefits of economic growth are eaten away by increasing population and per capita standards remain intact.

**Stage Three:** In third stage, death rate as well as birth rate falls and hence population remains stable. This stage is prevalent in developed countries. The birth rate falls due to universal literacy levels, extensive use of contraceptives, freer society. Death rate falls due to better medical facilities.

## 3.3 Nature of Population Problem In Developing Countries

The theory of demographic transition applied to present day developing countries but quite differently.

(a) Since most of the developing countries are overpopulated, physical resources are scarcer and no relief is expected from emigration or mild moral suasion to have smaller families.

(b) Rate of population growth is much higher than what it was in European countries when they crossed this stage of development. It can be estimated from the fact every year we add one Australia to India. Most of the developed nations of Europe did not stay in second stage of demographic transition for too long. But many developing countries reduced their death rate to as low levels as they are in advanced countries but birth rate did not fall as socio-economic change did not occur. India is an example. We are in second stage of demographic transition since 1921 and till date could not jump to third stage.

(c) In present day developed countries, increase in population spread out over a longer time and a simultaneous economic development but present day developing countries have experienced sudden and drastic fall in death rate with little or no change in socio-economic environment keeping birth rates high. It makes situation worse for them.

In nutshell, model of demographic transition has to be transplanted to developing countries with caution. Each country needs to understand its own specific causes of the problem and accordingly need to announce a national policy.

***Other Demographic Characteristics of Developing Economic***

The theory gives only the quantitative aspect of population however, much depends on qualitative aspect. Such a policy can be framed better by understanding some other qualitative demographic features and their relation with economic development.

**(a)** **Life Expectancy:** It is the mean number of years that a newly born child is expected to survive. It is the best statistical tool to measure longevity of life and health infrastructure in the country. If life expectancy is high, it is a symbolic of low death rate and *vice versa*. An increase in life expectancy means that quality of life has improved.

**(b)** **Infant Mortality Rate:** It is ratio of the number of children dying before attaining the age 1 to per 1000 live births. Some other relevant indices are (a) Child mortality : it measures the probability of death of a child between age 1 and 5. (b) Under five mortality : It measures the number of children dying before attaining age 5 to per 1000 live births. If any of these indices are high, it is an indicator of poor health facilities and under development. IMR is divided into two components; neonatal deaths (these occur before completing first month after birth) and post neonatal deaths (these occur after 1 month of age but before 1 year.

**(c)** **Age Composition:** The age composition refers to the division of population on the basis of age and analyzing the percentage of population in different age groups. It is relevant to know the workforce and labour force available in the economy. Age and sex composition is determined by trend in fertility and mortality. Since, children below 14 are not allowed to work. Retirement age is 60 years. Therefore, people between age group 15-59 constitute work force for the economy. It helps us to know the percentage of people dependent on work force. It is called dependency ratio. Dependency ratio is equal to:

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Total Population – Population in the Age Group 15-59/Total Population

When the share of working population increases; the rate of economic development increases. Young not only work but also save for their old age that increases the rate of savings and thereby investment.

In East Asia without any directed effort population increased in such a way that working population increased much faster than dependent population.

**(d)** **Sex Composition:** It is the number of women per 1000 men. It is crucial to judge social welfare. In many developing countries including India, sex ratio is deteriorating day-by-day. Following factors seemed to have worsening the trend.

(i) Infanticide is prevalent in many nations.

(ii) A progressive undercount of women compared to men has been noticed in different censuses.

(iii) Discrimination against women in providing proper diet and health facilities.

(iv) There are social customs which increase preference for a male child. A strict population policy asking people to adhere to two children may worsen sex ratio because of increased sex selective births. However, the ratio can be improved by improving the status of women in the society.

**(e)** **Literacy and Levels of Development:** It has been empirically studied and proved that there is a strong positive correlation between education and level of Economic Development. Economists and sociologists have believed that education is the panacea to all socio-economic problems. Female literacy rates are still more important as it will increase the availability of work force in the economy. It will increase the usage of contraceptives, reduce infant mortality rate and postpone the age of marriage. Literate population is more aware and makes government more responsible and accountable which further helps in higher rate of Economic Development.

**(f)** **Rural-Urban Distribution:** If a major portion of the population is living in rural areas, it indicates that a larger part of lab.our force is engaged in agriculture. It is also possible that many of them are disguisedly unemployed. Moreover, social indicators of development are poor in rural areas. On the contrary, an increasing share of urban population implies that a larger labour force is occupied in secondary and territory sector. It means shifting of labour from low productivity sector to high productivity sector and hence an increase in GDP and rate of Economic Development.

### Self-Assessment

1. Fill in the blanks:

*(i)* Human resource is the resource which makes use of other resources to produce .....

*(ii)* Malthus was the first economist to raise the issue of .....

*(iii)* ..... has given a formula which tells how much actual population deviates from optimum population.

*(iv)* ..... is the mean number of years that a newly born child is expected to survive.

*(v)* Dependency ratio is equal to .....

## 3.4 Population, Poverty and Environment

***Population and Poverty***

We can study the relation between poverty and population both at micro and macro level; at micro level, relation of poverty line to fertility rate is studied; and at macro level, relation of poverty to population explosion is studied.

At micro level, it has been seen, observed and proved that fertility rate is higher amongst poor because of high illiteracy and their attitude towards children as helping hands without any feeling of

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responsibility of spending on their education as such. High fertility rate is also responsible for their being poor. So, high fertility rate is both a cause as well as effect of poverty.

*Did u know?* At macro level, population explosion means higher pressure on given fixed natural resources which reduces the availability of resources per capita.

***Population and Environment***

Environment has a given carrying capacity. If population increases beyond carrying capacity of the environment, it leads to environment degradation. Both rich and poor play their roles in degrading environment. Rich overuse the resources and the poor misuse it. Given a fixed perfectly inelastic supply of fertile land, it increases pressure for food supply. Thus, an economy has to rush even to maintain the present standards of living for all.

Population explosion also has an implication for sustainable development. If population keeps increasing, environment would not be able to sustain it. It will create ecological imbalances and deplete natural resources.

## 3.5 Need for a Population Policy in a Developing Economy

Since most of the developing countries that are facing the problem of population explosion are in second stage of demographic transition, they need a policy that attacks on birth rate. Higher incomes, education, industrialization, social change are the best contraceptives. All of these can reduce fertility rate. According to demand theory given by G. S. Becker, an increase in the level of family income reduces fertility rate because parents now aspire to improve the quality of investment on each child. This reduces the demand for a large number of children. Therefore, if income is redistributed and increased standard of living is ensured, the fertility rate will be reduced. Leibenstein explained his model by taking children as durable consumer goods. He identified six types of utilities that parents get from their children.

(a) Consumption Utility;

(b) Economic Utility;

(c) Economic Risk-reduction utility;

(d) Old Age Security utility;

(e) Long run family status maintenance utility;

(f) Utility derived from contribution to the expended family.

But there are differences in the conditions of developing countries of the present and the experiences of western countries. It has been explained earlier.

For a country like India, population control is necessary to accelerate the rate of economic development. Therefore, it is necessary for us to have a well planned population policy and its effective implementation.

***Components of Population Policy***

An effective population policy must address following issues:

**(a)** **Objective of Full Employment:** Complete elimination of involuntary unemployment and decrease in voluntary unemployment that is there for social hindrances must be a goal of population policy. For ensuring the generation of gainful employment in the economy, we need to have capital formation, gainful employment in rural areas that stops migration from rural to urban areas. It also needs industrialization, provision for skill development, financial system to provide loans and favourable political environment

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(b) **Empowerment of Women:** Women empowerment implies strengthening women economically, socially, and politically and giving her freedom to take her own decisions. It calls for universal female literacy as the foremost goal. It will reduce infant mortality rate, maternal mortality rate, increase the participation of women in economic activities, increase the status of women in society and family, and will act as a force in breaking vicious circle of poverty.

(c) **Controlling the Growth of Population:** By popularizing family planning programmes population growth can be controlled. Population control would require people to be more selective in conception of a child. It aims at reducing the number of children per couple to one or two; and to increase the gap between the birth of two children to ensure good health for mother as well as child.

*Task* What are the components of population policy?

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* The objective of economic growth is hot to provide better living conditions to the human race.
   - *(ii)* Optimum theory of population this concept was first conceived by prof. Sidwick.
   - *(iii)* Sex composition is the number of men per 1000 women.
   - *(iv)* Empowerment of women implies streng theing women economically, socially, and politically and giving her freedom to take her own decisions.
   - *(v)* Population control would not require people to be more selective in conception of achild.

## 3.6 Summary

- A large population may be an asset as it can provide more and if invested in then high quality human resources.
- Human resource is the most crucial of all resources.
- If population is more than the absorption capacity of nation (it depends on natural resources), then the country is over populated and *vice versa*.
- preventive checks may be celibacy, late marriage, moral restraints etc.
- At micro level, it has been seen, observed and proved that fertility rate is higher amongst poor because of high illiteracy and their attitude towards children as helping hands without any feeling of responsibility of spending on their education as such.
- If population increases beyond carrying capacity of the environment, it leads to environment degradation.
- Women empowerment implies strengthening women economically, socially, and politically and giving her freedom to take her own decisions.

## 3.7 Key-Words

- council : extremely important, because it will affect other things.
- viable : that can be done; that will be sucessful.
- abundant : very clear
- contraceptives : a drug, device or practise used to prevent a woman becoming pregnent.

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## 3.8 Review Questions

1. Explain how human resources promote economic development?
2. Describe how human resources hinder the growth of an economy?
3. Explain in brief the different steyes of demograpic transition.
4. Examine the relationship between population growth and poverty.
5. Bring out the need for a suitable population policy for a developing country like India.

### Answers: Self Assessment

1. *(i)* goods and serviceses *(ii)* overpopulation
   *(iii)* Dalton *(iv)* Life expectancy
   *(v)* Total population—population in the age group 15-59/Total population
2. *(i)* F *(ii)* T *(iii)* F *(iv)* T
   *(v)* F

## 3.9 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 4: Economic Development and Institutions

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## Objectives

After reading this unit students will be able to:

- Know about the market failure and government failure.
- Understand the institutions and governance.
- Learn the role of social norms and the community n economic development.
- Describe the inter-sectoral complementaries, coordination failures and historical lock-ins, etc.

## Introduction

We shall make an effort to understand the impact and influence of institutions on the process of economic development. Adam Smith believed that invisible hands of demand and supply are capable of allocating the resources most efficiently but he assumed that there exists perfect competition in the market. However, in real life, markets are imperfect. We need to understand two things; (a) Non-economic factors are equally or sometimes more important in determining the level of economic development. Non-economic factors influence the economic factors. (b) Institutions are not uniform or static. Social institutions have their own role in determining the pace of economic development.

## 4.1 Market Failure

All classical and most of neo classical economists argue that laissez faire policy is the best as each individual is the best judge of his own interest. If all individuals are left free, there will automatically *e* maximization of aggregate utility in the society. But later on economists realized that competitive markets lead to the most efficient allocation of resources, if and only if certain conditions are met. If these conditions are not met, the competitive market does not perform well or work perfectly.

The meaning of efficiency and the conditions that is necessary to be fulfilled to attain this efficiency are discussed below.

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*The Fundamental Theorems of Welfare Economics*

There are two fundamental theorems of welfare economics:

**(a)** The first theorem states that if certain conditions are fulfilled, competitive market leads to an efficient allocation of resources. Alfred Pareto was a famous welfare economist who developed these conditions.

Pareto claimed that allocation of resources is efficient if it is impossible to make some one better off without making any one else worse off. If it possible to make some one better off without making any one else worse of, it is advisable to shift to that alternative. Therefore it is not a situation of efficiency in allocation of resources. Pareto optimality can be attained only on the PPC and not below PPP. It is so because by using underutilized resources someone else can be made better off without making anyone else worse off.

**(b)** The second theorem states that with the proper initial distribution of income, an economy must attain some point on its utility possibility curve. It means it must operate on PPC and not below it. In other words, it must utilize its resources to the fullest and resources must not be under utilized or unemployed.

These theorems are strong advocators of Laissez faire policy. It states that if individual decision maker take their own decision without interference of anyone, and there is competition in the market, then market mechanism will automatically lead to the best allocation of resources and no central planning authority is required at all.

Hence, there are some situations when resources are efficiently allocated but some other times when the conditions of Pareto optimality are not satisfied, it is called the situation of market failure. These are the situations which make a valid ground for the intervention of the government. So, to define, market failure does not mean that nothing good has happened but the best has not happened.

Some situations when markets fail to allocate resources optimally are as follows :

**(a)** **Markets that are not Competitive:** Pareto optimality conditions can be fulfilled only when there exists perfect competition in the market. In present scenario, factor as well as commodity market hardly fulfills the conditions of perfect competition. Most of the times there exists imperfect competition. There may be large firms producing differentiated products (Monopolistic competition) or few dominating interdependent firms (Oligopoly), or a single seller producing a unique product (Monopoly). Pareto optimality is hard to attain on these market situations because free entry and exit is precondition for attaining Pareto optimality. It has been proved by Hicks and Robinson that there exists excess capacity in monopolistic competition which proves that these markets can't attaint Pareto optimality. Under monopoly, since there is a single seller, seller can always exploit the consumer who has no alternative available. He charges a high price than MC and thereby takes off a portion of consumer surplus.

*Notes* Worse than this is the fact that there is a part which accrues neither to government nor seller nor consumer and is called deadweight loss in monopoly.

**(b)** **Public Goods:** Public Goods are the goods which are made available either to all or to none. Anyone particular individual can't be denied their access irrespective of whether he pays a price for it or not. The other characteristic of public goods is absence of competition from seller's as well as producer's side. There is no competition amongst buyers (To get a higher quantity) or producers (as these are generally provided by the government only). Example of public goods can be street lighting. The government twill either not supply it at all or supply it for everyone irrespective of whether user has paid for it or not. This creates a problem of Free Riders. Free riders problem is that when you know that rides will be available to payers as well as non payers, each on would like to join the non payers' group. Therefore, markets will either not supply these goods or under supply and when supplies will not get reasonable price for it

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because the marginal cost to the additional individual enjoying the benefit will be zero.

(c) **Externalities:** Externalities refers to the situations when one firm is affecting the costs of other firms or the society at large. There may be positive as well as negative externalities. In other words, "an externality is said to occur when actions by an individual or firm produce benefits or costs that affect other members of the society but these costs and benefits are not taken into consideration by these firms or individuals." Externalities can occur not only in production but also in consumption. Question arises why do externalities lead to market failure ? Answer is that when firms or individuals take decisions, they are only concerned only about private costs and benefits that individual and marker demand and supply curves reflect. So they equalize Marginal Private Cost wth marginal private benefit but marginal social benefit may not be equal to marginal social cost. An example of negative externality can be pollution created by a factory for which it does not compensate anyhow to the society at large. And the example of positive externality can be construction of a hospital in the vicinity of my house which has increased the property value of my house.

(d) **Incomplete Markets:** Sometimes, the market is not capable of providing a good even when consumers are ready to pay a price equal to its marginal cost. It is a situation of market failure. It happens when supporting industries or infrastructure is not available. An example of a situation like this the non-availability of many facilities in rural areas for which they are willing to pay. It may be that rural households can also afford to pay for metro train if such comfortable transport is provided to them but due to lack of other support services in rural areas.

(e) **Information Failures:** A case of incomplete information arises when some members in the economic system possess more relevant and correct information than others. Or in other words, it means that same information is not available to all. It may be that producers have more accurate information then they may sell low quality product at a high price; or consumer has more accurate information then firms make adverse selection of the customers. There may al so be principal-Agent problem. Managers may pursue objectives other than owners.

These are the situations when government intervention would be profitable as will lead to increase in efficacy in allocation of resources. Some other areas where government intervention is desirable are: first to reduce inequalities of income secondly to force consumers to consume merit goods. Merit goods are the goods that government thinks is in the best interest of the consumers and which they otherwise do not choose to consume. An example can be compulsory pollution under control certification to be maintained for a vehicle.

*Did u know?* Needless to mention, the government must ensure a smooth, efficient and reliable legal framework that gives assurance and incentives to producers to give their best in the markets.

## 4.2 Government Failure

Market failure explained above clarified us that market mechanism is not always efficient. There are situations when markets fail. Now the question arises if all decisions are taken by planning authority, will it be able to attain Pareto optimality. Answer is no. These are the situations of government failure. Government plays many roles in the economy. It engages itself in production of goods and services; it involves in economic planning; it announces monetary, fiscal and other policies for the economy as per requirements; it also takes care of effective administration in the country. But in practice, by all means government may not be able to take market to Pareto optimality and may not attain its intentions of the most efficient allocation of resources. This is called government failure.

We need to understand that if market, in some situations, is not capable to be efficient government is also not omnipotent to know all details and free from any defects. It also is not able to realize its

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stated objectives in many cases or in some cases even set its objectives wrong. These are known as cases of government failure.

Causes of Government failure are as follows:

(a) **Limited Information:** State can never have as much information as market has. It is also possible that state sets its objectives and policies to attain these objectives on incorrect future expectations.

(b) **Limited Control:** Government has limited control over the private sector both consumers and producers. In spite of levying high taxes on cigarettes, banning its usage in public places, government could not reduce the production or consumption of tobacco to any remarkable extent.

(c) **Bureaucracy:** In spite of legislation being created it is not implemented so efficiently for many reasons. A good example can be abolition of Zamindari system in India. The law was passed but implementation was not so successful because of bureaucracy.

(d) **Constraints of Political Process:** If the decisions taken by the government are liked by influential people in the society, it may create problems in the economy. They might create many types of problems. So government has to consider many aspects. Lipsey puts it beautifully when he says that economic efficiency is only one ingredient of the recipe of decisions taken by the government.

(e) **Nobel Prize winner Gunnar Myrdal explanation to the causes of government failure :** According to Myrdal, following reasons are responsible for government failure :

(i) Politicians and government authorities may pursue their self interest which leads to corruption and sub-optimal results.

(ii) Concern for their vote bank also compels political parties to take popularists decisions an do not optimal. For example, reservation in Indian Constitutions were expected to reduce over years but kept increasirg to influence vote bank positively.

(iii) Government with short run perspective may not be able to bring about structural changes and therefore many problems may go unaddressed. Example for it, is population problem in India. We announced policies but did little to bring about structural changes which will automatically sort out the problem.

(iv) Government aims to attain not only economic but many goals which may be social or political. Hence, a policy may bring about results which are sub optimal economically but do produce desirable social changes which may be more important than economic goals.

(v) Lack of information may create coordination problem.

(vi) Most importantly and ironically democratic countries are undermining the ideals of democracy. Some interest groups may unduly influence the government policies in their favour.

*Task* Give the two reason of government failure

## 4.3 Institutions and Governance

If market as well as government fails in some situations, then what factors are making them inefficient ? Answer is to some extent it is institutional set up of an economy, however some other factors also play their role. It is extremely relevant to understand the role of institutional set up in determining the allocation of resources. Neo-Classical theories were based on 'an institution free environment' in effect. However, economists like Thorstein Veblen did consider the role of institutions in resource allocation. There are many theories which have explained the fact that economic growth is related to some endogenous factors which themselves are neither the causes nor the explanations of economic growth. Institutions and differences in them accounts for a large difference in the performance of different nations.

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This can be explained better with the help of some examples. If we want people to give their best, institutions must ensure distribution of income on the basis of productivity. Similarly, level of competition in the market influences the economic output of the firms. It has been observed that greater competition due to globalization, has improved the efficiency of domestic producers as they know that in order to survive in the market, they must be competitive.

It is clearly known that for private goods, for efficient allocation of resources, private ownership rights and anonymous markets are desirable. But for public goods, we need to solve the problem of the choice of institutional set up that would ensure optimization of resources.

**Meaning of Institutions:** According to Douglass North, a Nobel Prize winner in Economics, institutions are the rules of the game in a society or, more formally are the humanly devised constraints that shape human interactions. Institutions acts as an influence as well as a constraint in interactions among people. For example, a social institution of marriage and its relative importance in different societies has implications for population growth, gender inequality, sex ratio and consumption patterns. It is important to keep in mind that institutions are not only important but also endogenous.

There have existed theories which have incorporated the role of institutions in their explanations like Marx's Theory of Economic Development and at the same time some theories have assumed an institution free environment like Walsarian analysis.

Recently economists have made an effort in to extend Walsarian Analysis by incorporating the role of institutions into it.

One view is to understand the role of changes in property rights and transaction costs on Economic Development. This view is explained by the economists like Ronal Coase and Douglass. Transaction costs include the cost of negotiation, monitoring, coordination and enforcement of contracts. If transaction costs are high, it is crucial to allocate property rights. With higher transaction costs, some economies of scale might have to be sacrificed.

Second view is to understand how Economic Development is affected by institutional changes. This is done by economists lie George Akerlof and Joseph Stiglitz.

Once we understand, the reasons for the existence for the existence of some institutions, we can easily analyse their roles in economic development.

### Self Assessment

1. Fill in the blanks:
   - *(i)* Social institutions have their own role in determining the pace of ..... development
   - *(ii)* Non-eonomic factors are equally or sometimes more important in determining the level of economic .....
   - *(iii)* ..... factors influence the economic factors.
   - *(iv)* Public goods are the goods which are made available ..... to all or to none
   - *(v)* ..... refers to the situations when one firm is affecting the cost of other firms or the society at large.

## 4.4 Role of Social Norms and the Community in Economic Development

In Economics, the most important aspect is optimization. A consumer tries to optimize on utility, a producer tries to optimize on profits, government tries to optimize on social welfare and so on. But all these agents have some constraint within which they have to optimize. For consumers it is budget, for producers it is cost, for government it is total resources and so on. Social norms are still other constraints within which an economic agent must attain its optimum level of equilibrium. It may be so that a firm can earn higher profits by producing liquor rather than milk but still chooses to produce milk on moral grounds. It will lead to sub optimal allocation of resources from the perspective of

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economic growth but may be optimal from the perspective of economic development which also takes into account the qualitative aspect of GDP. Hence, if judicial decision leads to moral hazard, it is not desirable. Hence, it is a big social norm.

Markets are based on competition, planning authorities use command and community interacts on the basis of cooperation. Communities in many situations have a potential to correct market and government failures. Sometimes, through combined efforts, government and society can correct market failures. Sometimes, market and society together can correct government failures. Social capital is a term used by social economists to mean the sum total of network of relationships that a person has with other members of the society.

*Caution* Social capital gives added advantage to the persons involved. In those societies where there is lack of mutual trust based relationships, government needs to intervene to correct the situation.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* The explanations for historical lock-ins can be given by complementarities and network externalities.
   - *(ii)* Coordination failure occurs when large scale investment take place because other complementary investment are forth coming.
   - *(iii)* By using linkages, the problem of coordination problem can be solved.
   - *(iv)* The explanation for such choices do not lie in historical lock-ins.
   - *(v)* When we consider the position of an economy at a given point of time, it depends on whole sequence of events.

## 4.6 Summary

- Adam Smith believed that invisible hands of demand and supply are capable of allocating the resources most efficiently but he assumed that there exists perfect competition in the market.
- All classical and most of neo classical economists argue that laissez faire policy is the best as each individual is the best judge of his own interest.
- Pareto claimed that allocation of resources is efficient if it is impossible to make some one better off without making any one else worse off.
- Pareto optimality conditions can be fulfilled only when there exists perfect competition in the market.
- Externalities refers to the situations when one firm is affecting the costs of other firms or the society at large.
- Sometimes, the market is not capable of providing a good even when consumers are ready to pay a price equal to its marginal cost.
- A case of incomplete information arises when some members in the economic system possess more relevant and correct information than others.
- Market failure explained above clarified us that market mechanism is not always efficient. There are situations when markets fail.
- One view is to understand the role of changes in property rights and transaction costs on Economic Development.
- Markets are based on competition, planning authorities use command and community interacts on the basis of cooperation.

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## 4.7 Key-Words

- Influence : the effect that somebody/something has on the way a person thinks or behaves or on the way that something works or develops.
- Efficiency : the quality of doing something well with no waste of time or money.
- Interference : the act of interfering.

## 4.8 Review Questions

1. Explain the concept market failure. Discuss its causes.
2. Describe the possible reasons for government failure.
3. What are institutions? How do they influence economic development?
4. Briefly discuss the two broad views on their ole of institutions and their impact.
5. Discuss the role of norms and communities in economic development.
6. Explain the concepts of path dependence and historical lock-ins.

### Answers: Self Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | economic | *(ii)* | development | *(iii)* | Non-economic | | |
| | *(iv)* | either | *(v)* | Externalities | | | | |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | F |
| | *(v)* | T | | | | | | |

## 4.9 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 5: Approaches to Development : Vicious Circle of Poverty and Unlimited Supply of Labor

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## Objectives

After reading this unit students will be able to:

- Know about approaches to development: vicious circle of poverty and unlimited supply of labour.
- Know about circular causation and comparison of Myrdal and Kaldor on CCC.
- Understand unlimited supply of labour.
- Learn about the closed economy and open economy.

## Introduction

Positive, step by step proposition developed by a firm or a salesperson to win a favorable response from the prospects. Sales approach is what, in essence, distinguishes a professional from an amateur.

## 5.1 Vicious Circle of Poverty

Poverty is living on a day to day basis with the uncertainty of what the future can bring. Poverty is not being able to provide good education to children. Poverty is the lack of freedom of expression. Poverty occurs when the income of any family or country is less than the level of consumption. The root of poverty is money. Lack of money can lead to people doing many bad actions and in turn result in bad consequences which end up impoverishing more people.

In a sentence, we can summarise it as: Poverty gives rise to crime and crime impoverish people! Think about poverty, and one of the things that come to your mind is Unemployment...people having no job...thus families starving for they have no food. And here is specifically where politicians tend to exploit us and do some finger pointing at their rivals stating that the latter are responsible. Unfortunately this part is very tricky: There is no magic to get unemployed people a job, even if jobs

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were available, you have to have the qualified people! And qualified people are not obtained overnight; it takes time, months of training and even years.

And now unemployed people need to live, they need food, they need shelter, and they need clothing. Where do you think these will be obtained from, space? In a crude language, it will be "kill or die". Killing here refers to committing crimes, like robberies, while die will mean starving yourself and your family as well.

But unfortunately, that's not the end of the story my dear friends; these poverty-compelled 'criminals' often end up in jail serving for lengthy sentences while their family suffers even more with the loss of a potential bread-winner. If these families have kids, guess what they will be doing to survive...crimes of course! Like most readings we come across on the issue of poverty, I am almost certain that you are expecting me to spit something like "Education is the key"! and you will be wrong this time, unfortunately.

but the real enemy is out there: Politicians and Businessmen! Do you really believe that poverty cannot be eradicated if everybody in this world wishes so? It can!!! But, there are people out there who are thinking...and they think: "what do I gain if there is no poor people ?", "Is it not more profitable to have poor people ?".

It is common knowledge that politicians are prime users (or rather exploiters) of poor people; just go to the talk shows of famous politicians during election period and listen how they artistically use the poor for their own benefit.

And businessmen, with all the millions of dollars given to the poor, why do I say they need poverty ? As a matter of fact, these donations are not done because they are happy to do so; it's simply a way for tax deduction! Next time you see Bill Gotes funding charities, know that his company had to pay the money anyway.

*Caution* There are both internal and external factors which affect a country's development. One internal factor affecting a country's development is its economy. By economic factors one usually means factors that are essential for production, for example labour, land resources and capital. In the model "The vicious circle of poverty" the link between lack of capital and underdevelopment is emphasised.

The theory of the vicious circle of poverty can be used both at the national and individual levels, but we will concentrate on the individual level in this report. We think that by studying poverty on the individual level one can more concretely see what causes poverty. On the individual level, the vicious circle of poverty starts with the statement that a poor person (A) cannot pay for an adequate supply of food, and (B) thus is physically weak (C) and cannot work efficiently (D), and unable to earn much money (E), and thus is poor (A). The circle starts all over again with a situation where the person does not have money to get nutritious food (B). This process goes on and on.

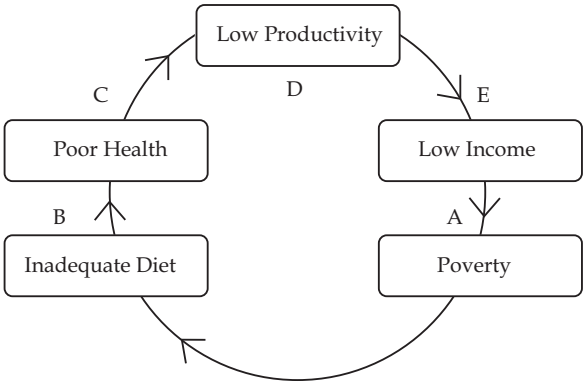


**Figure 1: The vicious circle of poverty - Individual level**

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There have been some criticism raised against this model which state that the circle is inadequate as a total explanation of poverty and underdevelopment. The model does not explain why the person is poor or what is the cause of their poverty. Another thing is that the model does not consider the difference between LDCs, it assumes that all countries are on the same level of poverty. Social conditions are not taken into account either, the model implies that these societies are static and unchanging. The vicious circle of poverty does not tell you anything about how an individual or a country can break out of the circle.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* Poverty is the lack of ..... of expression.
   - *(ii)* The theory of the vicious circle of poverty can be used both at the national and .....
   - *(iii)* ..... has been a critical principle of political economy for over a hundred years.
   - *(iv)* The ..... of poverty does not tell anything about how an individual or a country can break out of the circle.

## 5.2 Circular Causation

Myrdal opposes the strategy of development poles because social systems and economic processes do not develop towards equilibrium but, on the contrary, factors tend to cumulate to positive or negative cycles. Under laissez faire' conditions in developing countries, there is a tendency towards a negative cumulation. In principle, Myrdal's theory is a negation of the monocausal explanation of problems of developing countries by economic factors alone. Rather, in a comprehensive way, all social relations have to be incorporated. At national level—different stages of development between regions—as well as international level— trade between industrialized and developing countries—differences tend to increase because of the spread effects in the more developed areas and modern sectors and backwash effects in backward areas and traditional sectors. For instance, industrial import goods are in competition with traditional crafts; terms of trade deteriorate; capital is being transferred, etc. The direction of processes depends on the initial situation and the factors causing the change. Under the conditions in developing countries, increased regional dualism often is a consequence of such processes of circular causation.

Circular and cumulative causation (CCC) has been a critical principle of political economy for over a hundred years. While the roots of the concept go back further Thorstein Veblen (1857-1929) utilized the concept in his examination of the evolution of institutions. Gunnar Myrdal (1898-1987) scrutinized the conditions of African Americans and Asian underdevelopment through the lens of CCC; influenced as he was by Knut Wicksell (1851-1926) (Myrdal 1939).

*Notes* Education is an important aspect to tackle in the fight against poverty

## 5.3 Comparison of Myrdal and Kaldor on CCC

Myrdalian and Kaldorian CCC traditions have significant commonalities as well as important differences. They have three main things in common. The first is the principle of circular causation, where the variables are interrelated, and the general manner of interaction between variables is complex and manifold. Circular causation is a multi-causal approach where the core variables and their linkages are delineated. CCC eschews single factor theories. Both Myrdalian and Kaldorian CCC examine circular relationships, where the interdependencies between factors are relatively strong, and where variables interlink in the determination of major processes.

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The second similarity is cumulative causation, where the variables tend to operate as positive feedback processes, magnifying and multiplying the combined impact of the interactions through historical time. The coefficients of interaction between variables will play some role here, as will the extent of any negative feedback (drawback) effects working in the opposite direction. These cumulative interactions are crucial to Myrdalian and Kaldorian empirical studies of money, growth, demand, development and ethnicity. Both forms of CCC examine cumulative dynamics, where the feedback within and between variables often tend to have a multiplier or amplified impact on the overall outcomes.

*Did u know?* Poverty is the lack of essential needs to live that is the lack of proper shelter, clothing and food.

The third similarity relates to traverse, path dependence, and hysteresis that move the system through time in a typically non-equilibrium fashion. Both approaches to CCC recognize the importance of history and time, as well as space and geography, since changes to the social and political economy condition the path of evolution and transformation; and there are regional differences to growth and development as well. The acquisition of knowledge, technical skills and economies of scale/scope affect the path of growth and development in complex and multifarious ways. Both theories explain real world processes that impact nations and regions, and which help explain differences in the outcomes between regions and areas.

The fourth similarity is that cumulative processes often have endogenous contradictions embedded in their dynamics. This aspect has been under-emphasized in the literature, yet it is very important since it means that cumulative changes may sow the seeds of their own demise. When David Gordon (1991), for instance, criticized Kaldor's theory for having too much cumulation and not enough contradiction, he was cognizant of the problem but underplayed the degree that Kaldor himself recognized the problem (e.g., see Kaldor 1966). Setterfield (2001) has set the record straight for Kaldor, since, for instance, regimes of accumulation often have norms and mores that become locked-in, even when industrial change is required (see also Argyrous 2001 and Toner 2001). For Myrdal, on the other hand, the contradictions are more obvious, since cumulation occurs more specifically in tandem with uneven development; and counteracting forces can often be strong (though themselves cumulative, perhaps in a different direction).

These are strong similarities; core ones. Indeed, they are the foundation for linking the traditions. However, the differences are also important, since they allow the traditions to examine marginally different (but complementary) problems. There are three main differences between the models, differences of emphasis rather than quality. The first is that Myrdalian CCC concentrates on the social economy and development through interdisciplinary analysis; whereas Kaldorian CCC centers on more technical demand-supply issues linked to economies of scale and growth. Although Myrdal started out applying CCC to money and macroeconomics (Myrdal [1939] 1965), his most famous two-volume application was to the under-privileged situation of African Americans in the United States (Myrdal 1944), along with his three-volume work on Asian underdevelopment (Myrdal 1968). Myrdal influenced others to apply the theory to issues such as the provision of public and social services in rural and remote areas (Fagence 1980), the socio-political crisis in Poland in the 1980s (Tarkowski 1988), and uneven development at the regional level (Higgins and Savoie 1995). Myrdal's holistic vision is consistent with an interdisciplinary method for the social sciences, broadening the field of inquiry to social, political and economic relationships.

## Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   *(i)* Myrdal opposes the strategy of development poles.
   *(ii)* The direction of processes depends on the initial situation and the factors causing the change.

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*(iii)* Circular causation is a bi-causal approach where the care variables and their linkages are delineated.

*(iv)* The acquisition of knowledge, technical skills and economics of scale/scope do not affect the path of growth and development in complex and multifarious ways.

## 5.4 Unlimited Supply of Labour

Interest in prices and in income distribution survived into the neo-classical era, but labour ceased to be unlimited in supply, and the formal model of economic analysis was no longer expected to explain the expansion of the system through time. These changes of assumption and of interest served well enough in the European parts of the world, where labour was indeed limited in supply, and where for the next half century it looked as if economic expansion could indeed be assumed to be automatic. On the other hand over the greater part of Asia labour is unlimited in supply, and economic expansion certainly cannot be taken for granted. Asia's problems, however, attracted very few economists during the neo-classical era (even the Asian economists themselves absorbed the assumptions and preoccupations of European economics) and hardly any progress has been made for nearly a century with the kind of economics which would throw light upon the problems, of countries with surplus populations.

When Kevnes's *General Theory* appeared, it was thought at first that this was the book which would illuminate the problems of countries with surplus labour, since it assumed in unlimited supply of labour at the current price, and also, in its final pages, made a few remarks on secular economic expansion. Further reflection, however, revealed that Keynes's book assumed not only that labour is unlimited in supply, but also, and more fundamentally, that land and capital are unlimited in supply-more fundamentally both in the short run sense that once the monetary tap is turned the real limit to expansion is not physical resources but the limited supply of labour, and also in the long run sense thai secular expansion is embarrassed not by a shortage but by a superfluity of saving. Given the Keynesian remedies Ac neoclassical system comes into its own again. Hence, from the point of view of countries with surplus labour, Keynesianism is only a footnote to neoclassicism-albeit a long, important and fascinating footnote. The student of such economies has therefore to work right back to the classical economists before he finds an analytical framework into which he can relevantly fit his problems.

*Task* What do you mean by unlimited supply of labour

## 5.5 The Closed Economy

We have to begin by elaborating the assumption of an unlimited supply of labour, and by establishing that it is a useful assumption. We are not arguing, let it be repeated; that this assumption should be made for all areas of the world. It is obviously not true of the United Kingdom, or of North West Europe. It is not true either of some of the countries usually now lumped together as under-developed; for example there is an acute shortage of male labour in some parts of Africa and of Latin America. On the other hand it is obviously relevant assumption for the economies of Egypt, of India, or of Jamaica. Our present task is not to supersede neo-classical economics, but merely to elaborate a different framework for those countries which the neo-classical (and Keynesian) assumptions do not fit. In the first place, an unlimited supply of labour may be said to exist in those countries where population is so large relatively to capital and natural resources, that there are large sectors of the economy where the marginal productivity of labour is negligible, zero, or even negative. Several writers have drawn attention to the existence of such "disguised" unemployment in the agricultural sector, demonstrating in each case that the family holding is so small that if some members of the family obtained other

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employment the remaining members could cultivate the holding just as well (of course they would have to work harder : the argument includes the proposition that they would be willing to work harder in these circumstances). The phenomenon is not, however, by any means confined to the countryside. Another large sector to which it applies is the whole range of casual jobs-the workers on the docks, the young men who rush forward asking to carry your bag as you appear, the jobbing gardener, and the like. These occupations usually have a multiple of the number they need, each of them earning very small sums from occasional employment ; frequently their number could be halved without reducing output in this sector. Petty retail trading is also exactly of this type; it is enormously expanded in overpopulated economies; each trader makes only a few sales; markets are crowded with stalls, and if the number of stalls were greatly reduced the consumers would be no whit worse off-they might even be better off, since retail margins might fall. Twenty years ago one could not write these sentences without having to stop and explain why in these circumstances, the casual labourers do not bid their earnings down to zero, or why the farmers' product is not similarly all eaten up in rent, but these propositions present no terrors to contemporary economists.

## 5.6 The Open Economy

When capital accumulation catches up with the labour supply, wages begin to rise above the subsistence level, and the capitalist surplus is adversely affected. However, if there is still surplus labour in other countries, the capitalists can avoid this in one of two ways, by encouraging immigration or by exporting their capital to countries where there is still abundant labour at a subsistence wage. We must examine each of these in turn. Let us first clear out of the way the effects of the immigration of skilled workers, since our main concern is with an abundant immigration of unskilled workers released by the subsistence sectors of other countries.

It is theoretically possible that the immigration of skilled workers may reduce the demand for the services of native unskilled workers, but this is most unlikely. More probably it will make possible new investments and industries which were not possible before, and will thus increase the demand for all kinds of labour, relatively to its supply. We must also get out of the way relatively small immigrations. If 100,000 Puerto Ricans immigrate to the United States every year, the effect on U.S. wages is negligible. U.S. wages are not pulled down to the Puerto Rican level; it is Puerto Rican wages which are then pulled up to the U.S. level. Mass immigration is quite a different kettle of fish. If there were free immigration from India and China to the U.S.A., the wage level of the U.S.A. would certainly be pulled down towards the Indian and Chinese levels. In fact in a competitive model the U.S. wage could exceed the Asian wage only by an amount covering migration costs plus the "cliff to which we have already referred. The result is the same whether one assumes increasing or diminishing returns to labour. Wages are constant at subsistence level plus. All the benefit of increasing returns goes into the capitalist surplus. This is one of the reasons why, in every country where the wage level is relatively high, the trade unions are bitterly hostile to immigration, except of people in special categories, and take steps to have it restricted. The result is that real wages are higher than they would otherwise be. while profits, capital resources, and total output are smaller than they would otherwise be. The export of capital is therefore a much easier way out for the capitalists, since trade unions are quick to restrict immigration, but much slower in bringing the export of capital under control.

## 5.7 Summary

- Positive, step by step proposition developed by a firm or a salesperson to win a favorable response from the prospects. Sales approach is what, in essence, distinguishes a professional from an amateur.
- At national level—different stages of development between regions—as well as international level— trade between industrialized and developing countries—differences tend to increase because of the spread effects in the more developed areas and modern sectors and backwash

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effects in backward areas and traditional sectors.

- Circular and cumulative causation (CCC) has been a critical principle of political economy for over a hundred years.
- Interest in prices and in income distribution survived into the neo-classical era, but labour ceased to be unlimited in supply, and the formal model of economic analysis was no longer expected to explain the expansion of the system through time.
- We have to begin by elaborating the assumption of an unlimited supply of labour, and by establishing that it is a useful assumption.
- When capital accumulation catches up with the labour supply, wages begin to rise above the subsistence level, and the capitalist surplus is adversely affected.
- The result is that real wages are higher than they would otherwise be. while profits, capital resources, and total output are smaller than they would otherwise be.

## 5.8 Key-Words

- Vicious : very bad or sevexe
- Causation : To process of ne event causing or producing another event, causality

## 5.9 Review Questions

1. Describe the vicious circle of poverty and its significanse.
2. Discuss the comparison of Myrdal and Kaldor on CCC.
3. What is unlimited supply of labour Explained it.
4. Explain the open and closed Economy. Discuss the Difference between the open and closed Economy.

### Answers: Self Assessment

1. *(i)* freedom *(ii)* individual levels
   *(iii)* circular and cumulative causation *(iv)* vicious circle
2. *(i)* T *(ii)* T *(iii)* F *(iv)* F

## 5.10 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 6: Lewis Model

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## Objectives

After reading this unit students will be able to:

- Explain about Lewis model.
- Describe relationship between the two sectors.
- Understand surplus and the growth as the economy, etc.

## Introduction

The **dual-sector model** is a model in developmental economics. It is commonly known as the **Lewis model** after its inventor Sir William Arthur Lewis, winner of the Nobel Memorial Prize in Economics in 1979. It explains the growth of a developing economy in terms of a labour transition between two sectors, the capitalist sector and the subsistence sector.

## 6.1 Lewis Model

Initially the dual-sector model as given by W.A Lewis was enumerated in his article entitled "Economic Development with Unlimited Supplies of Labor" written in 1954 by Sir Arthur Lewis, the model itself was named in Lewis's honor. First published in *The Manchester School* in May 1954, the article and the subsequent model were instrumental in laying the foundation for the field of Developmental economics. The article itself has been characterized by some as the most influential contribution to the establishment of the discipline.

### Assumptions

1. The model assumes that a developing economy has a surplus of unproductive labor in the agricultural sector.
2. These workers are attracted to the growing manufacturing sector where higher wages are offered.
3. It also assumes that the wages in the manufacturing sector are more or less fixed.

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4. Entrepreneurs in the manufacturing sector make profit because they charge a price above the fixed wage rate.
5. The model assumes that these profits will be reinvested in the business in the form of fixed capital.

*Task* An advanced manufacturing sector means an economy has moved from a traditional to an industrialized one.

## 6.2 Lewis Theory

W.A Lewis divided the economy of an underdeveloped country into 2 sectors:

### The capitalist sector

Lewis defined this sector as "that part of the economy which uses reproducible capital and pays capitalists thereof". The use of capital is controlled by the capitalists, who hire the services of labor. It includes manufacturing, plantations, mines etc. The capitalist sector may be private or public.

### The Subsistence Sector

This sector was defined by him as "that part of the economy which is not using reproducible capital. It can also be adjusted as the indigenous traditional sector or the "self employed sector". The per head output is comparatively lower in this sector and this is because it is not fructified with capital. The "Dual Sector Model" is a theory of development in which surplus labor from traditional agricultural sector is transferred to the modern industrial sector whose growth over time absorbs the surplus labor, promotes industrialization and stimulates sustained development. In the model, the subsistence agricultural sector is typically characterized by low wages, an abundance of labour, and low productivity through a labour intensive production process. In contrast, the capitalist manufacturing sector is defined by higher wage rates as compared to the subsistence sector, higher marginal productivity, and a demand for more workers. Also, the capitalist sector is assumed to use a production process that is capital intensive, so investment and capital formation in the manufacturing sector are possible over time as capitalists' profits are reinvested in the capital stock. Improvement in the marginal productivity of labour in the agricultural sector is assumed to be a low priority as the hypothetical developing nation's investment is going towards the physical capital stock in the manufacturing sector.

## 6.3 Relationship between the two sectors

The primary relationship between the two sectors is that when the capitalist sector expands, it extracts or draws labor from the subsistence sector. This causes the output per head of laborers who move from the subsistence sector to the capitalist sector to increase. Since Lewis in his model considers overpopulated labor surplus economies he assumes that the supply of unskilled labor to the capitalist sector is unlimited. This gives rise to the possibility of creating new industries and expanding existing ones at the **existing wage rate**. A large portion of the unlimited supply of labor consists of those who are in disguised unemployment in agriculture and in other over-manned occupations such as domestic services casual jobs, petty retail trading. Lewis also accounts for two other factors that cause an increase in the supply of unskilled labor, they are women in the household and population growth. The agricultural sector has a limited amount of land to cultivate, the marginal product of an additional farmer is assumed to be zero as the law of diminishing marginal returns has run its course due to the fixed input, land. As a result, the agricultural sector has a quantity of farm workers that are not contributing to agricultural output since their marginal productivities are zero. This group of farmers that is not producing any output is termed surplus labour since this cohort could be moved to another

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sector with no effect on agricultural output. (The term surplus labour here is not being used in a Marxist context and only refers to the unproductive workers in the agricultural sector.) Therefore, due to the wage differential between the capitalist and subsistence sector, workers will tend to transition from the agricultural to the manufacturing sector over time to reap the reward of higher wages. However even though the marginal product of labor is zero, it still shares a part in the total product and receives approximately the average product. If a quantity of workers moves from the subsistence to the capitalist sector equal to the quantity of surplus labour in the subsistence sector, regardless of who actually transfers, general welfare and productivity will improve. Total agricultural product will remain unchanged while total industrial product increases due to the addition of labour, but the additional labour also drives down marginal productivity and wages in the manufacturing sector. Over time as this transition continues to take place and investment results in increases in the capital stock, the marginal productivity of workers in the manufacturing will be driven up by capital formation and driven down by additional workers entering the manufacturing sector. Eventually, the wage rates of the agricultural and manufacturing sectors will equalize as workers leave the agriculture sector for the manufacturing sector, increasing marginal productivity and wages in agriculture whilst driving down productivity and wages in manufacturing.

The end result of this transition process is that the agricultural wage equals the manufacturing wage, the agricultural marginal product of labour equals the manufacturing marginal product of labour, and no further manufacturing sector enlargement takes place as workers no longer have a monetary incentive to transition.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* Economic Development with Unlimited supplies of labor written in 1954 by the model itself was named in .....
   - *(ii)* The ..... is a theory of development in which surplus labour from traditional agricultural sector is transferred to the modern industrial sector.
   - *(iii)* The primary relationship between the two sectors is that when the capitalist sector expands, it extracts from the .....
   - *(iv)* Improvement in the marginal productivity of ..... in the agricultural sector is assumed to be a low priority.

## 6.4 Surplus Labor and the Growth of the Economy

Surplus labor can be used instead of capital in the creation of new industrial investment projects, or it can be channeled into nascent industries, which are labor intensive in their early stages. Such growth does not raise the value of the subsistence wage, because the supply of labor exceeds the demand at that wage, and rising production via improved labor techniques has the effect of lowering the capital coefficient. Although labor is assumed to be in surplus, it is mainly unskilled. This inhibits growth since technical progress necessary for growth requires skilled labor. But should there be a labor surplus and a modest capital, this bottleneck can be broken through the provision of training and education facilities. The utility of unlimited supplies of labor to growth objectives depends upon the amount of capital available at the same time. Should there be surplus labor, agriculture will derive no productive use from it, so a transfer to a non agriculture sector will be of mutual benefit. It provides jobs to the agrarian population and reduces the burden of population from land. Industry now obtains its labor. Labor must be encouraged to move to increase productivity in agriculture. To start such a movement, the capitalist sector will have to pay a compensatory payment determined by the wage rate which people can earn outside their present sector, plus a set of other which include the cost of living in the new sector and changes in the level of profits in the existing sector. The margin capitalists may have to pay is as much as 30 per cent above the average subsistence wage, **WW1** in figure which represents the capitalist sector is shown by **N; OW** is the industrial wage. Given the

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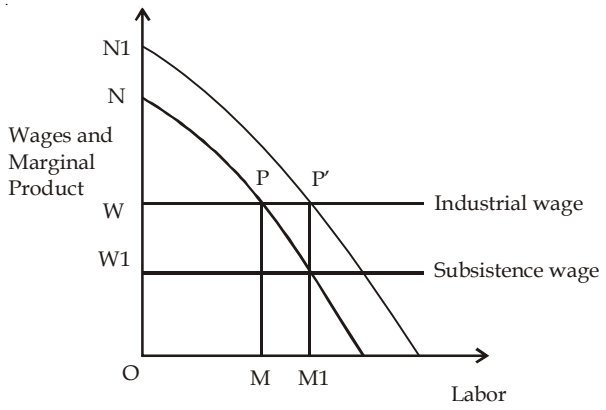
profit maximization assumption, employment of labor within the industrial sector is given by the point where marginal product is equal to the rate of wages, i.e. **OM**.




Since the wages in the capitalist sector depend on the earnings of the subsistence sector, capitalists would like to keep down productivity/wages in the subsistence sector, so that the capitalist sector may expand at a fixed wage. In the capitalist sector labor is employed up to the point where its marginal product equals wage, since a capitalist employer would be reducing his surplus if he paid labor more than he received for what is produced. But this need not be true in subsistence agriculture as wages could be equal to average product or the level of subsistence. The total product labor **ONPM** is divided between the payments to labor in the form of wages, **OWPM,** and the capitalist surplus, NPW. The growth of the capitalist sector and the rate of labor absorption from the subsistence sector depends on the use made of capitalist surplus. When the surplus is reinvested, the total product of labor will rise. The marginal product line shifts upwards tot the right, that is to **N1.** Assuming wages are constant, the industrial sector now provides more employment. Hence employment rises by **MM1.** The amount of capitalist surplus goes up from **WNP** to **WN1P′.** This amount can now be reinvested and the process will be repeated and all the surplus labor would eventually be exhausted. When all the surplus labor in the subsistence sector has been attracted into the capitalist sector, wages in the subsistence sector will begin to rise, shifting the terms of trade in favor of agriculture, and causing wages in the capitalist sector to rise. Capital accumulation has caught up with the population and there is no longer scope for development from the initial source, i.e. unlimited supplies of labor. When all the surplus labor is exhausted, the supply of labor to the industrial sector becomes less than perfectly elastic. It is now in the interests of producers in the subsistence sector to compete for labor as the agricultural sector has become fully commercialized. It is the increase in the share of profits in the capitalist sector which ensures that labor surplus is continuously utilized and eventually exhausted. Real wages will tend to rise along with increases in productivity and the economy will enter into a stage of self-sustaining growth with a consistent nature.

## Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* Surplus labor can be used instead of capital in the creation of new industrial investment projects.
   - *(ii)* The utility of unlimited supplies of labor to growth objectives does not depend upon the amount of capital available at the same time.
   - *(iii)* The growth of the capitalist sector and the rate of labor absorption from the subsistence sector depends on the use made fo capitalist surplus.
   - *(iv)* When all the surplus labor is exhausted, the supply of labor to the industrial sector become more than perfectly elastic.

*(v)* Real wages will tend to rise along with increases in productivity.

*Task* On which theory the Lewis model is based? explain.

## 6.5 Capital Accumulation

The process of economic growth is inextricably linked to the growth of capitalist surplus, that is as long as the capitalist surplus increases, the national income also increases raising the growth of the economy. The increase in capitalist surplus is linked to the use of more and more labor which is assumed to be in surplus in case of this model. This process of capital accumulation does come to an end at some point. This point is where capital accumulation catches up with population so that there is no longer any surplus labor left. Lewis says that it the point where capital accumulation comes to a stop can come before also that is if real wages rise so high so as to reduce capitalists' profits to the level at which profits are all consumed and there is no net investment. This can take place in the following ways :

1. If the capital accumulation is proceeding faster than population growth growth which causes a decline in the number of people in the agricultural or subsistence sector.
2. The increase in the size of the capitalist or industrial sector in comparison to the subsistence sector may turn the terms of trade against the capitalist sector and therefore force the capitalists to pay the workers/laborers a higher percentage of their product in order to keep their real income constant.
3. The subsistence sector may adopt new and improved methods and techniques of production, this will raise the level of subsistence wages in turn forcing an increase in the capitalist wages. Thus both the surplus of the capitalists and the rate of capital accumulation will then decline.
4. and therefore may need more to live on, this will raise the subsistence wage and also the capitalist wage and in turn the capitalist surplus and the rate of capital accumulation will decline.

*Notes* Even though the productivity of capitalist sector remains unchanged, the workers in the capitalist sector may begin to imitate the capitalist style and way of life.

## 6.6 Criticism

The Lewis model has attracted attention of underdeveloped countries because it brings out some basic relationships in dualistic development. However it has been criticized on the following grounds :

1. Economic development takes place via the absorption of labor from the subsistence sector where opportunity costs of labor are very low. However, if there positive opportunity costs, e.g. loss of crops in times of peak harvesting season, labor transfer will reduce agricultural output.
2. Absorption of surplus labor itself may end prematurely because competitors may raise wage rates and lower the share of profit. It has been shown that rural-urban migration in the Egyptian economy was accompanied by an increase in wage rates of 15 per cent and a fall in profits of 12 per cent. Wages in the industrial sector were forced up directly by unions and indirectly through demands for increased wages in the subsistence sector, as payment for increased productivity. In fact, given the urban-rural wage differential in most poor countries, large scale unemployment is now seen in both the urban and rural sectors.
3. The Lewis model underestimates the full impact on the poor economy of a rapidly growing

Notes

population, i.e. its effects on agriculture surplus, the capitalist profit share, wage rates and overall employment opportunities. Similarly, Lewis assumed that the rate of growth in manufacturing would be identical to that in agriculture, but if industrial development involves more intensive use of capital than labor, then the flow of labor from agriculture to industry will simply create more unemployment.

4. Lewis seems to have ignored the balanced growth between agriculture and industry. Given the linkages between agricultural growth and industrial expansion in poor countries,if a section of the profit made by the capitalists is not devoted to agricultural development, the process of industrialization would be jeopardized.
5. Possible leakages from the economy seem to have been ignored by Lewis. He assumes boldly that a capitalist's marginal propensity to save is close to one, but a certain increase in consumption always accompanies an increase in profits, so the total increment of savings will be somewhat less than increments in profit. Whether or not capitalist surplus will be used constructively will depend on the consumption- saving patterns of the top 10 percent of the population. But capitalists alone are not the only productive agents of society. Small farmers producing cash crops in Egypt have shown themselves to be quite capable of saving the required capital.
6. The transfer of unskilled workers from agriculture to industry is regarded as almost smooth and costless, but this does not occur in practice because industry requires different types of labor. The problem can be solved by investment in education and skill formation, but the process is neither smooth nor inexpensive.

The model assumes rationality, perfect information and unlimited capital formation in industry. These do not exist in practical situations and so the full extent of the model is rarely realised. However, the model does provide a good general theory on labour transitioning in developing economies.

*Did u know?* The world's largest cocoa industry in Ghana is entirely the creation of small enterprise capital formation.

## 6.7 Empirical Tests and Practical Application of the Lewis Model

1. Empirical evidence does not always provide much support for the Lewis model. Theodore Schultz in an empirical study of a village in India during the influenza epidemic of 1918-19 showed that agricultural output declined, although his study does not prove whether output would have declined had a comparable proportion of the agricultural population left for other occupations in response to economic incentive. Again disguised unemployment may be present in one sector of the economy but not in others. Further, empirically it is important to know not only whether the marginal productivity is equal to zero, but also the amount of surplus labor and the effect of its withdrawal on output.
2. The Lewis model was applied to the Egyptian economy by Mabro in 1967 and despite the proximity of Lewis's assumptions to the realities if the Egyptian situation during the period of study, the model failed firstly because Lewis seriously underestimated the rate of population growth and secondly because the choice of capital intensiveness in Egyptian industries did not show much labor using bias and as such, the level of unemployment did not show any tendency to register significant decline.
3. The validity of the Lewis model was again called into question when it was applied to Taiwan. It was observed that, despite the impressive rate of growth of the economy of Taiwan, unemployment did not fall appreciably and this is explained again in reference to the choice of capital intensity in industries in Taiwan. This raised the important issue whether surplus labor is a necessary condition for growth.

Notes

This model has been employed quite successfully in Singapore. Ironically however it has not been employed in Sir Arthur Lewis' home country of St. Lucia.

### Self-Assessment

3. *Choose the correct option*

   *(i)* The Lewis model was applied to the ..... of rapidly growing population.

   *(a)* economy *(b)* development *(c)* opportunity *(d)* industrial

   *(ii)* The Lewis model was applied to the ..... economy by Mabro in 1967.

   *(a)* Indian *(b)* Egyptian *(c)* Chinese *(d)* English

   *(iii)* The Lewismode has been employed quite successfully in

   *(a)* India *(b)* England *(c)* Singapore *(d)* Egypt

## 6.8 Summary

- Initially the dual-sector model as given by W.A Lewis was enumerated in his article entitled "Economic Development with Unlimited Supplies of Labor" written in 1954 by Sir Arthur Lewis, the model itself was named in Lewis's honor.
- W.A Lewis divided the economy of an underdeveloped country into 2 sectors:

  **The capitalist sector**

  Lewis defined this sector as "that part of the economy which uses reproducible capital and pays capitalists thereof". The use of capital is controlled by the capitalists, who hire the services of labor.

  **The Subsistence Sector**

  This sector was defined by him as "that part of the economy which is not using reproducible capital. It can also be adjusted as the indigenous traditional sector or the "self employed sector". The per head output is comparatively lower in this sector and this is because it is not fructified with capital.
- The primary relationship between the two sectors is that when the capitalist sector expands, it extracts or draws labor from the subsistence sector. This causes the output per head of laborers who move from the subsistence sector to the capitalist sector to increase.
- A large portion of the unlimited supply of labor consists of those who are in disguised unemployment in agriculture and in other over-manned occupations such as domestic services casual jobs, petty retail trading.
- due to the wage differential between the capitalist and subsistence sector, workers will tend to transition from the agricultural to the manufacturing sector over time to reap the reward of higher wages.
- Total agricultural product will remain unchanged while total industrial product increases due to the addition of labour, but the additional labour also drives down marginal productivity and wages in the manufacturing sector.
- Surplus labor can be used instead of capital in the creation of new industrial investment projects, or it can be channeled into nascent industries, which are labor intensive in their early stages.
- The utility of unlimited supplies of labor to growth objectives depends upon the amount of capital available at the same time.

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- It provides jobs to the agrarian population and reduces the burden of population from land. Industry now obtains its labor. Labor must be encouraged to move to increase productivity in agriculture.
- The margin capitalists may have to pay is as much as 30 per cent above the average subsistence wage.
- Capital accumulation has caught up with the population and there is no longer scope for development from the initial source.
- The process of economic growth is inextricably linked to the growth of capitalist surplus, that is as long as the capitalist surplus increases, the national income also increases raising the growth of the economy.
- This process of capital accumulation does come to an end at some point. This point is where capital accumulation catches up with population so that there is no longer any surplus labor left.
- The Lewis model has attracted attention of underdeveloped countries because it brings out some basic relationships in dualistic development.
- Economic development takes place via the absorption of labor from the subsistence sector where opportunity costs of labor are very low.
- Absorption of surplus labor itself may end prematurely because competitors may raise wage rates and lower the share of profit.
- Wages in the industrial sector were forced up directly by unions and indirectly through demands for increased wages in the subsistence sector, as payment for increased productivity.
- Empirical evidence does not always provide much support for the Lewis model. Theodore Schultz in an empirical study of a village in India during the influenza epidemic of 1918-19 showed that agricultural output declined.
- The Lewis model was applied to the Egyptian economy by Mabro in 1967 and despite the proximity of Lewis's assumptions to the realities if the Egyptian situation during the period of study, the model failed firstly because Lewis seriously underestimated the rate of population growth.

## 6.9 Key-Words

- Assumption : a belief or feeling that somethins is true or that something will happen.
- Capitalist : A person who owns or controls a lot of wealth and uses it to produce more wealth.
- Accumulation : The process of to gradually get more and more of something over a period of time.

## 6.10 Review Questions

1. What is Lewis model? Explain.
2. Explain the Capitalist sector and subsistence sector.
3. What are the Criticism points of Lewis model? explain.
4. Give any two practical applications of the Lewis model.

Notes

## Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | Sir Arthur Lewis | | | *(ii)* | Dual sector model | | |
| | *(iii)* | Subsistance sector | | | *(iv)* | labour | | |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | F |
| | *(v)* | T | | | | | | |
| 3. | *(i)* | *(a)* | *(ii)* | *(b)* | *(iii)* | *(c)* | | |

## 6.11 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
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Notes

# Unit 7 : Ranis and Fei Model

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## Objectives

After reading this unit students will be able to:

- Be able to explain the Fei-Ranis model of economic growth and connectivity betwee sectors.
- Know about the capital-Labor production Function and Agricultural surplus.
- Understand significance of agriculture in the Fie-Ranis model and indispensability of labor reallocation
- Assess growth without development.

## Introduction

**The Fei–Ranis model of economic growth** is a dualism model in *development economics* or *welfare economics* that has been developed by *John C.H Fei* and *Gustav Ranis* and can be understood as an extension of the *Lewis model*. It is also known as the Surplus Labor model. It recognizes the presence of a *dual economy* comprising both the modern and the primitive sector and takes the economic situation of unemployment and underemployment of resources into account, unlike many other growth models that consider underdeveloped countries to be homogenous in nature.

## 7.1 The Fei–Ranis Model of Economic Growth

According to this theory, the primitive sector consists of the existing agriculture sector in the economy, and the modern sector is the rapidly emerging but small industrial sector. Both the sectors co-exist in the economy, wherein lies the crux of the development problem. Development can be brought about only by a complete shift in the focal point of progress from the agricultural to the industrial economy, such that there is augmentation of industrial output. This is done by transfer of labor from the agricultural sector to the industrial one, showing that underdeveloped countries do not suffer from constraints of labor supply. At the same time, growth in the agricultural sector must not be negligible and its output should be sufficient to support the whole economy with food and raw materials. Like

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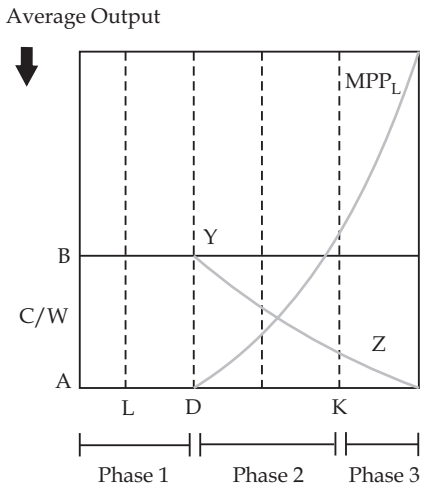
in the *Harrod-Domar model*, saving and investment become the driving forces when it comes to economic development of under-developed countries. Fei-Ranis economic model can be classified as a classical model, as it uses the classical assumption of subsistence wages.

## Basics of the model




Depiction of Phase1, Phase2 and Phase3 of the dual economy model using average output.

One of the biggest drawbacks of the Lewis model was the undermining of the role of agriculture in boosting the growth of the industrial sector. In addition to that, he did not acknowledge that the increase in *productivity of labor* should take place prior to the labor shift between the two sectors. However, these two ideas were taken into account in the Fei-Ranis dual economy model of three growth stages. They further argue that the model lacks in the proper application of concentrated analysis to the change that takes place with agricultural development. In Phase 1 of the Fei-Ranis model, the elasticity of the agricultural labor work-force is infinite and as a result, suffers from disguised unemployment. Also, the *marginal product of labor* is zero. This phase is similar to the Lewis model. In Phase 2 of the model, the agricultural sector sees a rise in productivity and this leads to increased industrial growth such that a base for the next phase is prepared. In Phase 2, agricultural surplus may exist as the increasing average product (AP), higher than the marginal product (MP) and not equal to the subsistence level of wages.

Using the help of the figure on the left, we see that

### Phase 1 : AL(from figure) = MP = 0 and AB(from figure) = AP

According to Fei and Ranis, AD amount of labor (see figure) can be shifted from the agricultural sector without any fall in output. Hence, it represents *surplus labor*.

### Phase 2 : AP > MP

After AD, MP begins to rise, and industrial labor rises from zero to a value equal to AD. AP of agricultural labor is shown by BYZ and we see that this curve falls downward after AD. This fall in AP can be attributed to the fact that as agricultural laborers shift to the industrial sector, the *real wage* of industrial laborers decreases due to shortage of food supply, since less laborers are now working in the food sector. The decrease in the *real wage* level decreases the level of profits, and the size of *surplus* that could have been reinvested for more industrialization. However, as long as *surplus* exists, growth rate can still be increased without a fall in the rate of industrialization. This re-investment of surplus can be graphically visualized as the shifting of MP curve outwards. In Phase2

Notes

the level of disguised unemployment is given by AK. This allows the agricultural sector to give up a part of its labor-force until

**MP = Real wages = AB = Constant institutional wages (CIW)**

Phase 3 begins from **the point of commercialization** which is at K in the Figure. This is the point where the economy becomes completely commercialized in the absence of disguised unemployment. The supply curve of labor in Phase 3 is steeper and both the sectors start bidding equally for labor.

### Phase 3 : MP>CIW

The amount of labor that is shifted and the time that this shifting takes depends upon :

1. The growth of *surplus* generated within the agricultural sector, and the growth of industrial capital stock dependent on the growth of industrial profits;
2. The nature of the industry's technical progress and its associated bias;
3. Growth rate of population. So, the three fundamental ideas used in this model are :

1. Agricultural growth and industrial growth are both equally important;
2. Agricultural growth and industrial growth are balanced;
3. Only if the rate at which labor is shifted from the agricultural to the industrial sector is greater than the rate of growth of population will the economy be able to lift itself up from the *Malthusian population trap*.

This shifting of labor can take place by the landlords' investment activities and by the government's *fiscal* measures. However, the cost of shifting labor in terms of both private and *social cost* may be high, for example transportation cost or the cost of carrying out construction of buildings. In addition to that, per capita agricultural consumption can increase, or there can exist a wide gap between the wages of the urban and the rural people. These leakages prevent the creation of agricultural surplus. In fact, surplus generation might be prevented due to a *backward-sloping supply curve of labor* as well, which happens when high income-levels are not consumed. This would mean that the *productivity of laborers* with rise in income will not rise. However, the case of *backward-sloping curves* is mostly unpractical.

*Did u know?* Three occurrences- high cost, high consumption and high gap in wages, are called as **leakages**,

## 7.2 Connectivity between Sectors

Fei and Ranis emphasized strongly on the industry-agriculture interdependency and said that a robust connectivity between the two would encourage and speedup development. If agricultural laborers look for industrial employment, and industrialists employ more workers by use of larger capital good stock and labor-intensive technology, this connectivity can work between the industrial and agricultural sector. Also, if the surplus owner invests in that section of industrial sector that is close to soil and is in known surroundings, he will most probably choose that productivity out of which future savings can be channelized. They took the example of Japan's dualistic economy in the 19th century and said that connectivity between the two sectors of Japan was heightened due the presence of a decentralized rural industry which was often linked to urban production. According to them, economic progress is achieved in dualistic economies of underdeveloped countries through the work of a small number of entrepreneurs who have access to land and decision-making powers and use industrial capital and consumer goods for agricultural practices.

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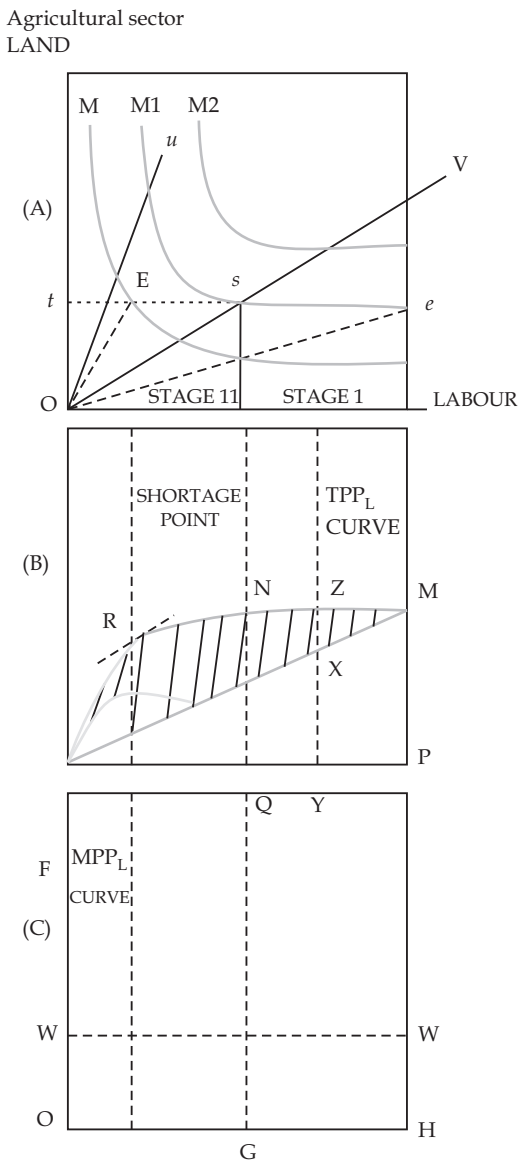



## Land-Labor Production Function

In (A), land is measured on the vertical axis, and labor on the horizontal axis. Ou and Ov represent two ridge lines, and the production *contour lines* are depicted by M, $M_1$ and $M_2$. The area enclosed by the ridge lines defines the region of factor substitutability, or the region where factors can easily be substituted. Let us understand the repercussions of this. If te amount of labor is the total labor in the agricultural sector, the intersection of the ridge line Ov with the production curve $M_1$ at point s renders $M_1$ perfectly horizontal below Ov. The horizontal behavior of the production line implies that outside the region of factor substitutability, output stops and labor becomes redundant once land is fixed and labor is increased.

If Ot is the total land in the agricultural sector, ts amount of labor can be employed without it becoming redundant, and es represents the redundant agricultural labor force. This led Fei and Ranis to develop the concept of **Labor Utilization Ratio**, which they define as the units of labor that can be productively employed (without redundancy) per unit of land. In the left-side figure, labor utilization ratio

**Notes**

$$R = \frac{ts}{Ot}$$

which is graphically equal to the inverted slope of the ridge line Ov.

Fei and Ranis also built the concept of **endowment ratio**, which is a measure of the relative availability of the two factors of production. In the figure, if Ot represents agricultural land and tE represents agricultural labor, then the endowment ratio is given by

$$S = \frac{tE}{Ot}$$

which is equal to the inverted slope of OE. The actual point of endowment is given by E.

Finally, Fei and Ranis developed the concept of **non-redundancy coefficient** T which is measured by

$$T = \frac{ts}{te}$$

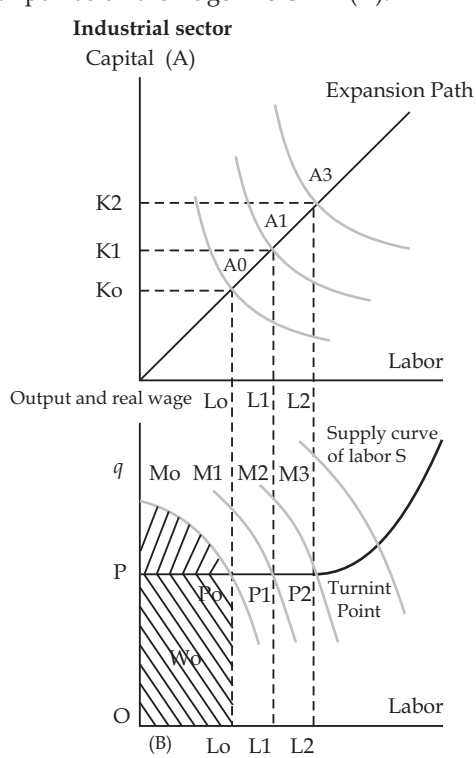
These three concepts helped them in formulating a relationship between T, R and S. If : : $T = \frac{ts}{te}$ then

$$T = \frac{ts/Ot}{te/Ot} = \frac{R}{S}, \text{ or } T = \frac{R}{S}$$

*Task* What is labor ulitization ratio?

*This mathematical relation proves that the non-redundancy coefficient is directly proportional to labor utilization ratio and is inversely proportional to the endowment ratio.*

(B) displays the total physical productivity of labor ($TPP_L$) curve. The curve increases at a decreasing rate, as more units of labor are added to a fixed amount of land. At point N, the curve shapes horizontally and this point N conforms to the point G in (C, which shows the *marginal productivity of labor* ($MPP_L$) curve, and with point *s* on the ridge line Ov in (A).



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## 7.3 Capital-Labor Production Function

Like in the agricultural sector, Fei and Ranis assume constant returns to scale in the industrial sector. However, the main factors of production are capital and labor. In the graph (A) right hand side, the *production functions* have been plotted taking labor on the horizontal axis and capital on the vertical axis. The expansion path of the industrial sector is given by the line $OA_oA_1A_2$. As capital increases from $K_o$ to $K_1$ to $K_2$ and labor increases from $L_0$ to $L_1$ and $L_2$, the industrial output represented by the production contour $A_o$, $A_1$ and $A_3$ increases accordingly.

According to this model, the prime labor supply source of the industrial sector, is the agricultural sector, due to redundancy in the agricultural labor force. (B) shows the labor supply curve for the industrial sector S. $PP_2$ represents the straight line part of the curve and is a measure of the redundant agricultural labor force on a graph with industrial labor force on the horizontal axis and output/*real wage* on the vertical axis. Due to the redundant agricultural labor force, the *real wages* remain constant but once the curve starts sloping upwards from point $P_2$, the upward sloping indicates that additional labor would be supplied only with a corresponding rise in the *real wages* level.

$MPP_L$ curves corresponding to their respective capital and labor levels have been drawn as $M_o$, $M_1$, $M_2$ and $M_3$. When capital stock rises from $K_o$ to $K_1$, the *marginal physical productivity of labor rises* from $M_o$ to $M_1$. When capital stock is $K_o$, the $MPP_L$ curve cuts the labor supply curve at equilibrium point Po. At this point, the total *real wage* income is $W_o$ and is represented by the shaded area $POL_oP_o$. $\lambda$ is the equilibrium profit and is represented by the shaded area $qPP_o$. Since the laborers have extremely low income-levels, they barely save from that income and hence industrial profits $(\pi_0)$ become the prime source of investment funds in the industrial sector.

$$K_t = K_o + S_o + \Pi_o$$

Here, K, gives the total supply of investment funds (given that rural savings are represented by $S_o$)

Total industrial activity rises due to increase in the total supply of investment funds, leading to increased industrial employment.

### Self-Assessment

1. Multiple choice questions:

   *Choose the correct option*

   *(i)* ..... economic model can be classified as a classified model, as it uses the classical assumption of subsistence wages.

   *(a)* Harrod-Domar model *(b)* Fie-Ranis

   *(c)* Lewis model *(d)* Ronald model

   *(ii)* One of the biggest draw back of the Lewis model was the undermining of the role of ..... in boosting the growth of the industrial sectors.

   *(a)* agriculture *(b)* forestry *(c)* building *(d)* industry

   *(iii)* Fei and Ranis took the example of ..... dualistic economy in the 19th century.

   *(a)* Britain's *(b)* America's *(c)* Japan's *(d)* India's

   *(iv)* ..... , which is a measure of the relative availability of the two factors of production.

   *(a)* endownment ratio *(b)* Labor Utilization ratio

   *(c)* Non-redundancy coefficient *(d)* shortage point

## 7.4 Agricultural Surplus

*Agricultural surplus* in general terms can be understood as the produce from agriculture which exceeds the needs of the society for which it is being produced, and may be exported or stored for future use.

## Generation of agricultural surplus

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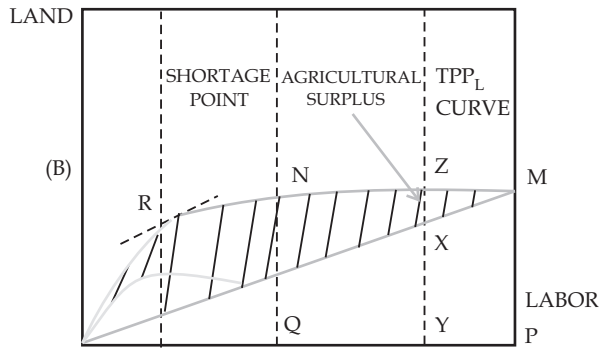
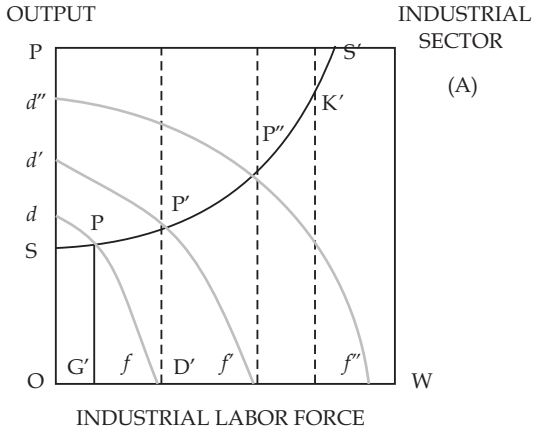



## Agricultural surplus in the dual economy of Fei and Ranis

To understand the formation of agricultural surplus,we must refer to graph (B) of the agricultural sector. The figure on the left is a reproduced version of a section of the previous graph, with certain additions to better explain the concept of agricultural surplus. We first derive the average physical productivity of the total agricultural labor force $APP_L$. Fei and Ranis hypothesize that it is equal to the *real wage* and this hypothesis is known as the constant institutional wage hypothesis. It is also equal in value to the ratio of total agricultural output to the total agricultural population. Using this relation, we can obtain $APP_L = MP/OP$. This is graphically equal to the slope of line OM, and is represented by the line WW in (C).

Observe point Y, somewhere to the left of P on the graph. If a section of the redundant agricultural labor force (PQ) is removed from the total agricultural labor force (OP) and absorbed into the industrial sector, then the labor force remaining in the industrial sector is represented by the point Y. Now, the output produced by the remaining labor force is represented by YZ and the *real income* of this labor force is given by XY. The difference of the two terms yields the total agricultural surplus of the economy. It is important to understand that this surplus is produced by the reallocation of labor such that it is absorbed by the industrial sector. This can be seen as deployment of hidden rural savings for the expansion of the industrial sector. Hence, we can understand the contribution of the agricultural sector to the expansion of industrial sector by this allocation of redundant labor force and the agricultural surplus that results from it.

## Agricultural surplus as wage fund



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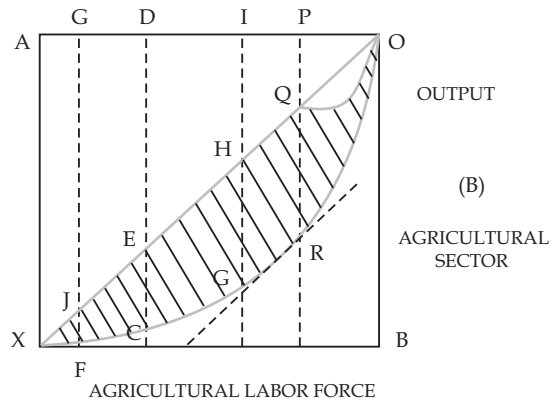


Integration of agricultural and industrial sectors to explain use of agricultural surplus as wage fund in a dual economy. Agricultural surplus plays a major role as a wage fund. Its importance can be better explained with the help of the graph on the right, which is an integration of the industrial sector graph with an inverted agricultural sector graph, such that the origin of the agricultural sector falls on the upper-right corner. This inversion of the origin changes the way the graph is now perceived. While the labor force values are read from the left of 0, the output values are read vertically downwards from O. The sole reason for this inversion is for the sake of convenience. The point of commercialization as explained before (See Section on *Basics of the model*) is observed at point R, where the tangent to the line ORX runs parallel to OX.

Before a section of the redundant labor force is absorbed into the industrial sector, the entire labor OA is present in the agricultural sector. Once AG amount of labor force (say) is absorbed, it represented by OG' in the industrial sector, and the labor remaining in the agricultural sector is then OG. But how is the quantity of labor absorbed into the industrial sector determined ? (A) shows the supply curve of labor SS' and several demand curves for labor *df*, *d'f* and *d''f*. When the demand for labor is *df*, the intersection of the demand-supply curves gives the equilibrium employment point G. Hence OG represents the amount of labor absorbed into the industrial sector. In that case, the labor remaining in the agricultural sector is OG. This OG amount of labor produces an output of GF, out of which GJ amount of labor is consumed by the agricultural sector and JF is the agricultural surplus for that level of employment. Simultaenously, the unproductive labor force from the agricultural sector turns productive once it is absorbed by the industrial sector, and produces an output of OG'Pd as shown in the graph, earning a total wage income of OG'PS.

The agricultural surplus JF created is needed for consumption by the same workers who left for the industrial sector. Hence, agriculture successfully provides not only the manpower for production activities elsewhere, but also the wage fund required for the process.

## 7.5 Significance of Agriculture in the Fei-Ranis Model

The Lewis model is criticised on the grounds that it neglects agriculture. Fei-Ranis model goes a step beyond and states that agriculture has a very major role to play in the expansion of the industrial sector. In fact, it says that the rate of growth of the industrial sector depends on the amount of total agricultural surplus and on the amount of profits that are earned in the industrial sector. So, larger the amount of *surplus* and the amount of *surplus* put into productive investment and larger the amount of industrial profits earned, the larger will be the rate of growth of the industrial economy. As the model focuses on the shifting of the focal point of progress from the agricultural to the industrial

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sector, Fei and Ranis believe that the ideal shifting takes place when the investment funds from surplus and industrial profits are sufficiently large so as to purchase industrial capital goods like plants and machinery. These capital goods are needed for the creation of employment opportunities. Hence, the condition put by Fei and Ranis for a successful transformation is that Rate of increase of capital stock & rate of employment opportunities > Rate of population growth.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* Due to the redundant agricultural labor force, the real wages remain constant.
   - *(ii)* Total industrial activity rises due to decrease in the total supply of investment funds, leading to increased industrial employment.
   - *(iii)* Surplus is produced by the reallocation of labor such that it is absorbed by the industrial sector.
   - *(iv)* Agricultural surplus does not play a major role as a wage fund.
   - *(v)* The capital good are needed for the creation of employment opportunities.

## 7.6 The Indispensability of Labor Reallocation

As an under-developed country goes through its development process, labor is reallocated from the agricultural to the industrial sector. More the rate of reallocation, faster is the growth of that economy. The economic rationale behind this idea of labor reallocation is that of faster economic development. The essence of labor reallocation lies in *Engel's Law*, which states that the proportion of income being spent on food decreases with increase in the income-level of an individual, even if there is a rise in the actual expenditure on food. For example, if 90 per cent of the entire population of the concerned economy is involved in agriculture, that leaves just 10 per cent of the population in the industrial sector. As the productivity of agriculture increases, it becomes possible for just 35 per cent of population to maintain a satisfactory food supply for the rest of the population. As a result, the industrial sector now has 65 per cent of the population under it. This is extremely desirable for the economy, as the growth of industrial goods is subject to the rate of per capita income, while the growth of agricultural goods is subject only to the rate of population growth, and so a bigger labor supply to the industrial sector would be welcome under the given conditions. In fact, this labor reallocation becomes necessary with time since consumers begin to want more of industrial goods than agricultural goods in relative terms.

However. Fei and Ranis were quick to mention that the necessity of labor reallocation must be linked more to the need to produce more capital investment goods as opposed to the thought of industrial consumer goods following the discourse of *Engel's Law*. This is because the assumption that the demand for industrial goods is high seems unrealistic, since the *real wage* in the agricultural sector is extremely low and that hinders the demand for industrial goods. In addition to that, low and mostly constant wage rates will render the wage rates in the industrial sector low and constant. This implies that demand for industrial goods will not rise at a rate as suggested by the use of *Engel's Law*.

The growth process will observe a slow-paced increase in the consumer purchasing power, the dualistic economies follow the path of **natural austerity**, which is characterized by more demand and hence importance of capital good industries as compared to consumer good ones. However, investment in capital goods comes with a long gestation period, which drives the private entrepreneurs away. This suggests that in order to enable growth, the government must step in and play a major role, especially in the initial few stages of growth. Additionally, the government also works on the social and economic overheads by the construction of roads, railways, bridges, educational institutions, health care facilities and so on.

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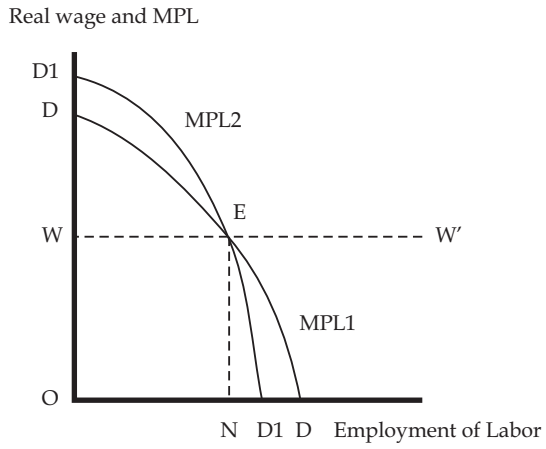
## 7.7 Growth without development

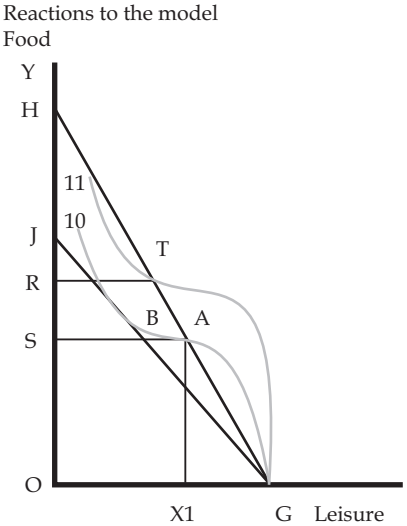



Graph showing growth without development

In the Fei-Ranis model, it is possible that as technological process takes place and there is a shift to labor-saving production techniques, growth of the economy takes place with increase in profits but no economic development takes place. This can be explained well with the help of graph in this section.

The graph displays two MPL lines plotted with real wage and MPL on the vertical axis and employment of labor on the horizontal axis. OW denotes the subsistence wage level, which is the minimum wage level at which a worker (and his family) would survive. The line WW' running parallel to the X-axis is considered to be infinitely elastics since supply of labor is assumed to be unlimited at the subsistence-wage level. The square area OWEN represents the wage bill and DWE represents the surplus or the profits collected. This surplus or profit can increase if the MPL curve changes.

If the MPL curve changes from $MPL_1$to $MPL_2$ due to a change in production technique, such that it becomes labor-saving or *capital-intensive*. then the *surplus* or profit collected would increase. This increase can be seen by comparing DWE with $D_1$ WE since $D_1$WE since is greater in area compared to DWE. However, there is no new point of equilibrium and as E continues to be the point of equilibrium, there is no increase in the level of labor employment, or in wages for that matter. Hence, labor employment continues as ON and wages as OW. The only change that accompanies the change in production technique is the one in *surplus* or profits. This makes for a good example of a process of growth without development, since growth takes place with increase in profits but development is at a standstill since employment and wages of laborers remain the same.



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## Food-Leisure Graph

**Fei-Ranis model of economic growth** has been criticized on **multiple** grounds, although if the model is accepted, then it will have a significant theoretical and policy implications on the under-developed countries' efforts towards development and on the persisting controversial statements regarding the balanced *vs*. unbalanced growth debate.

- It has been asserted that Fei and Ranis did not have a clear understanding of the sluggish economic situation prevailing in the developing countries. If they had thoroughly scrutinized the existing nature and causes of it, they would have found that the existing agricultural backwardness was due to the institutional structure, primarily the system of *feudalism* that prevailed.
- Fei and Ranis say, "It has been argued that. There are reasons to believe that the relationship between money and *physical capital* could be complementary to one another at some stage of economic development, to the extent that credit policies could play an important part in easing bottlenecks on the growth of agriculture and industry." This indicates that in the process of development they neglect the role of money and prices. They fail to differ between wage labor and household labor, which is a significant distinction for evaluating prices of dualistic development in an under-developed economy.
- Fei and Ranis assume that $MPP_L$ is zero during the early phases of economic development, which has been criticized by Harry T.Oshima and some others on the grounds that $MPP_L$ of labor is zero only if the agricultural population is very large, and if it is very large, some of that labor will shift to cities in search of jobs. In the short run, this section of labor that has shifted to the cities remains unemployed, but over the long run it is either absorbed by the informal sector, or it returns to the villages and attempts to bring more marginal land into cultivation. They have also neglected seasonal unemployment, which occurs due to seasonal change in labor demand and is not permanent.

To understand this better, we refer to the graph in this section, which shows Food on the vertical axis and Leisure on the horizontal axis. OS represents the subsistence level of food consumption, or the minimum level of food consumed by agricultural labor that is necessary for their survival. $I_0$ and $I_1$ between the two commodities of food and leisure (of the agriculturists). The origin falls on G, such that OG represents maximum labor and labor input would be measured from the right to the left. The *transformation curve* SAG falls from A, which indicates that more leisure is being used to same units of land. At A, the marginal transformation between food and leisure and MPL = 0 and the indifference curve $I_0$ is also tangent to the *transformation curve* at this point. This is the point of leisure satiation.

Consider a case where a laborer shifts from the agricultural to the industrial sector. In that case, the land left behind would be divided between the remaining laborers and as a result, the *transformation curve* would shift from SAG to RTG. Like at point A, MPL at point T would be 0 and APL would continue to be the same as that at A (assuming constant returns to scale). If we consider MPL = 0 as the point where agriculturalists live on the subsistence level, then the curve RTG must be flat at point T in order to maintain the same level of output. However, that would imply leisure satiation or leisure as an *inferior good*, which are two extreme cases. It can be surmised then that under normal cases, the output would decline with shift of labor to industrial sector, although the per capita output would remain the same. This is because, a fall in the per capita output would mean fall in consumption in a way that it would be lesser than the subsistence level, and the level of labor input per head would either rise or fall.

Berry and Soligo in their 1968 paper have criticized this model for its MPL=0 assumption, and for the assumption that the transfer of labor from the agricultural sector leaves the output in that sector unchanged in Phase 1. They show that the output changes, and may fall under various *land tenure* systems, unless the following situations arise:

1. Leisure falls under the *interior good* category 2. Leisure satiation is present. 3. There is perfect substitutability between food and leisure, and the *marginal rate of substitution* is constant for all real income levels.

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Now if MPL > 0 then leisure satiation option becomes invalid, and if MPL=0 then the option of food and leisure as perfect substitutes becomes invalid. Therefore, the only remaining viable option is leisure as an *inferior good*.

- While mentioning the important role of high agricultural productivity and the creation of *surplus* for economic development, they have failed to mention the need for capital as well. Although it is important to create *surplus*, it is equally important to maintain it through technical progress, which is possible through *capital accumulation*, but the Fei-Ranis model considers only labor and output as *factors of production*.
- The question of whether MPL = 0 is that of an empirical one. The underdeveloped countries mostly exhibit seasonality in food production, which suggests that especially during favorable climatic conditions, say that of harvesting or sowing, MPL would definitely be greater than zero.
- Fei and Ranis assume a close model and hence there is no presence of foreign trade in the economy, which is very unrealistic as food or raw materials can not be imported. If we take the example of Japan again, the country imported cheap farm products from other countries and this made better the country's terms of traded. Later they relaxed the assumption and said that the presence of a foreign sector was allowed as long as it was a "facilitator" and not the main driving forced
- The reluctant expansionary growth in the industrial sector of under-developed countries can be attributed to the lagging growth in the productivity of subsistence agriculture. This suggests that increase in *surplus* becomes more important a determinant as compared to re-investment of *surplus*, an idea that was utilized by Jorgenson in his 1961 model that centered around the necessity of *surplus* generation and *surplus* persistence.
- *Stagnation* has not been taken into consideration, and no distinction is made between labor through family and labor through wages. There is also no explanation of the process of self-sustained growth, or of the investment function. There is complete negligence of terms of trade between agriculture and industry, foreign exchange, money and price.

*Notes* Money is not a simple substitute for *physical capital* in an aggregate *production function*.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* As the ..... of agriculture increases, it becomes possible for just 35 percent of population to maintain a satisfactory food supply for the rest of the population.
   - *(ii)* Money is not a simple substitute for ..... in an aggregate production function
   - *(iii)* ..... assume a close model and hence there is no presence of foreign trade in the economy.

## 7.8 Summary

- **The Fei–Ranis model of economic growth** is a dualism model in *development economics* or *welfare economics* that has been developed by *John C.H Fei* and *Gustav Ranis* and can be understood as an extension of the *Lewis model*.
- Fei and Ranis emphasized strongly on the industry-agriculture interdependency and said that a robust connectivity between the two would encourage and speedup development. If agricultural laborers look for industrial employment, and industrialists employ more workers

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by use of larger capital good stock and labor-intensive technology, this connectivity can work between the industrial and agricultural sector.

- Like in the agricultural sector, Fei and Ranis assume constant returns to scale in the industrial sector. However, the main factors of production are capital and labor.
- *Agricultural surplus* in general terms can be understood as the produce from agriculture which exceeds the needs of the society for which it is being produced, and may be exported or stored for future use.
- The Lewis model is criticised on the grounds that it neglects agriculture. Fei-Ranis model goes a step beyond and states that agriculture has a very major role to play in the expansion of the industrial sector. In fact, it says that the rate of growth of the industrial sector depends on the amount of total agricultural surplus and on the amount of profits that are earned in the industrial sector.
- As an under-developed country goes through its development process, labor is reallocated from the agricultural to the industrial sector. More the rate of reallocation, faster is the growth of that economy. The economic rationale behind this idea of labor reallocation is that of faster economic development.
- In the Fei-Ranis model, it is possible that as technological process takes place and there is a shift to labor-saving production techniques, growth of the economy takes place with increase in profits but no economic development takes place.

## 7.9 Key-Words

- Commercialization : Grown, Developed
- Connectivity : The process of connecting things
- Redundant : not needed or useful

## 7.10 Review Questions

1. Explain the Fei-Ranis model of economic growth.
2. What do you mean by connectivity between sector explain it.
3. Describe the capital labour production function.
4. Discuss and explain the significance of agriculture in the Fei-Ranis model and agriculture surplus.
5. What do you mean by growth without development Explain with the help of graph.

### Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | *(b)* | *(ii)* | *(a)* | *(iii)* | *(c)* | *(iv)* | *(a)* |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | F |
| | *(v)* | T | | | | | | |
| 3. | *(i)* | Productivity | *(ii)* | Physical capital | *(iii)* | Fei and Ranis | | |

## 7.11 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 8: Big Push Theory of Growth

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## Objectives

After reading this unit students will be able to:

- Know about Rodhan's theory of Big Push.
- Describe about the three indivisibilities.
- Learn about the indivisibilities and external economies.
- Explain the role of the state

## Introduction

The **big Push model** is a concept in *development economics* or *welfare economics* that emphasizes the fact that a firm's decision whether to industrialize or not depends on its expectation of what other firms will do. It assumes *economies of scale* and *oligopolistic* market structure and explains when industrialization would happen.

## 8.1 Rodhan's Theory of Big Push

The originator of this theory was *Paul Rosenstein-Rodhan* in 1943. Further contributions were made later on by *Murphy*, Shleifer and *Robert W. Vishny* in 1989. Analysis of this economic model usually involves using *game theory*.

The theory of the model emphasizes that underdeveloped countries require large amounts of *investments* to embark on the path of *economic development* from their present state of backwardness. This theory proposes that a 'bit by bit' investment programme will not impact the process of *growth* as much as is required for developing countries. In fact, injections of small quantities of investments will merely lead to a wastage of *resources*. *Paul Rosenstein-Rodhan*, approvingly quotes a *Massachusetts Institute of Technology* study in this regard, "There is a minimum level of *resources* that must be devoted to... a *development* programme if it is to have any chance of success. Launching a country into self-sustaining growth is a little like getting an *airplane* off the ground. There is a critical *ground speed* which must be passed before the craft can become airborne...."

*Rosenstein-Rodan* argued that the entire industry which is intended to be created should be treated and planned as a massive entity (a *firm* or *trust*). He supports this argument by stating that the social

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*marginal product* of an *investment* is always different from its private *marginal product*, so when a group of *industries* are planned together according to their social marginal products, the *rate of growth* of the economy is greater than it would have otherwise been.

## 8.2 The Three Indivisibilities

According to Rosenstein-Rodan, there exist three indivisibilities in *underdeveloped countries*. These indivisibilities are responsible for *external economies* and thus justify the need for a big push. The externalities are as follows:

1. Indivisibility in *production function*
2. Indivisibility of *demand*
3. Indivisibility in the supply of *savings*

### 8.2.1 Indivisibility in production function

Indivisibilities in the *production function* may be with respect to any of the following:

- *Inputs*
- *Processes*
- *Outputs*

These lead to increasing returns (i.e., *economies of scale*), and may require a high optimum size of a firm. This can be achieved even in developing countries since at least one optimum scale firm can be established in many industries. But investment in social overhead *capital* comprises investment in all basic industries (like *power*, transport or communications) which must necessarily come before directly productive investment activities. Investment in social overhead *capital* is 'lumpy' in nature. Such capital requirements cannot be imported from other nations. Therefore, heavy initial investment necessarily needs to be made in social overhead *capital* (this is approximated to be about 30 to 40 percent of the total investment undertaken by *underdeveloped countries*). Social overhead capital is further characterized by four indivisibilities:

1. *Irreversibility* in time : It must precede other directly productive investments
2. *Minimum durability of equipment :* Any lesser level of *durability* is either impossible due to technical reasons or much less *efficient*
3. *Long gestation periods :* The investment in social overhead *capital* takes time to generate returns and its impact in the economy is not immediately or directly visible

*Notes* Investment needs to be of a certain minimum magnitude and spread across a mix of industries, without which it will not significantly impact the process of growth.

### 8.2.2 Indivisibility (or complementarity) of Demand

Developing countries are characterized by low per-capita income and purchasing power. Markets in these countries are therefore small. In a *closed economy*, modernization and increased efficiency in a single industry has no impact on the economy as a whole since the output of that industry will fail to find a market. A large number of industries need to be set up simultaneously so that people employed in one industry consume the output of other industries and thus create *complementary* demand.

To illustrate this, Rosenstein Rodan gives the example of a shoe industry. If a country makes large *investments* in the shoe industry, all the disguisedly employed labour from the other industries find work and a source of income, leading to a rise in production of shoes and their own incomes. This increased income will not be expended only on buying shoes. It is conceivable that the increased

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incomes will lead to increased spending on other products too. However, there is no corresponding supply of these products to satisfy this increased demand for the other goods. Following the basic *market forces* of demand and supply, the prices of these commodities will rise. To avoid such a situation, *investment* must be spread out amongst different industries.

The situation may be different in an *open economy* as the output of the new industry may replace former imports or possibly find its market by way of *exports*. But even if the world market acts as a *substitute* for domestic demand, a big push is still needed (though its required size may now be reduced due to the presence of international trade).

### 8.2.3 Indivisibility in the supply of savings

We cannot always rely on foreign aid as the huge levels of investments in the different *sectors* need to be made not only once, but multiple number of times. Hence domestic savings are a must. But in an underdeveloped economy, this is a challenge due to the low income levels. *Marginal rate of savings* needs to be increased following the rise in incomes due to higher investment.

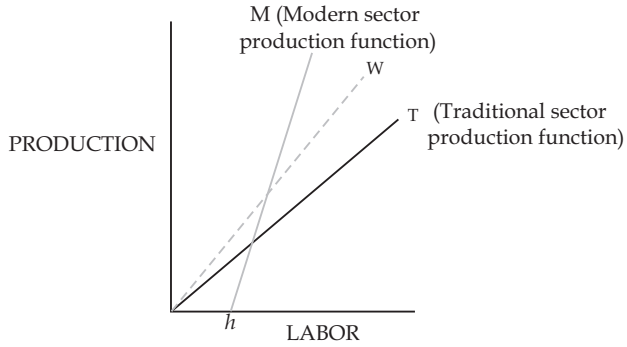


**Figure: 1**

Consider a country whose economy is characterized by a large number of *sectors* which are so small that any increase in the productivity of one sector has no impact on the economy as a whole. Each sector can either rely on traditional methods or switch to modern methods of production which would increase its efficiency. Let us assume that there are $l$ workers in the economy and $n$ sectors. Each sector therefore has $l/n$ workers.

*Using traditional technology*, a sector would produce $l/n$ amount of output, with each worker producing one unit of the commodity. *Using modern technology* a sector would produce more as the productivity would be greater than one unit per worker. However, a modern sector would require some of the workers (say $h$) to perform administrative tasks.

In figure 1, the x-axis represents the labor employed and the y-axis represents the level of production. The production in the traditional *sector* is given by the curve T and the production in the modern sector is given by M. The curve M has a positive intercept on the x-axis, implying that even with zero production, there is a minimum level of $h$ workers who still remain employed for carrying out administrative activities. With our assumption of $l/n$ workers in the economy, the modern sector will have a higher level of productivity than the traditional sector. The production function of the modern sector is steeper than that of the traditional sector because of the higher productivity of workers in the former. The slope of both production functions is $l/m$ , where $m$ is the marginal labor required to produce an additional unit of output. This level of $m$ is lower for the modern sector than it is for the traditional sector.

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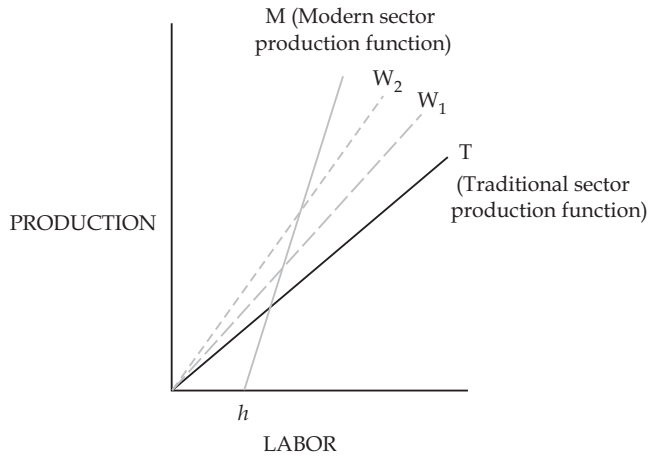


**Figure: 2**

Assume that the traditional sector pays workers one unit of output which is subsequently spent equally by them in all sectors. The modern sector pays higher wages to workers. If all the workers are employed by the traditional sector, then the demand generated for the output of each sector is $D_1 = 1/n$ We have two possible cases:

- *Wages are low* – When low wages are prevalent in the economy, say $w_1$, a firm which faces demand $D_1$ will need to employ $l^*$ workers if it wants to modernize. This will cost the firm $w_1 l^*$. Now, wages are low. Therefore

  $$w_1 l^* < D_1.$$

  This implies that costs (given by $w_1 l^*$ ) are lower than the earnings (given by $D_1$).

  So the firm makes a profit and will choose to modernize (even if other firms do not).

- *Wages are high* – When high wages are prevalent in the economy, say $w_2$, a firm which faces demand $D_1$ will make losses if no other firms choose to modernize.

  This is because

  $$w_2 l^* > D_1.$$

This implies that costs (given by $w_2 l^*$ ) are higher than the earnings (given by $D_1$).

However, if all the other firms have modernized, the firm faces a higher demand, $D_2$ arising out of higher income levels of workers of these modernized firms. The firm will hence choose to modernize as well so that it makes profits:

$$w_2 l^* < D_2.$$

*Did u know?* High levels of investment require a corresponding high level of savings.

## Self-Assessment

1. Fill in the blanks:
   - *(i)* The big Push model is a concept in .....
   - *(ii)* Developing countries are characterized by ..... and purchasing power.
   - *(iii)* High level of investment require a corresponding .....
   - *(iv)* The investment in social over head ..... takes time to generate returns and its impact in the economy is nto immediately or directly visible.

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## 8.3 Indivisibilities and External Economies

The concept or *externalities* is relevant for the Industrialization of *underdeveloped countries*, where decisions are to be made regarding distribution of savings among alternative *investment opportunities*. These arise from the interdependence in market economies. ***Pecuniary economies*** are *external economies* transmitted through the *price system*, as prices are the *signalling* device (under conditions of *perfect competition* in a market economy). They arise in an industry (say industry X) due to internal economies of overcoming technical indivisibilities. This reduces the price of its product, which will benefit another industry (say industry Y) which use this output as an input or a factor of production. Subsequently, the profits of industry Y will rise, leading to its expansion and generating demand for the output of industry X. As a result, industry X's production and profits also expand.

However in *underdeveloped countries*, conditions of *perfect competition* are not present due to the *decentralized* and differentiated nature of the market. Prices fail to act as a *signalling system* in the following ways:

- Prices express the situation as it is and do not predict future economic situations
- Prices can decide present productive activities but cannot determine investments which would be appropriate for developing countries
- The response of the private sector to price signals is inadequate and imperfect due to the differentiation and decentralisation in developing countries

This justifies the need for centralized pan-industry planning of investment in Developing countries, as the private sector cannot undertake such planning.

**Enlargement of the market size** is another important externality which arises from the complementarity of industries. There exists an incentive to expand the scale of operations because the employees of one industry become the customers of another industry. In terms of products too (as in the above example of industries X and Y), one industry generates demand for the output of the other when the scale of operations increase.

**Marshallian economies** also accrue to a firm within a growing industry, resulting from *agglomeration* of industrial districts or clusters in a particular area. These occur due to the following advantages of agglomeration identified by *Alfred Marshall*:

1. Spillover of information
2. Specialization and division of labor
3. Development of a market for skilled labor.

**Availability of skilled labour** is an externality which arises when *industrialization* occurs, as workers acquire better training and skills. This is not achievable by mere establishment of a few industries, but requires a large program of industrial growth. It is one of the most important external economies because absence of skilled labor is a strong impediment to *industrialization*.

## 8.4 Role of the State

The large-scale programme of industrialization advocated by this model requires huge investments which are beyond the means of the private sector. The investment in infrastructure and basic industries (like power, transport and communications) is 'lumpy' and has long gestation periods. The role of the state in this theory is therefore critical for investment in social overhead *capital*. Even if the private sector had the requisite resources to invest in such a programme, it would not do so since it is driven by profit motives. Many investments are profitable in terms of social marginal net product but not in terms of private marginal net product. Due to this there is no incentive for individual entrepreneurs to invest and take advantage of external economies.

## Criticisms

**Notes**

The theory has been criticized by *Hla Myint* and *Celso Furtado*, among others, primarily on the grounds of the massive effort required to be taken by *underdeveloped countries* to move along the path of *industrialization*. Some of the major criticisms are as follows:

- *Difficulties in execution and implementation :* The execution of related projects during the course of *industrialization* may involve unexpected or unavoidable changes due to revisions of plans, delays and deviations from the planned process. *Hla Myint* notes that the various departments and agencies involved in the process of development need to coordinate closely and evaluate and revise plans continuously. This is a challenging task for the governments of developing countries.
- *Lack of absorptive capacity* : The implementation of industrialization programmes may be constrained by ineffective disbursement, short-term bottlenecks, *macrocconomic* problems and volatility, loss of competitiveness and weakening of institutions. *Credit* is often utilized at low rates or after long time lags. There is often a loss of competitiveness due to the *Dutch disease* effect.
- *Historical inaccuracy* : When viewed in light of historical experience of countries over the last two centuries, no country displayed any evidence of development due to massive *industrialization* programmes. *Stationary economies* do not develop simply by making large-scale investment in social overhead *capital*.
- *Problems in mixed economies* : In a *mixed economy*, where the *private* and *public sectors* co-exist, the environment for growt may not be a conducive one. Unless there is a *complementarity* between the sectors, there is bound to arise competition between them, with the *government departments* keeping their plans confidential out of fear of *speculative activities* by the *private sector*. The private sector's activities are simultaneously inhibited due to *lack of information* of government policies and the general economic situation.
- *Neglect of methods of production* : Rather than *capital* formation, it is productive techniques which determine the success of a country in *economic development*. The big push model ignores productive techniques in its support for *capital* formation and *industrialisation*.
- *Shortage of resources in underdeveloped countries* : Eugenio Gudin criticizes the theory of the big push on the grounds that *underdeveloped countries* lack the *capital* required to provide the big push required for rapid *development*. If an underdeveloped nation had ample *capital* supply and scarce *factors*, it would not be classified as *underdeveloped* at all. Limited *resource* availability is the first impediment to such countries. Though this problem may be overcome by foreign aids, *industrialization* may not take off as expected if the aid flows are volatil.
- *Ignores the agricultural sector* : With its heavy emphasis on *industry*, the model finds no place for *agriculture*. This is a gaping flaw in the theory, as in most *underdeveloped countries* it is this sector which is large and has labor *surplus*.

  Investments in agriculture need to go hand-in-hand with those in industry so as to *stimulate* the industrial sector by providing a market for industrial goods. If neglected, it would be difficult to meet the food requirements of the nation in the *short run* and to significantly expand the *size of the market* in the *long run*.
- *Inflationary pressures* : It follows from the neglect of the agricultural sector that *food shortages* are likely to occur with *industrialization*. Though it would take time for investments in social overhead *capital* to yield returns, the *demand* would increase immediately, thus imposing *inflationary pressures* on the economy. Cost escalations may even cause projects to be postponed and the *development* process in general to slow down.
- *Dependence on indivisibilities* : The emphasis of this theory on indivisibility of processes is too much, as *investments* need not necessarily be on such a large scale to be economic. *Social reforms*

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are ignored, which are vital if a country is to grow on the basis of its own *resources* and initiatives. *Development* is bound to intensify if social reform is a part of the *industrialization* process.

*Task* What do you mean by criticism? Also write some major criticisms.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* Enlargement of the market size is another important externality which aries from the complement tarity of industries.
   - *(ii)* Recuniary economies are external economics transmitted through the price system, as prices are the signalling device.
   - *(iii)* The investment in infrastracture and basic industries is not lumpy and has short gestation periods.
   - *(iv)* Inflationary pressures doesn't follow from the neglect of the agricultural sector that food shortages are likely to occur with industrialization.

## 8.5 Summary

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

## 8.6 Key-Words

- optimum : the best possible, producing the best possible results.
- efficient : doing something well and thoroughly with no waste of time, money, or energy.
- disguise : to change your appearance so that people cannot recognize you.
- pecuniary : relating to or connected with money
- impediment : something that delays or stops the progress of something.

## 8.7 Review Questions

1. Write a short note on Rodhan's thoery of Big Push.
2. Characterize the social overhead capital by food indivisibilities.
3. Briefly explain the indivisibility in the supply of saving.
4. According to Rosenstein-Rodhan what are the three indisivibilities in underdeveloped countries.

**Notes**

## Answers: Self-Assessment

1. *(i)* welfare economics *(ii)* percapita income
   *(iii)* high level of saving *(iv)* capital
2. *(i)* T *(ii)* T *(iii)* F *(iv)* F

## 8.8 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

Notes

# Unit 9: Balanced Growth and Unbalanced Growth

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## Objectives

After reading this unit students will be able to:

- Know about the balanced growth and unbalanced growth.
- Describe about the balanced and unbalanced growth.
- Explain the balanced and unbalanced growth theory.

## Introduction

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

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

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## 9.1 Balanced Growth

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

## 9.2 Ragnar Nurkse's balanced growth theory

The balanced growth theory is an economic theory pioneered by the economist Ragnar Nurkse (1907-1959). The theory hypothesises that the government of any underdeveloped country needs to make large investments in a number of industries simultaneously. This will enlarge the market size, increase productivity, and provide an incentive for the private sector to invest.

Nurkse was in favour of attaining balanced growth in both the industrial and agricultural sectors of the economy. He recognised that the expansion and inter-sectoral balance between agriculture and manufacturing is necessary so that each of these sectors provides a market for the products of the other and in turn, supplies the necessary raw materials for the development and growth of the other.

Nurkse and Paul Rosenstein-Rodan were the pioneers of balanced growth theory and much of how it is understood today dates back to their work.

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

### Size of market and inducement to invest

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

According to Nurkse, underdeveloped countries lack adequate purchasing power. Low purchasing power means that the real income of the people is low, although in monetary terms it may be high. If the money income were low, the problem could easily be overcome by expanding the money supply; however, since the meaning in this context is real income, expanding the supply of money will only generate inflationary pressure. Neither real output nor real investment will rise. It is to be noted that

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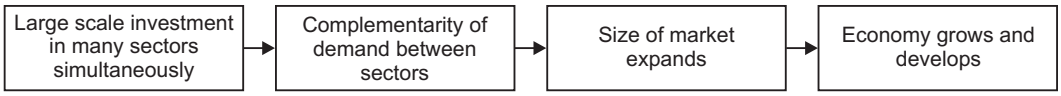
a low purchasing power means that domestic demand for commodities is low. Apart from encompassing consumer goods and services, this includes the demand for capital as well.

The size of the market determines the incentive to invest irrespective of the nature of the economy. This is because entrepreneurs invariably take their production decisions by taking into consideration the demand for the concerned product. For example, if an automobile manufacturer is trying to decide which countries to set up plants in, he will naturally only invest in those countries where the demand is high. He would prefer to invest in a developed country, where though the population is lesser than in underdeveloped countries, the people are prosperous and there is a definite demand.

Private entrepreneurs sometimes resort to heavy advertising as a means of attracting buyers for their products. Although this may lead to a rise in demand for that entrepreneur's good or service, it does not actually raise the aggregate demand in the economy. The demand merely shifts from one provider to another. Clearly, this is not a long-term solution.

Ragnar Nurkse concluded,

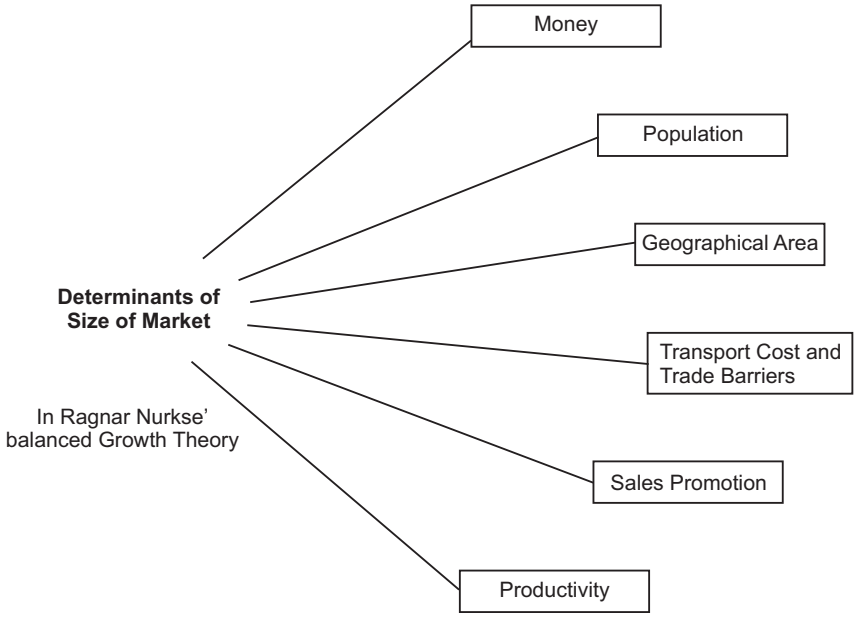
"The limited size of the domestic market in a low income country can thus constitute an obstacle to the application of capital by any individual firm or industry working for the market. In this sense the small domestic market is an obstacle to development generally."




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

## Determinants of size of market

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




Determinants of size of market

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### Money supply

Nurkse emphasised that Keynesian theory shouldn't be applied to underdeveloped countries because they don't face a lack of effective demand in the way that developed countries do. Their problem is to do with a lack of real purchasing power due to low productivity levels. Thus, merely increasing the supply of money will not expand the market but will in fact cause inflationary pressure.

### Population

Nurkse argued against the notion that a large population implies a large market. Though underdeveloped countries have a large population, their levels of productivity are low. This results in low levels of per capita real income. Thus, consumption expenditure is low, and savings are either very low or completely absent. On the other hand, developed countries have smaller populations than underdeveloped countries but by virtue of high levels of productivity, their per capita real incomes are higher and thus they create a large market for goods and services.

### Geographical area

Nurkse also refuted the claim that if a country's geographical area is large, the size of its market also ought to be large. A country may be extremely small in area but still have a large effective demand. For example, Japan. In contrast, a country may cover a huge geographical area but its market may still be small. This may occur if a large part of the country is uninhabitable, or if the country suffers from low productivity levels and thus has a low National Income.

### Transport cost and trade barriers

The notion that transport costs and trade barriers hinder the expansion of the market is age-old. Nurkse emphasised that tariff duties, exchange controls, import quotas and other non-tariff barriers to trade are major obstacles to promoting international cooperation in exporting and importing. More specifically, due to high transport costs between nations, producers do not have an incentive to export their commodities. As a result, the amount of capital accumulation remains small. To address this problem, the United Nations produced a report in 1951 with solutions for underdeveloped countries. They suggested that they can expand their markets by forming customs unions with neighbouring countries. Also, they can adopt the system of preferential taxation or even abolish customs duties altogether. The logic was that once customs duties are removed, transport costs will fall. Consequently, prices will fall and thus the demand will rise. However, Nurkse, as an export pessimist, did not agree with this view. Export pessimism is a trade theory which is governed by the idea of "inward looking growth" as opposed to "outward looking growth".

### Sales promotion

Often, it is true that a company's private endeavour to increase the demand for its products succeeds due to the extensive use of advertisement and other sales promotion technique. However, Nurkse argues that such activities cannot succeed at the macro level to increase a country's aggregate demand level. He calls this the "macroeconomic paradox".

### Productivity

Nurkse stressed productivity as the primary determinant of the size of the market. An increase in productivity (defined as the output per unit input) increases the flow of goods and services in the economy. As a response, consumption also rises. Hence, underdeveloped economies should aim to raise their productivity levels in all sectors of the economy, in particular agriculture and industry.

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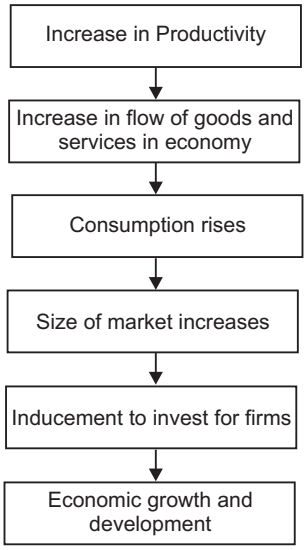


The process of how increased productivity leads to economic development and growth

For example, in most underdeveloped economies, the technology used to carry out agricultural activities is backward. There is a low degree of mechanisation coupled with rain dependence. So while a large proportion of the population (70-80%) may be actively employed in the agriculture sector, the contribution to the Gross Domestic Product may be as low as 40%. This points to the need to increase output per unit input and output per head. This can be done if the government provides irrigation facilities, high-yielding variety seeds, pesticides, fertilisers, tractors etc. The positive outcome of this is that farmers earn more income and have a higher purchasing power (real income). Their demand for other products in the economy will rise and this will provide industrialists an incentive to invest in that country. Thus, the size of the market expands and improves the condition of the underdeveloped country.

Nurkse is of the opinion that Say's Law of markets operates in underdeveloped countries. Thus, if the money incomes of the people rise while the price level in the economy stays the same, the size of the market will still not expand till the real income and productivity levels rise. To quote Nurkse,

"In underdeveloped areas there is generally no 'deflationary gap' through excessive savings. Production creates its own demand, and the size of the market depends on the volume of production. In the last analysis, the market can be enlarged only through all-round increase in productivity. Capacity to buy means capacity to produce."

## Export pessimism

Citing the limited size of the market as the main impediment in economic growth, Nurkse reasons that an increase in productivity can create a virtuous circle of growth. Thus, a large scale investment programme in a wide array of industries simultaneously is the answer. The increase in demand for one industry will lead to an increase in demand for another industry due to complementarity of demands. As Say's Law states, supply creates its own demand.

However, Nurkse clarified that the finance for this development must arise to as large an extent as possible from the underdeveloped country itself i.e. domestically. He stated that financing through increased trade or foreign investments was a strategy used in the past - the 19th century - and its success was limited to the case of the United States of America. In reality, the so-called "new countries" of the United States of America (which separated from the British empire) were high income countries to begin with. They were already endowed with efficient producers, effective markets and a high purchasing power. The point Nurkse was trying to make was that USA was rich in resource endowment as well as labour force. The labour force had merely migrated from Britain to USA, and

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thus their level of skills were advanced to begin with. This situation of outward led growth was therefore unique and not replicable by underdeveloped countries.

In fact, if such a strategy of financing development from outside the home country is undertaken, it creates a number of problems. For example, the foreign investors may carelessly misuse the resources of the underdeveloped country. This would in turn limit that economy's ability to diversify, especially if natural resources were plundered. This may also create a distorted social structure. Apart from this, there is also a risk that the foreign investments may be used to finance private luxury consumption. People would try to imitate Western consumption habits and thus a balance of payments crisis may develop, along with economic inequality within the population.

Another reason exports cannot be promoted is because in all likelihood, an underdeveloped country may only be skilled enough to promote the export of primary goods, say agricultural goods. However, since such commodities face inelastic demand, the extent to which they will sell in the market is limited. Although when population is at a rise, additional demand for exports may be created, Nurkse implicitly assumed that developed countries are operating at the replacement rate of population growth. For Nurkse, then, exports as a means of economic development are completely ruled out.

Thus, for a large-scale development to be feasible, the requisite capital must be generated from within the country itself, and not through export surplus or foreign investment. Only then can productivity increase and lead to increasing returns to scale and eventually create virtuous circles of growth.

## Role of state

After World War II, a debate about whether a country should introduce financial planning to develop itself or rely on private entrepreneurs emerged. Nurkse believed that the subject of who should promote development does not concern economists. It is an administrative problem. The crucial idea was that a large amount of well dispersed investment should be made in the economy, so that the market size expands and leads to higher productivity levels, increasing returns to scale and eventually the development of the country in question. However, it should be noted that most economists who favoured the balanced growth hypothesis believed that only the state has the capacity to take on the kind of heavy investments the theory propagates. Further, the gestation period of such lumpy investments is usually long and private sector entrepreneurs do not normally undertake such high risks.

## Reactions

Ragnar Nurkse's balanced growth theory too has been criticised on a number of grounds. His main critic was Albert O. Hirschman, the pioneer of the strategy of unbalanced growth. Hans W. Singer also criticised certain aspects of the theory.

Hirschman stressed the fact that underdeveloped economies are called underdeveloped because they face a lack of resources, maybe not natural resources, but resources such as skilled labour and technology. Thus, to hypothesise that an underdeveloped nation can undertake large scale investment in many industries of its economy simultaneously is unrealistic due to the paucity of resources. To quote Hirschman,

"If a country were ready to apply the doctrine of balanced growth, then it would not be underdeveloped in the first place."

Hans Singer asserted that the balanced growth theory is more applicable to cure an economy facing a cyclical downswing. Cyclical downswing is a feature of an advanced stage of sustained growth rather than of the vicious cycle of poverty. Hirschman also stated that during conditions of slack activity in developed countries, the stock of resources, machines and entrepreneurs are merely unemployed, and are present as idle capacity. So in this situation, simultaneous investment in a large number of sectors is a well-suited policy. The various economic agents are temporarily unemployed and once the inducement to invest starts operating, the slump will be overcome. However, for an underdeveloped economy, where such resources are absent, this principle doesn't fit.

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Another contention was Nurkse's approval of Say's Law, which theorises that there is no overproduction or glut in the economy. Supply (production of goods and services) creates a matching demand for the output and this results in the entire output being sold and consumed. However, Keynes stated that Say's Law is not operational in any country because people do not spend their entire income - a fraction of it is saved for future consumption. Thus, according to Nurkse's critics, his assumption of Say's Law being operational in underdeveloped countries needs greater justification. Even if the section of savers is few, the tenet of putting emphasis on supply rather than demand has been widely discredited.

Nurkse states that if demand for the output of one sector rises, due to the complementary nature of demand, the demand for the output of other industries will also experience a rise. Paul Rosenstein-Rodan to spoke of a similar concept called "indivisibility of demand" which hypothesises that if large investments are made in a large number of industries simultaneously, an underdeveloped economy can become developed due to the phenomenon of complementary demand. However, both Nurkse and Rosenstein-Rodan only took into consideration the situation of industries that produce complementary goods. There are substitute goods too, which are in competition with each other. Thus if the state pumps in large investments into the car industry, for example, it will naturally lead to a rise in the demand for petrol. But if the state makes large scale investments in the coffee sector of a country, the tea sector will suffer.

Hans Singer suggested that Nurkse's theory makes dubious assumptions about the underdeveloped economy. For example, Nurkse assumes that the economy starts with nothing at hand. However, an economy usually starts at a position which reflects the previous investment decisions undertaken in the country, and at any given moment, an imbalance already exists. So the logical step would be to take on those investment programmes which compliment the existing imbalance in the economy. Clearly, such an investment cannot be a balanced one. If an economy makes the mistake of setting out to make a balanced investment, a new imbalance is likely to appear which will require still another "balancing investment" to bring equilibrium, and so on and so forth.

Hirschman believed that Nurkse's balanced growth theory wasn't in fact a theory of growth. Growth implies the gradual transformation of an economy from one stage to the chronologically next stage. It entails the series of actions which leads the economy from a stage of infancy to that of maturity. However, the balanced growth theory involves the creation of a brand new, self-sufficient modern industrial economy being laid over a stagnant, self-sufficient traditional economy. Thus, there is no transformation. In reality, a dual economy will come into existence, where two separate economic sectors will begin to coexist in one country. They will differ on levels of development, technology and demand patterns. This may create inequality in the country.

*Notes* Balanced growth is not an inevitable property of growth models.

## Limitations:

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

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

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

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Importantly, this process is seen as too complex and unpredictable to lend itself readily to a government-inspired "Big Push", partly because governments may lack the relevant information, and partly because simultaneous investment would place too many demands on limited organizational resources. Hirschman summarized his objections by saying: 'if a country were ready to apply the doctrine of balanced growth, then it would not be underdeveloped in the first place'

## 9.3 Unbalanced Growth

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

1. Hirschman's strategy

   The concept of unbalanced growth has been popularized by Hirschman.

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

If the economy is to be kept moving ahead, the task of development policy is to maintain tensions, disproportions and disequilibria. This "seesaw advance" is induced by one disequilibria that in turn leads to a new disequilibrium and so on ad infinitum.

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

1. the prevention of convergent series of investments which appropriate more external economies than they create; and
2. the promotion of divergent series in which more economies are created than are appropriated.

Development can only take place by unbalancing the economy. This is possible by investing either in social overhead capital (SOC) services or in directly productive activities (DPA ). The former create external economies while the latter appropriate external economies.

### Unbalancing the Economy with SOC.

Social overhead capital has been defined as "comprising those basic services without which primary, secondary and tertiary productive activities cannot function." In SOC are included investments on

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education, public health, communications, transportation and conventional public utilities like light, water, power, irrigation and drainage schemes, etc. A large investment in SOC will encourage private investment later in DPA. For example, cheaper supply of electric power may encourage the establishment of small industries. SOC investments indirectly subsidise agriculture, industry or commerce by cheapening various inputs which they use for reducing their costs. Unless SOC investments provide cheap or improved services, private investments in DPA will not be encouraged. Thus the SOC approach to economic development is to unbalance the economy so that subsequently investments in DPA are stimulated. As Hirschman puts it, "Investment in SOC is advocated not because of its direct effect on final output, but because it permits and in fact invites DPA to come in.... Some SOC investment is required as a prerequisite of DPA investment."

### Unbalancing the Economy with DPA.

An imbalance can also be created via DPA. A government might directly or indirectly invest in DPA instead of investing in SOC. If DPA investment is undertaken first, the shortage of SOC facilities is likely to raise production costs substantially. In course of time, political pressures might stimulate investment in SOC also. Investment sequences are generated by profit expectations and political pressures. Profit expectations generate the sequence from SOC to DPA and political pressures from DPA to SOC.

*Caution* In developing economies there is low investment due to the low domestic savings.

### The Path to Development.

Hirschman calls the first sequence (from SOC to DPA) "development via excess capacity of SOC" and the second sequence (from DPA to SOC) "development via shortage of SOC." As to which sequence should be followed first for economic development, Hirschman prefers that sequence which is "vigorously self-propelling." This is explained in Fig. 1. DPA investments are measured along the vertical axis. The curves a, b , and c are isoquants showing various quantities of DPA and SOC which will give the same gross national product at any point. As we move to a higher curve, it represents a higher gross national product. The curves are so drawn that the 45° line through the origin connects the optimal points on the different curves. This line shows the balanced growth of DPA to SOC. Hirschman makes two assumptions: firstly, that SOC and DPA cannot be expanded simultaneously, and secondly, that sequence of expansion should be adopted which maximizes induced decision making. If the path to development is followed via excess capacity of SOC, the economy will follow the dotted line AA'BB"C.

When the economy increases SOC from A to A' on the same isoquant a, the induced DPA increases from A to B' until balance is restored at B where the whole economy is on a higher isoquant b.

The higher gross national product thus achieved induces government to increase SOC further to B" from B , DPA also follows suit from B to point C via C' on more higher insoquant c . If the other path to development via shortage of SOC is followed, the economy moves along the thick line AB'BC'C.

When DPA increases to B' from A, SOC has to move to A' and then to B.

When DPA is increased further to C' from B, balance requires SOC to increase to C via B".

It is to be noted that development path via excess SOC capacity is more continuous and smooth than the second path. It is in a way what Hirschuman calls self-propelling. The other path via SOC shortage capacity is not so, because if there is a belated adjustment of SOC, as it is likely to be due to the absence of political pressures in the beginning, the DPA cost of producing a given output rises. According to Hirschman, "Development via SOC shortage is an instance of the disorderly, compulsive sequence while via excess SOC capacity is essentially permissive."

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## Linkages.

Having studied the virtues of specific imbalance, the problem is one of finding the kind of imbalance that is likely to be most effective. Any investment may have both forward linkage and backward linkage effects. Forward linkage effects encourage investment in subsequent stages of production, and backward linkage effects in earlier stages of production. Development should aim at discovering projects with the largest total linkage. Such projects vary from time to time and country to country, and can be found only by empirical studies of their input-output tables. Hirschman says, "The industry with the highest combined linkage score is iron and steel. Perhaps the underdeveloped countries are not so foolish and so exclusively prestige-motivated in attributing prime importance to this industry." But he opines further that "the industrial development clearly cannot be started everywhere with an iron and steel industry just because the industry maximizes linkage." The reason being the lack of interdependence and linkage in underdeveloped countries. For example, agriculture, including primary production, and mining are weak in both backward and forward linkage effects. The primary production activities mostly of the enclave type leading to exports have little development effects on the economy in adding either to employment or to gross national product in an underdeveloped country.

## Last Industries First.

Hirschman, therefore, advocates the setting up of "last stage industries first.'" In making industrial products, a developing country need not undertake all the stages of production simultaneously. It can begin with the manufacture of durable consumer goods at the final stages of production. It can import many converting, assembling and mixing plants for final touches to almost finished products. In this way, the country can turn out finished consumer goods that it was previously importing, and then move on to the higher stages of production-to intermediate goods and machines through backward linkage effects. Backward linkage effects are important not only from secondary back to primary production, but also from tertiary back to both secondary and primary production. Backward linkage effects are the combined result of several last stage industries in a country. A backward linkage effect is produced by increases in demand. Therefore, when the demand for import-replacing commodities increases, it justifies some domestic last stage production. In other words, in the making of some products, when demand reaches a certain threshold, it is advantageous to manufacture the product at home. So long as the threshold is being reached, it pays to import the product. When the threshold is reached, Hirschman suggests subsidies or protection to import-replacing industries. But it is not desirable to give infant industry protection till the industry has been fully established. Hirschman calls last stage industries as import enclave industries. They are different for export enclave industries. The latter produce only for exports and are primarily related to staple products and minerals in LDCs. According to Hirschman, LDCs do not give due importance to the part played by exports in their economic development. They often treat exports like a stepchild. Their exports do not expand and fail to produce forward linkage effects within the economy. Hirschman, therefore, suggests export promotion which is the only practical way of achieving industrialization via import substitution. Hirschman sums up his Strategy of Economic Development in these words, "Economic development typically follows a path of uneven growth; that balance is restored as a result of pressures, incentives, and compulsions; that the efficient path towards economic development is apt to be somewhat disorderly and that it will be strewn with bottlenecks and shortages of skills, facilities, services, and products; that industrial development will proceed largely through backward linkage, i.e., will work its way from the 'last touches' to intermediate and basic industry."

*Did u know?* A sector that expands on its own may make a loss, but if many sectors expand at once, they can each make a profit.

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## A Critical Appraisal

The doctrine of unbalanced growth, as propounded by Hirschman, is a heroic attempt at pointing out the way to accelerate economic development for underdeveloped countries. It is realistic and takes into account almost all aspects of development planning. The various incentives, obstacles and resistances to development are studied in their proper perspective. The discussion of forward and backward linkage effects together with last stage production is highly useful. Hirschman's stress on export promotion and import substitution further introduces a touch of realism. He is neither in favour of overall state planning of the Russian type nor does he leave everything on to the shoulders of private enterprise. Unless the SOC path of economic development is followed by the state, it will not encourage private investment in DPA, because private enterprise in an underdeveloped country is unable to create the necessary economic surplus required for development, to carry it further and even to sustain losses. He, therefore, appears to be in favour of a mixed economy.

## Self Assessment

1. Fill in the blanks:
   - *(i)* ..... economists saw how a balanced growth path might arise from relatively appealing assumptions.
   - *(ii)* ..... are two useful references on multi-sector growth modely.
   - *(iii)* ..... is a situation in which the various sectors of a given economy are not growing at a rate similar to one another.
   - *(iv)* For most development economics, the term is more strong associated with increasing returns, and a debate that began with .....

## Limitations

The doctrine of unbalanced growth is, however, not free from certain limitations.

1. Inadequate Attention to the Composition, Direction and Timing of Unbalanced Growth. Paul Streeten criticising Hirschman's theory of unbalanced growth asks, "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 spearhead be thrust, on which slope snowballs grow into avalanches." He thus points out that inadequate attention has been paid to the composition, direction and timing of unbalanced growth.
2. Neglects Resistances.

   Streeten further points out that "the theory concentrates on stimuli to expansion and tends to neglect or minimize resistances caused by unbalanced growth." For instance, Hirschman neglects resistances in attitudes created by an imbalance. When development is the outcome of deliberate unbalancing the economy, the business attitudes change due to shortages and tensions, and there is lot of opposition and hostility. Hirschman neglects this type of reaction on the part of the existing institutions in underdeveloped countries.
3. Beyond the Capabilities of Underdeveloped Countries.

   Hirchman's development strategy is beyond the capabilities of UDCs because investment creates imbalances thereby creating pressures and tensions in the growth process which are overcome by the inducement mechanism. But pressures and tensions are bound to be serious in underdeveloped countries thereby hampering the process of development.
4. Lack of Basic Facilities.

   There may be lots of difficulties in procuring technical personnel, raw materials, and basic facilities like power and transport and even in finding out an adequate domestic and foreign market for the products.
5. Lack of Factor Mobility.

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Moreover, inducement mechanism is practicable where there is internal flexibility of resources. But in undeveloped countries it is difficult and impossible to shift resources from one sector to another.

6. Emergence of Inflationary Pressures.

One of the serious limitations of the unbalanced growth doctrine is the development of inflationary pressures within the economy. When large doses of investment are being injected into the economy at certain strategic points, income will rise which may tend to increase the demand for consumer goods relative to their supply. Shortages arise due to strains, pressures and tensions. Such a situation leads to inflationary rise in the price level. It becomes difficult to control prices in underdeveloped countries, as the governments are incapable of wielding monetary and fiscal measures effectively.

7. Linkage Effects not Based on Data.

Hirschman's analysis of the linkage effects suffers from the fact that it is not based on data pertaining to an underdeveloped country where social overhead facilities are not fully developed for a generation or so.

8. Too much Emphasis on Investment Decisions.

Hirschman's development strategy is largely related to maximising investment decisions. No doubt decision making is a crucial factor in economic development, yet underdeveloped countries need not only investment decisions but also administrative, managerial and policy decisions. Thus Hirschman lays too much emphasis on investment decisions as compared to other important decisions essential for development.

## 9.4 Balanced Vs. Unbalanced Growth

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

### Differences

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

One, relating to the role of the state, and two , the role of supply limitations and supply inelasticities. Nurkse believes that balanced growth is relevant primarily to a private enterprise system. "It is private investment that is attracted by markets and that needs the inducement of growing markets. It is here that the element of mutual support is so useful and, for rapid growth, indispensable." But critics point out that private enterprise alone is incapable of taking investment decisions in underdeveloped

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countries. Therefore, balanced growth presupposes planning. On the other hand, in Hirschman's unbalanced growth strategy, the state plays an important role in encouraging SOC investments thereby creating disequilibria. If development starts via investment in DPA, political pressures force the state to undertake investments in SOC. Thus unbalanced growth also requires state planning. Since both balanced growth and unbalanced growth involve lumpy investments in complementary activities, they require state planning. In order to get investment decisions implemented and to benefit from complementarities, coordination between the private and public sectors is essential in an underdeveloped country, whether it adopts the strategy of balanced growth or unbalanced growth. The other problem concerning the two strategies is the role of supply limitations and supply inelasticities. Nurkse's theory of balanced growth is mainly related to the lack of demand, and neglects the role of supply limitations. This is not a correct view because underdeveloped countries woefully lack in the supply of capital, skills, economic infrastructure and other resources which are inelastic in supply. But the demand for final goods can be created by import restrictions and export promotion without recourse to the strategy of balanced growth. The unbalanced growth doctrine also neglects the role of supply limitations and supply inelasticities. Though it emphasises the scarcity of decision making, yet it ignores the scarcity of physical, human and financial resources in an underdeveloped country. Thus both strategies err in neglecting supply limitations and base their arguments on the developed countries which have high elasticity of supply of resources.

### Similarities

This distinction between balanced and unbalanced growth techniques leads to certain points of similarities between the two. First, both believe in the existence of a private enterprise system based on market mechanism under which they operate. At the same time, they imply the operation of state planning. Second, both ignore the role of supply limitations and supply inelasticities. Lastly , both the doctrines assume interdependence, but of different degrees. In balanced growth, the development of one sector is dependent on the development of other sectors. On the other hand, under unbalanced growth, the economy gradually moves on the path of economic development via tensions, disproportions and disequilibria, and ultimately reaches balanced growth. Thus both the strategies involve interdependence among different sectors of the economy, but the interdependence is of different degrees

*Task* Briefly explain balanced and unbalanced growth theory.

### Self Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* Balanced and unbalanced growth theory didn't reflect the debate about government-controlled economies versus free market economies.
   - *(ii)* High taxation, reducing consumption and providing funds for investment, either directly or indirectly.
   - *(iii)* Government may select inappropriate sectors for support.
   - *(iv)* Unbalanced growth theorists agree that significant development cannot be achieved within free, unregulated markets by a small number of industries.

## 9.5 Summary

- Despite these weaknesses the technique of unbalanced growth has come to be recognised as a novel technique for the development of underdeveloped countries. Russia was the first country to adopt it and has been successful in accelerating its rate of economic growth within a short-

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period of time. India also followed suit by adopting this technique with the Second Five-Year Plan. Whereas Russia could succeed by creating large surpluses in the heavy industries sector and by keeping down the consumption levels, in India such an extreme policy is impracticable. Here investments in heavy industries are being kept up at a high level in the five-year plans and at the same time every effort is being made to step up production of consumer goods. But nothing is done to keep the consumption levels low in order to generate large economic surplus. The continuous rise in the price level however tends to keep the real consumption standards low. Unless the government controls the inflationary pressures, planning with unbalanced growth will fail to achieve the goal of self-sustaining growth.

- The controversy between balanced and unbalanced growth has been stretched too far and has become almost barren. Keeping in view the scarcity of resources in a developing country, the best course is to adopt the strategy of unbalanced growth. Under this strategy, SOC should be developed first which will encourage subsequent investments in DPA when the economy will ultimately move on the path to balanced growth. The experience of many developing countries like India reveals that unless such SOCs as power, irrigation, manpower, transport, etc. are developed first, the development of agriculture, industry and commerce is retarded. The rapid development of Russia has of course proceeded in this way with growth being communicated from the leading to the followers. But developing countries wedded to democracy should try to control the twin evils of inflation and adverse balance of payments while pursuing this strategy of development.
- In macroeconomics, balanced growth refers to classes of equilibrium growth paths, while in development economics the term refers to a particular development strategy.
- The idea plays an important role in teaching and research in macroeconomics because of its simplicity and explanatory power.
- Unbalanced growth is a situation in which the various sectors of a given economy are not growing at a rate similar to one another.
- in Hirschman's opinion, the real bottleneck is not the shortage of capital, but lack of entrepreneurial abilities.
- Unbalanced growth theorists agree that significant development cannot be achieved within free, unregulated markets by a small number of industries.

## 9.6 Key-Words

- aggregate : a total number or amount made up of smaller accounts that are collected together.
- entreprener : person who makes money by starting or running business, especially when this involves taking financial risks.
- contradict : to say that something that something that somebody else has said is wrong, and that the opposite is ture.
- bureaucratic : connected with a bureaucracy and involving complicated official rotes which may seen unnecessary.

## 9.7 Review Questions

1. What do you mean by Balanced growth?
2. What do you mean by the unbalanced growth?
3. What is the difference between Balanced and unbalanced growth?
4. Explain the theory of balanced and unbalanced growth.

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## Answers: Self-Assessment

1. *(i)* Solow, swan *(ii)* greenwood et as., Kong samut et
   *(iii)* unbalanced growth *(iv)* Rosenstein-Rodan
2. *(i)* F *(ii)* T *(iii)* T *(iv)* T

## 9.8 Further Readings

*Books*


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# Unit 10: Critical Minimum Efforts Thesis

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## Objectives

The objectives of this unit can be summarized as below:

- Be able to explain the balanced growth theories.
- Know about the terms stimulants and shocks.
- Know about critical evaluation.

## Introduction

The theory of critical minimum effort is associated with the name of Harvey Leibenstein. The theory is based on the relationship between the three factors, viz. (i) per capita income, (ii) population growth, and (iii) investment.

Leibenstein identified population also an income-depressing factor (or a), whereas investment is an income-generating factor.

Growth in an economy is possible when the income- generating factors turnout to be more powerful than the income-depressing factors. A small additional investment may generate a small income. The additional income would be eaten up by the additions to the population which may come in the wake of the additional income, and hence the effort may fail to generals a cumulative process of growth. What is required is an initial substantially large volume of investment that may create conditions which should outweigh the growth of population, i.e., if necessary it is necessary that the initial effort or the initial series of efforts must be above a certain minimum magnitude.

Suppose the level of per capita income is OA. This level is low as compares to the critical minimum level it would fail to take the economy out of stagnation forced would be strong in relation to the effect of income depressing forces would be strong in relation to the effect of income-generating forces.When level of income is raised to OB, the growth curve will follow the path BCR. It is evident that per capita income is rising up to point C, and thereafter the per capita income is declining. It means, OB level of income is insufficient to generate the growth momentum in the economy.

If sufficient investment is infected into the system to raise per capita income to OM, sustained growth will occur and effort of stimulants would be relatively strong than that of shocks. There, any level of investment lower that the critical cannot ensure stained growth.

The term 'critical' is indicative it the fact that the investment should at least be of such a level which could raise per capita income to OM for achieving sustained growth. However, it would be with

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convenient and cheaper to make the effort in two doses. The initial infection of investment might be enough to raise per capita income to OB. Then at time T, the second dose of investment could be infected to raise per capita income to OM, thereby taking the economy to the critical minimum level of income required for sustained growth. Reasons for critical minimum effort: Critical minimum effort, in Lebensteins opinion is necessitated by the following factors:

One, some of the factors of production is indivisible, so that unless they are used in full or in minimum amount, they will lead to internal diseconomies. To overcome these diseconomies, some minimum critical investment may be necessary.

*Notes* This theory is one of the **balanced growth theories**. In this theory Leibenstein essentially talks about how large doses of investments in an economy can help the economy in development.

There is a sort of mutuality and interdependence between a number of firms and industries. As these develop, there emerge external economies. Apparently, there economies can be reaped only when there are at least those minimum numbers of industries operating which make these economies possible. In their absence, these economies may not arise at all absence; these economies may not arise at all. Three, at any time the economy may be subjected to autonomously generated income depressing factors and at the same time be subject to depressants induced by some aspect of the process of growth. A certain minimum investment is necessary to overcome there and to initiate sustained growth. Four, there are some attitudes which are to be developed for growth. Among those, more important are:

"Western Market Incentives" implying a strong profit incentive,

A willingness to accept entrepreneurial risks, and an eagerness to promote scientific and technical process. These attitudes come in only when the economy undertakes same level of investment.

The above factors make it necessary that some minimum level of investment is undertaken in an economy to make it possible for the growth promoting forces to set in. The investment must be made in sizeable lump, and not through marginal increments that result from a set of unrelated individual decisions. The theory is more realistic that Rosenstein-Rodan's "big push" theory because critical minimum effort can be broken up into a series of smaller efforts which can be properly times to put the economy on the path of sustained growth. However, the theory is open to criticisms on the following grounds: One, Leibenstein assumes that population increases as the income rises above the subsistence level. Beyond a particular level of income, population declines.

This assumption implies that rise in income has a direct bearing on the growth of population. But, in reality, this relation is not so simple. Growth of population is influenced by social attitudes, customs traditions of the people, and not merely by the per capita income. Two, according to Myint, the functional relation between per capita income and income growth rate is not as simple as assumes by Leibenstein. It is complex and has two stages.

In the first stage, the level of per capita income influences the rate of saving and investment which, in turn, depends on the pattern of income distribution and the effectiveness of financial institutions in mobilising saving. In the second stage, the relation between investment and resultant output depends upon the economic and social system of the country. The relationship can be improved through innovations.

The meaningful innovation is possible when updated technology, skilled labour and necessary infrastructure in the country. However, these are not available in the initial phase of development, and the critical minimum runs into difficulties. Three, in underdeveloped countries external forces play an important role in the initial stages of development. This theory does not explain clearly the

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role of external forces like foreign capital, foreign trade, international economic relations, etc. These forces exert a vital impact on development and these factors play an important role in the development process.

Notwithstanding the above shortcomings, the theory shows the way for breaking visions circle of poverty. The path of sustained growth is not even and smooth. It is rather difficult and complex one. Minimum efforts are essentially required to overcome the difficulties and achieve sustained growth, which is the ultimate objective of a development strategy.

## 10. 1 Theory of Balanced Growth

The theory of 'Balanced Growth' has been put forward as a solution to the problem of vicious circle of poverty that afflicts the demand side of capital formation. To break this vicious circle, the theory of balanced growth advocates a simultaneous setting up of a large number of mutually complementary industries that would generate demand for each other's products and thus expand the size of the market and increase inducement to invest.

Rosenstein Rodan gave the earliest version of the balanced growth theory. He observed that in underdeveloped countries, no new industry has a chance to survive due to limited size of market demand.

Thus, if for example, a shoe factory is set up employing a hundred workers, the chances are that it would soon close down due to lack of demand for shoes. But if in place of one factory, we simultaneously set up, say, one hundred factories employing thousands of workers, the chances are that all these factories would survive.

This is because the additional income in the hands of these workers arising from their employment, will create additional demand in the market as they spend money on various products produced by these industries.

Thus demand for shoes, as well as for goods produced by other industries increases that enables all of them to survive and grow. Nurkse agreed with Rosenstein Rodan and put forward the balanced growth theory on similar lines but enlarged the scope of the balanced growth programme to include many more industrial sectors.

According to Nurkse, the only way to remove the obstacles arising out of the small size of the market is "more or less synchronised application of capital to a wide range of different industries. Here is an escape from the dead lock, here the result is an overall enlargement of the market ... most industries catering for mass consumption is complementary in the sense that they provide a market for and thus support each other."

The people working in these industries will be buyers of each others produce. Accordingly, each individual industry shall create a demand for the goods of the others. The essence of Nurkse's theory is that if large investment is undertaken in the mutually dependent industries, the vicious circle of poverty can be broken and the country can look forward to the economic advancement.

Weaknesses of the Theory of Balanced Growth

The Theory of Balanced Growth suffers from inherent weaknesses. Singer has expressed his doubts about the practicability of balanced growth doctrine. According to him, if underdeveloped countries are to launch a large investment package in industries without paying much attention to agriculture, they are bound to run into difficulties.

To avoid food and raw material shortage, the big push in industry will have to be accompanied by a big push in agriculture as well. But when we think of such a large and varied package of industrial investment and investment in agriculture at the same time, it creates serious doubts about the capacity of the underdeveloped countries to follow the path of balanced growth.

As he says, "The resources required for carrying out the policy of balanced growth are of such order of magnitude that a country disposing of such resources would in fact not be underdeveloped."

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In underdeveloped countries there is an acute shortage of capital and other resources. To suggest that they can move on the path of economic progress by massive investment simultaneously in all sectors appears totally impractical. In fact, the balanced growth doctrine requires huge amounts of precisely these resources whose limited availability is the basic characteristic of the underdeveloped economies.

*Did u know?* The "minimum" amount of effort that is required is "critical" for the economy to move towards development hence this theory is called **critical minimum effort**.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* The critical minimum effort theory has been given by ..... in his book Economic Backwardness and economic growth.
   - *(ii)* The ..... is a function of per capita income and Rate of Investment is a function of per capita income.
   - *(iii)* The system is ..... for small displacement but not large one.
   - *(iv)* The critical minimum effort theory is more or less on extension of the .....

## 10.2 Explanation of Critical Minimum Effort Theory

In the discussion of economic development of underdeveloped countries a major theme has been advanced in recent years. The underdeveloped countries are described as in a state of equilibrium which is sometimes called a vicious circle. This circle is believed to be so vicious and deep-rooted that no small effort can be expected to break it up. If the underdeveloped countries are to be developed at all, a certain minimum effort (usually defined in terms of investment) and a certain minimum speed of growth is required. Any effort smaller than the minimum would be fruitless. Rosenstein-Rodan, Nurkse and many other have, in one way or another, made contributions to this theme, and a most refined version of this theme was recently formulated by Leibenstein. It is the purpose of this paper to present and criticize Leibenstein's theory, which he calls the "critical minimum effort thesis". It is out contention that the critical minium effort thesis is weak both logically and empirically, and its weakness is primarily due to what may be called the fallacy of aggregation.

### The Quasi-Stable Equilibrium

An underdeveloped or backward economy is characterized by Leibenstein as one which is in a state of quasi-stable equilibrium with respect to per capita income. Equilibrium is used in the usual sense to mean that there exists a set of values or magnitudes for the variables which, once attained, would remain unchanged–period after period. An equilibrium is called stable if these variables, when disturbed by an outside force, would return to their previous values after adjustment. A quasistable equilibrium is referred to as a condition in which only some variables of the system are stable. That is, after a disturbance some variables will return to their previous values while others will settle down at new magnitudes.

An underdeveloped economy may be described as basically in equilibrium because there are little forces within the economy which would could lead to a change in the magnitudes of the variables. The per capita income is low, savings are small, net capital formation is negligible and thus labor productivity and income are kept low. Since income is low, consumption and education levels are low, and these in turn keep labor productivity low due to poor health, lack of knowledge, etc. This vicious circle may of course be described in a number of different ways but the main idea is that the characteristics of an underdeveloped economy are such that they keep the economy underdeveloped. There is nothing in the economy which would deliver it from poverty. It is simply stagnant—year after year.

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But Leibenstein does not stop here. He argues that from time to time there may be shocks of stimulants to disturb the equilibrium of an underdeveloped economy, and it is here that he emphasizes the quasi-table nature of the equilibrium with respect to per capita income. Suppose there is a stimulant (say, a discovery of some new land) which will increase the cultivated area and output per capita. If the increase in income leads to a proportional increase in population, the per capita income will remain the same. Compared to the situation prior to the discovery of this new land both land and population are now larger, but the per capita income is of the same magnitude as before. It is the per capita income that Leibenstein sees as the stable feature in the equilibrium of an underdeveloped country.

## The Critical Minimum Effort Thesis

Leibenstein maintains that if the per capita income of an underdeveloped economy is to be raised permanently and continuously without falling back to the previous low level, a certain minimum effort (in investment) is necessary. In the first place, the measures which are needed to raise income require a certain minimum amount of investment if they are to be effective. In the second place, if per capita income is not raised at once above a certain level, certain "income depressing forces" will be set in operation during the process of development, and these forces will in the end outrun the "income-raising forces" and bring per capita income back to its previous level. While explanations will be given below of the nature of the "income-raising" and "income-depressing" forces, Leibenstein's main thesis may be described here graphically by one of his many interesting diagrams.

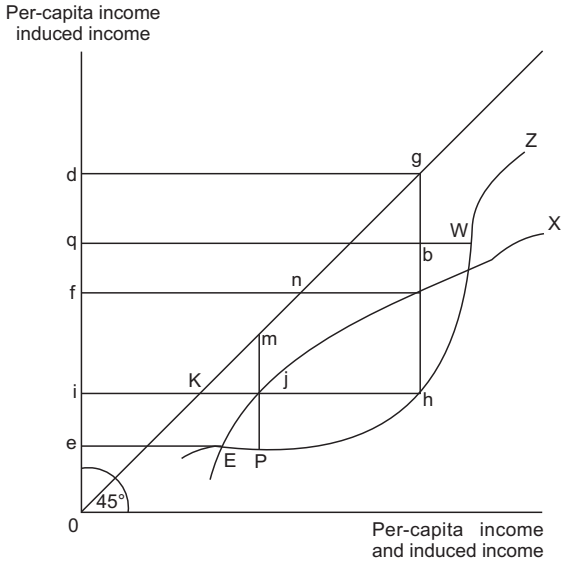


Figure 1.

In Figure 1, the curve X measures the extent to which income would be increased in the current period, given the related per capita income of the previous period shown on the ordinate, if the income raising forces were the only ones in operation. The Z curve measures the extent to which income is depressed "for each alternative level to which income would have been raised if the income-raising forces had been the only ones permitted to operate. Both the induced increases and the induced decreases in per capita income are measured from the 45-degree line in Figure 1. Suppose there is a stimulant which raises the per capita income from *oe* of *of*. In the absence of the depressing forces, a level of per capita income at of would self-generate additional income *nb* (or *bg*), and raise the per capita income to *od*. But at the same time the effects of the income-depressing forces will be at work and will reduce income. At the level of per capita income of *od*, if the depressing forces were to operate along, per capita income

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would be reduced by *gh*. Since the income-raising forces are also at work, the net effect on per capita income is to reduce it by *bh*. Now at the level of *oi* the income-raising forces would, if at work along, raise income by *kj* (or *mj*), but at the same time the income-depressing forces would lower income by *mp*. The not effect would be to reduce income by *jp*. This process will continue until *oe* is reached and the effect of income-raising forces is the same as that of income-depressing forces.

At any level of the per capita income within the range from *oe* to *oq* income depressing forces are greater than the income-raising forces. Any stimulant which raises per capita income above *oe* but below *oq* will prove to be futile, for per capita income will eventually return to *oe*.

It the stimulant is of such a magnitude that per capita income is raised from *oe* to a point at, or above oq, the effect of income-raising forces will outrun that of income-depressing forces. Thus, in terms of Figure 1, the critical minimum effort which is called for to break the vicious circle (centering on a per capita income of *oe*) is a stimulant which is of such a magnitude that it is capable of raising the per capita income to *oq* or above.

## Determinants of the Critical Minimum Effort

Leibenstein maintains that in order to raise income, even without considering all the induced effects, a certain minimum effort is required, on account of both internal and external economies os diseconomies. In the first place, there is the problem of internal diseconomies of scale due to factor indivisibilities. For certain types of production of firm has to be above a certain minimum size if efficiency is to be achieved. This problem become serious if a number of such firms have to be established simultaneously. And here the concepts of external economies, inter-dependence and balanced growth come to the front.

"External economy" refers to the fact that "as an industry expands, costs for all firms within the industry are reduced, although no firm within the industry is any more efficient that it was previously. Thus a firm. if alone, may not be able to cover its costs, but will be able to do so if a number of other firms within the industry are also in operation. The same applies to an industry which may be able to exist and expand only when other industries are established. This is, of course, the familiar argument of balanced growth as propounded by Rosenstein-Rodan and Nurkse, although the latter two emphasize the demand rather than the cost aspect of the interdependence of different industries. The stimultaneity of the establishment of various industries requires a large amount of initial investment, especially when factor indivisibilities are considerable.

Leibenstein also argues for the need for a large effort in the development of what he calls the growth agents and growth activities. An underdeveloped economy is pictured is one which possesses a great deal of culturally and institutionally determined attitudes that inhibit growth. The tendency toward "zero-sum" activities, the general inertia and fear of undertaking new types of activities and the likelihood of a high rate of failure of new activities in the initial stage all require a rapid rate of growth of the economy if these difficulties are to be overcome. In other words, there is a high degree of entrepreneurial interdependence in the initial stage of development. To make it possible for a sufficient number of growth agents of succeed so that they can establish themselves firmly and set an example for other imitators, low rates of growth would not succeed, for they are "unlikely to induce that synchronized expansion of all factors so that the interaction and results generate sustained growth". The rate of economic growth must be sufficiently large and pervasive to make a significantly large number of people feel that new value and new experiences will persist and replace the existing values and modes of behavior.

## The Nature and Magnitude of the Minimum Effort

In terms of Leibentein's basic theoretical framework, it is not difficult to determine the critical minimum amount of effort which is needed to break the vicious circle of an underdeveloped economy, as Figure 1 shows. But in practical terms Leibenstein makes no attempt to suggest any minimum figure. In the first place, Leibenstein is not always absolutely clear as to what he really means by an effort. He speaks of stimulant as before, but a stimulant may be an unusually good climate, or a discovery of some sort, but not all of it can be measured in monetary terms.

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If focus is on the most important variables of Leibenstein's theory, however, no great injustice is done if one simply equates the term effort with investment and regards induced population growth as the income-depressing force. In doing so, one is able to come up with a specific number regarding the critical minimum effort. According to Leibenstein, there is a maximum limit to the effect of the income depressing forces. An increase of income can only induce a population increase of no greater than a certain rate (say, 3 per cent a year), as set by biological limitations. If the stimulant (investment) can raise per capita income to a level which generates income growth at a rate higher than, say 3 per cent, the vicious circle is then broken. How much of an investment is required to achieve a certain growth rate of national income depends on the incremental or marginal capital-output ratio (ICOR) which Leibenstein believes is probably higher in the less developed stage than in the more developed stage. If it is assumed that the ratio is 5:1, a net investment of 15 per cent of the national income is required to produce a growth rate of 3 per cent of the national income.

## The Doctrine of Growing Points

So much for the exposition of Leibenstein's theory. Out criticism of his theory will be along two lines. First, we will examine the validity of the proposition that for an underdeveloped economy a certain minimum amount of investment is required in order to assure its success. Secondly, we will scrutinize the crucial theme which Leibenstein maintains, namely that when per capital income is below a certain level, the income-depressing forces will eventually overtake the income-generating forces. Our efforts will be aided, however, if the first present what may be called the doctrine of growing points, which, in brief, states that the development of a few points of a backward economy, even though the development is slight and done at a slow pace, may lead the economy into the path of sustained growth.

The argument for a large amount of investment on account of capital indivisibilities of "lumpiness" is certainly valid for certain industries. If an atomic plant is to be built at all, it has to be built a specific size, and a few yards of railroad are of little value to an economy. But there is also a wide range of industries where there is much capital divisibility as well as substitution among factors. Even in cases where factor proportions are fixed the scale need not be too large. It would be very hard to imagine that there is any backward economy which is so poor as to be incapable of mobilizing any savings at all in order to start a few firms, even though it may require an intensive use of capital. If that were the case, there would be little chance, if any at all, for that country to be developed in the absence of massive foreign assistance.

The significant issue is not whether is requires a large amount of investment to get a few factories started. The issue is whether a few factories, if started alone, can succeed. The position of Rosenstein-Rodan and Nurkse is that these factories will not, and they cannot be expected to succeed unless there is a more or less simultaneous development of a wide front of industries. The reason is that these few factories, if established along, will not find enough customer to buy their products. The low income level of the economy limits the purchasing power of the people and hence the market. The income of the workers who have been employed by the few newly established factories will undoubtedly increase, but it cannot be expected that the workers will spend all their income on the products of the new factories. When investment is made on a wide front of the economy, however, the various industries established will become each other's customers, and the problem of the lack of a market, or the lack of an inducement to invest is resolved.

But is it true that an industry which is unprofitable when undertaken alone will become profitable when many other industries are developed at the same time? And is it true that the establishment of one industry presupposes the founding of a number of other industries at the same time?

An affirmative answer to the first question is likely to require that the supply of labor and capital be rather elastic. If not, it may happen that the increase in the demand for labor and capital resulting from the simultaneous establishment of many industries will be so large that it will cause wages and interest to be bid up to such an extent that few industries will be profitable to the investors. It may be true that the supply of unskilled labor in the "overpopulated" underdeveloped countries may be,

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over a wide range, a horizontal one, but it is certainly not so for skilled labor, management personnel and capital. Indeed, the shortage of these factors is just a symptom of underdevelopment. The doctrine of balanced growth tries to solve the demand side of the problem of investment, but fails to give adequate attention to the supply side.

How true is the doctrine even in terms of the demand side? it simultaneous development of a number of industries will solve the market problem, it nevertheless remains untrue that a balanced development is the only way to solve the demand problem as the doctrine implies. There are always sectors if ab economy which, even developed individually, may prove to be profitable to investors. The fact that there are imports means there is a market for goods which are not produced at home. Under certain circumstances, such as a favorable protective tariff or in time of war, the import-replacing industries may prove to be profitable. There are always profitable possibilities when one develops a product for export. Even in a poor economy there are always certain tools of production these tools or new tools for similar purposes at a lower cost, there would certainly be a market. The same is true for the field of consumption where there is always room for products with a better quality or a lower cost. In short, there has always been and still is, in a backward economy as in an advanced economy, a demand for consumption as well as capital goods, and there is always room to replace the with new, better or cheaper products by introducing new production methods or other improved methods.

## The Process of Diffusion

The doctrine of growing points does not merely mean that the particular industries which are developed will grow. Properly interpreted, it means that the economy in general will also grow as these few points are developed. The main task for the doctrine is to explain how the development of a few points may lead to the development of the whole economy.

This task is not particularly difficult, however, as the links between the development of points and the development of the whole economy have been very well supplied and indeed have become very familiar. For the clarity of discussion of the following may be noted here: (1) the demonstration effect; (2) the reinvestment effect; and (3) the linkage effect.

There are two aspects of the demonstration effect. One is the familiar Schumpeterian imitation effect; namely, when one innovator starts a business a cluster of imitators follows suit. Take the Chinese experience (1840–1937) for instance, the compradors of the foreign firms in China played an important role in establishing modern industries in China, and their efforts were undoubtedly stimulated by what they saw in their foreign employers. When a few Chinese statesmen interested themselves in the establishment of modern industries in China in the latter part of the nineteenth century for the purpose of counterbalancing foreign economic influence in China, they started an important, if limited, movement of economic modernization. Many other Chinese chose to follow their path with avowed patriotic purposes. Examples of this sort can be multiplied in other countries as well; and there is little doubt that it is a part of human behavior to follow and imitate others.

The other aspect of the demonstration effect concerns consumption, and has been well formulated and emphasized recently by Duesenberry and Nurkse. The idea of "keep up with the Jones" is perhaps as old as human history, and it plays an important role in economic development. Take again the Chinese experience as an example: it is still a matter of interesting research to investigate the process by which the Chinese people (especially the urban people) changed their taste in favor of modern products and services. Apparently it did not take long for the urban residents as well as the well-to-do in the rural sector to acquire a taste for such modern products as cigarettes or such services as a haircut of Western style. When one samples one modern product he is likely to develop a desire for others, and what he does is bound to be imitated by others. Thus the demonstration effect (regarding consumption) may not be as undesirable as Nurkse fears if the purpose is to find a market for new products.

The number of innovators of entrepreneurs is small in any nation. It is this group that is always tirleessly trying to explore new possibilities and introduce new technologies and production functions. When these entrepreneurs make a profit they try to reinvest as much of it as possible, not only in their

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already established fields but also in new lines of business. It is this group which constantly probes and expands new economic frontiers. In the case of China, successful men of this kind have been very few in number in the modern era, but the records of the successful Chinese entrepreneurs like Chang Chien or Jung Tsun-ching seem to support out above viewpoint. The record of Jardine, Matheson and Company, a foreign trading firm in China, is even more revealing. It was founded in China as a small trading firm in the 1830's. Always growing, the firm became one of the largest trading firms in China, with an interest in a large number of industries, such as silk reeling, packing, cold storage, engineering, shipping, shipyards, insurance, cotton textiles and breweries.

## The Fallacy of Aggregation

The doctrine of growing points as presented above obviously does not fit into Leibenstein's theoretical framework. It is true, Leibenstein does not deny the process of cumulative development as outlined above, but he maintains, as noted previously, that such processes could not take place in an economy where per capita income is below a certain level, as it is in the underdeveloped countries. For in such an economy the cumulative effects of development would be outstripped by the induced depressing forces. We have discussed Leibenstein's induced depressants; let us now examine the validity of his most important income-depressing force, population growth.

In Libenstein's model, population is regarded as a function of per capita income, but such an aggregate analysis reveals little of the process of development. If attention is paid to the various sectors of the economy, it may be found that very little functional relationship exists between population and per capita income, even when per capita income is at a very low level.

Suppose there is a poor traditional society which is now under foreign political or economic intrusion as happened in China after the 1840's. The confrontation may set in motion a chain of events which will lead to a certain degree of economic modernization. In the case of China the confrontation with the West after the 1840's provoked considerable anti-foreign sentiment, and a number of economic measures were undertaken by the Chinese to counteract foreign economic influence in China. When this "retaliation effect" was reinforced by the demonstration and linkage effects of foreign economic penetration, a modern sector of the economy, though very limited, was developed along the Chinese coast, while the interior and agricultural sectors remained essentially unchanged.

When a country is developed in the above pattern, which may be conveniently called "development without", it is difficult to see how Leibenstein's population mechanism can work. In the modern sector, income and per capita income would rise if the rate of income growth is greater than the rate of induced population growth. Even here it is dangerous to pursue the analysis on a per capita basis. Certainly it is the entrepreneurial and managerial group that will enjoy the highest rates of income growth. The common worker's income may not grow much at all if the labor supply is, within a broad range, vert elastic, as it appears likely to be in the "overpopulated" countries. The experience of Great Britain and Japan in the early stages of their development certainly does not indicate any significant increase in income for the common workers. Thus, even assuming that there is a relation between income growth and population growth (an assumption which is commonly held but is very dubious and which will be examined below), an increase in per capita income, raised primarily by rising incomes of the rich, may not be accompanied with any appreciable increase in population (leaving the matter of immigration aside).

In the rural sector it is almost by definition that nothing will change much under the pattern of "development without". In the long run the rural or tradition sector will be gradually encroached upon; this sector gradually diminishes as the modern sector expands. But there is no good reason to believe that in this traditional sector, when incomes remain essentially unchanged, the population will increase when there is a rapid increase in income in the modern sector, which by sheer arithmetic will increase per capita income for the entire economy.

Now let us consider another type of development which may be called "development within." Suppose there is some sort of agricultural revolution and the process of economic development starts in the agricultural sector and then diffuses into the industrial sector. Labor productivity in the agricultural

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sector increases, but whether this will cause an increase of income for the average peasant depends very much on the structure of land ownership and the tenure system. It is quite possible that gains in productivity are reaped primarily by the landlords, leaving the standard of living of the average peasant virtually unchanged. Per capita income in the rural sector may thus increase considerably with little increase in population.

Leibenstein's assertion of a positive relation between per capita income and population may not be true even in a situation which approximates perfect income distribution. The determinants of population growth are of a very complex nature; to reduce them to one single factor, income, is very much of an oversimplification. The determinants of birth rates are far from being understood, and are undoubtedly different in different countries, because of different religious attitudes, family concepts or other values. Even for the death rate, income becomes an obvious crucial factor only when death is caused by outright starvation. Otherwise the relationship between income and the death rate is by no means a simple one.

## Population as a Factor of Growth

So much for the effect of income growth on population growth. But thus far we have examined only half of the population theory as proposed by Leibenstein. The other half as noted before states that as population increases, per capita income will fall and return to its previous level. The constancy of per capita income will fall and return to its previous level. The constancy of per capita income in the long run has led Leibenstein, it may be recalled, to use the term "quasi-stable equilibrium." Our chief objection here is that as income increases there is little reason to believe that the induced population growth will necessarily outgrow income growth and reduce per capita income to its previous level, even if there is an induced population growth. Leibenstein invokes the law of diminishing returns to support his contention, but the law requires the condition "other things being equal." In the process of development this condition cannot be assumed as prevailing.

When an underdeveloped economy has experience for some time an increase in income at, say 2 per cent, there must be many changes in the structure of the economy and the untilizatiion of resources. All the factors leading to further cumulative development as discussed in the section on growing points can be expected to continue to function. Why would all these factors crease to operate if there is an induced population increase? Leibenstein supplies no satisfactory explanation.

Given the state of the arts, the law of diminishing returns is bound to operate with regard to agriculture in countries where land is limited relative to labor and capital. But whether the law is operative with regard to agriculture in countries where land is limited relative to labor and capital. But whether the law is operative with regard to manufacturing is a different matter. It is quite possible that within a broad range, the law of increasing rather than decreasing returns may be at work. As Marshall emphasized emphasized, an increase of labor and capital would generally lead to improved organization and efficiency (and other external economies), thus offsetting the tendency toward diminishing returns. It may be true, as Wicksell insisted, that in the long run diminishing returns would eventually prevail even in manufacturing, but in the long run, the state of the arts cannot be held constant. It is precisely the progress in technology which has made possible the continued increase in production both in agriculture and in manufacturing in the now advanced countries.

*Did u know?* The "minimum" amount of effort that is required is "critical" for the economy to move towards development hence this theory is called **critical minimum effort**.

## Self-Assessment

1. Fill in the blanks:

   *(i)* The critical minimum effort theory has been given by ..... in his book Economic Backwardness and economic growth.

Notes

(ii) The ..... is a function of per capita income and Rate of Investment is a function of per capita income.

(iii) The system is ..... for small displacement but not large one.

(iv) The critical minimum effort theory is more or less on extension of the .....

## 10.3 Stimulants and Shocks

Leibenstein has used these 2 terms **stimulants** and **shocks** in his theory quite often. He defines **Stimulant** as any event that changes the value of a variable away from its equilibrium value so that due to this event there is an initial increase in the per capita income. *Shock* on the other hand has been defined by Leibenstein as any event external to the system due to which per capita income is reduced initially.

Now in underdeveloped economies shocks are more powerful than stimulants so what should be done in such a scenario is that the levels of incomes should be risen to such an extent that stimulants become stronger than shocks and the growth in incomes becomes self sustaining.

### Factors Determining the Need for a Minimum Effort

Leibenstein in his theory discusses the factors that determine the need for the **minimum effort** required by the developing economies:

- **Internal Diseconomies :** Because of presence of indivisibilities in the factors of production it is necessary for the economy to have investments of a certain minimum size.
- **External Economies Interdependecies and Balanced Growth :** In a closed economy, industries are **interdependent** on one another. So industry will require materials from industry 2, and so on. Therefore for one to exist the other must also exist. So this shows that the minimum investment required for all these industries to exist should be of considerable amount. This leads to a notion of balanced growth. Leibenstein says that if there were no technological indivisibilities then balanced growth could be easily achieved with any level of investment. But due to presence of indivisibilities balanced growth requires a substantial minimum amount of investment.
- **Overcoming Induced and Autonomous Depressants :** The developing or underdeveloped economies have both autonomous and induced factors depressants.To overcome these factoes investments above a certain minimum size is required.
- **Non-Economic Aspects and Growth Momenetum :** The underdeveloped countries have old and traditional attitudes and mindset, which has to be changed as these inhibit growth. Economic growth requires the promotion of the following type of attitudes:
  - (i) a strong profit incentive
  - (ii) willingness to accept entrepreneurial risk
  - (iii) an eagerness to promote technical and scientific progress.

  If a country wants to achieve balanced growth, then critical minimum effort is almost a pre-condition.

*Task* What is the meaning of "Stimulants and shocks"?

## 10.4 The Critical Minimum Effort Thesis

Furthermore, it might also be argued that sometimes a population increase will nerve not as a braking force but as a stimulating force to further growth. In a country where the land-population ratio is high this seems likely to be true. Even in a country which is quite crowded, an increase in population may mean more labor force and the wage rate may thus be depressed. The beneficiaries may not be

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Richardo's landlords only; the capitalists may also stand to gain. There is little doubt that the low level of wages was an important factor contributing to the development at the early stages in both England and japan. In addition, under certain conditions the so-called disguised unemployment may turn out to be a source of capital formation and become an asset to economic development, as is so much emphasized by Nurkes. In short, while on the one hand one should not exaggerate the idea that population is always an asset to economic growth, it is unconvincing to maintain that it is always an asset to economic growth, it is unconvincing to maintain that it is always a liability. If it is Leibenstein fails to tell why and how it is in his model.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* Critical minimum effort theory is one of the balanced growth theories.
   - *(ii)* A backward economy is an equilibrium system whose equilibrium state does not possess a degree of quasistability.
   - *(iii)* The critical minimum effort theory as opposed to big stress o the fact that a lump some amount of investment has to be made instantaneously.
   - *(iv)* The critical minimum effort is also consistent with the concept of decentralised democratic planning as practiced in India.

## 10.5 Summary

- We have pointed out what we believe to be the weakness of Leibenstein's critical minimum effort thesis. Leibenstein himself admits that his theory is not a logical necessity. Indeed, in an interesting diagram he illustrates how an initial increase in income may lead to a continuous increase which he calls the case of slow progressive growth. But he discards this case as unrealistic for it fails to explain why many of the underdeveloped countries which must have experienced some stimulants or shocks have remained underdeveloped for centuries.
- But the same can be said of every country in the world before, say, the latter part of the eighteenth century. Rapid sustained growth in income has been a relatively new experience for mankind. And for those countries which are now economically advanced, it certainly has taken a log time to transform their economies from traditional to modern. The history of these countries scarcely supports the idea which Leibenstein implies that a small, gradual increase in income would not result in such a tansformation. We are not prepared to agrue that crash programs or large efforts are not desirable to accelerate the development of the underdeveloped countries today. The shortcomings in such an acceleration as pointed out by Ellis may be real and should be considered. The point is, however, that in view of the rising expectations of these countries, any failure to develop these countries at a reasonably fast pace may create serious political and social problems not only for these countries themselves but for the world as a whole.
- What we oppose is simply the idea that economic gradualism is doomed to failure, as Leibenstein suggests. In a sense Leibenstein has to be or had better be wrong; for in the absence of massive foreign aid or totalitarian methods in mobilizing resources, what hope would there be for these underdeveloped countries if economic gradualism woul dinevitably fail?
- The **critical minimum effort theory** has been given by *Harvey Leibenstein*, in his book *Economic Backwardness and Economic Growth*. This theory relates to overpopulated and underdeveloped or developing nations such as *India* and *Indonesia*.
- Nelson and Leibenstein have sressed on the importance of *Social structure*, *Human capital*, *and Entrepreneurship*, but they say that the development of these and investment in these sectors alone can not attain critical minimum effort.
- The main idea of the theory is that the **vicious circle** needs to be broken and the **per capita income** should increase.
- Leibenstein has used these 2 terms **stimulants** and **shocks** in his theory quite often.

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## 10.6 Key-Words

- Critical : Extremely important because a future situation will be affected by it.
- Induced : to persuade or influence somebody to do something
- Quasi : that appears to be something but is not really so
- Diminish : to become or to make something become smaller weaker etc.

## 10.7 Review Questions

1. What is zero population growth?
2. What is the need for critical minimum effort? Discuss.
3. Critically examine the concept of critical minimum effort.
4. Explain the terms
   (i) Stimulant (ii) Shocks
5. State and explain the doctrine of critical minimum effort. What are its shortcomings.

### Answers: Self Assemssent

1. *(i)* harvey leibenstein *(ii)* population growth
   *(iii)* quasi-stable *(iv)* harod-Domar model
2. *(i)* T *(ii)* F *(iii)* F *(iv)* T

## 10.8 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 11: Low - Level Equilibrium Trap

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## Objectives

After reading this unit students will be able to:

- Know about Nelson Model.
- Explain the graphical demonstration of theory.

## Introduction

The theory developed by Richard R. Nelson in his article **A Theory of the Low-Level Equilibrium Trap** published in 1956.

According to Nelson the malady of underdeveloped economies can be diagnosed as a stable equilibrium level of per capita income at or close to subsistence requirments. At this low stable equilibrium level, both the rate of investment and saving are low. If per capita income is increased above the minimum subsistence level, it encourages growth in population. The population growth, in turn pushes down per capita income again to subsistence level. Thus the economy is caught in low level equilibrium trap. Getting out of the trap requires increasing the rate of growth of income to the levels higher than the rate of increase in population. In Nelson's opinion following four conditions are condusive to trapping:

## 11.1 Nelson Model

Nelson uses a model with three equations **First**, there is an income determination equation. Income depends on the stock of capital, the size of the population, and the level of technique. **Second** net investment consists of saving-created capital plus additions to the amount of land under cultivation. **Third**, there is the population growth equation according to which in areas with low per-capita incomes short-run changes in the rate of population growth are caused by changes in the death rate, and changes in the death are caused by changes in the level or per-capita income. Yet once per capita income reaches a level well above subsistence requirments, further increases in per-capita income have a negligible effect on death rate. With these three sets of relationships, it is easy to see that an underdeveloped economy is caught in a low level trap.

### Income determination equation

In first case the economy is at minimum subsistence level of per capita income. When per capita is less than that of the minimum subsistence level the population decreases. After a stationary point

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when per capita income increases then the subsistence level population increases until it reaches a physical limit. Population growth increases till it reaches its upper physical limit after which it declines. The declines occurs because at high per-capita income levels, people become conscious about their living standards and try to adopt a small family norm.

*Task* When was "A theory of the Leon-Level Equilibrium Trap" published?

## New investment is equal to capital created out of savings

In this case there is a certain level of income in the economy with on savings as all the income is spent on consumption. Also the level of investment is zero. There is negative investment in the economy when savings are negative implying a situation where consumption is greater than income i.e. people live on past capital. However when per capita income rises then savings also rises from zero level which leads to rise in the investment level in the economy.

## Population growth equation

Whenever the per capita income reaches a level above the subsistence level any further increase in it will have a negligible effect on death rates. Moreover changes in death rate are due to changes in per capita income.

## Conclusion

Starting from this low level equilibrium trap, any small increase in per capita income will not be able to sustain itself or lead to further increase in per capita income because the rate of growth in population is higher than the rate of growth in total income.

This happens till the time rate of growth in population is greater than the rate in growth of total income. It is only when the level of per capita income is increased by a discontinuous jump that the country can hope to come out of the low level equilibrium trap, because the rate of growth exceeds the rate of growth of population. Nelson's thesis advocates that if the country is to break the shackles of low level equilibrium trap, its rate of growth of total income must be higher than 3 percent per year. This can be done only when, to use Leibenstein's terminology, that amount of minimum effort is undertaken which pushes up the level of capita income.

*Did u know?* Consequently, per capita income will fall to previous low equilibrium level.

## Explanations

**" The population tends to rise when per capita income rises above minimum subsistence wage."**

According to Nelson underdeveloped countries have always stable equilibrium per capita income equal to subsistence level and this low per capita income entrapped such economies in vicious cycle presented below.

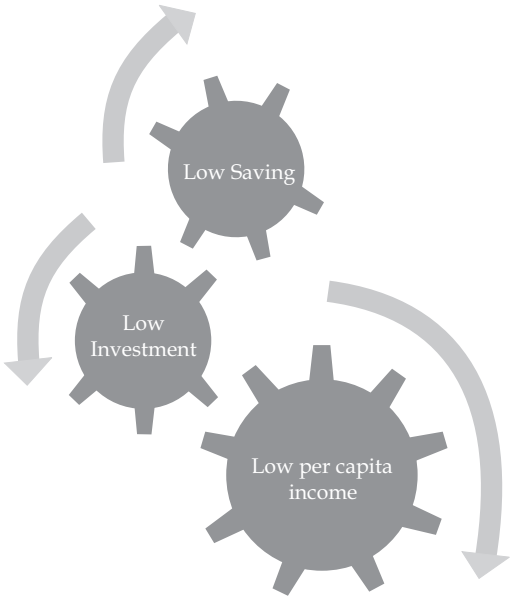


**Fig.1**

An increase in per capita income works on population growth rate as;

- In beginning increase in per capita income leads to increase population.
- Then it decrease population.

To show how underdeveloped countries (UDC's) are trapped by low equilibrium level of income Nelson presents three sets of relations.

- Y = *f* (K, L, Tech)
- New investment is equal to capital created out of savings (in form of addition to machine tools and addition of new land).
- Whenever the per capita income reaches a level above the subsistence level any further increase in it will have a negligible effect on death rates. Moreover changes in death rate are due to changes in per capita income.

*Notes* As there is continuous increase in the per capita income there is a rising proportion of total income saved and invested.

## Reasons Behind the trap

- High Correlation between per capita income and population growth rate
- Scarcity of non cultivable area of land.
- Inefficient techniques of production.
- Social and economic inertia.
- Little propensity to direct addition per capita income to increase investment.

## Self-Assessment

1. Fill in the blanks:
   *(i)* Second Net investment consists of ..... capital plus additions to the amount of land under cultivation in Nelson model.
   *(ii)* ..... increases till it reaches it upper physical limit after which it declines.

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*(iii)* There is ..... investment in the economy when savings are negative implying a situation where consumption is greater than income.

*(iv)* Nelson's thesis advocates that if the country is to break the shackles of low level equilibrium trap, into rate of growth of total income must be higher than ..... per year.

*(v)* According to Nelson New investment is equal to ..... created out of saving.

## 11.2 Graphical Demonstration of Theory

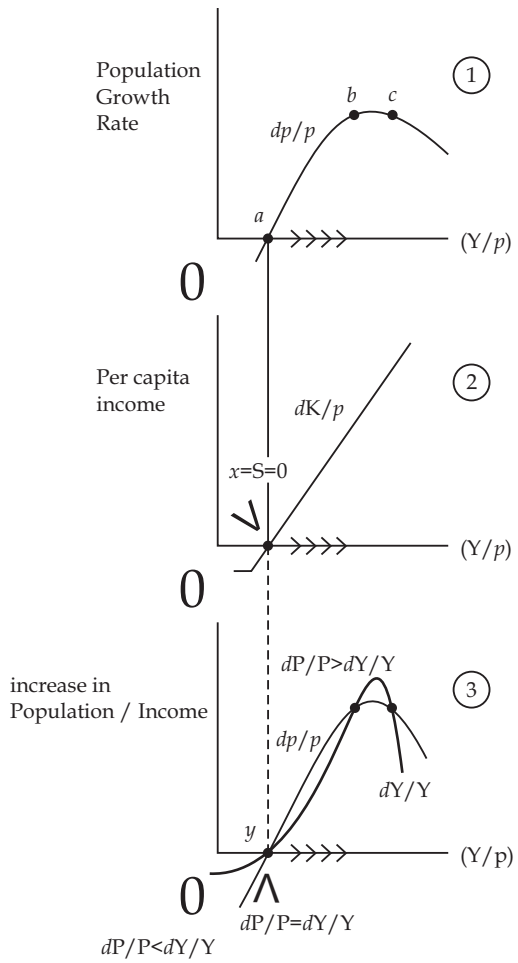


**Fig 2**

### Explanation

- In panel (1) of figure the curve *dp/p* shows population growth rate by taking per capita income (Y/P) along *x*-axis and population growth rate along *y*-axis. Curve *d*P/*p* in intersects *x*-axis at point "*a*" indicating minimum subsistence per capita income where *d*P/*p* = Y/P. Population is decreasing left to point "*a*" whilst it is increasing right to the same point shown by arrows. When per capita income is above subsistence level at first Population growth rate attains maximum point "*b*" then becomes stationary and lastly starts decelerating after point "*c*".
- Panel (2) of figure shows the curve of per capita rate of investment out of saving (*d*K/*p*) relating per capita of investment with varying levels of per capita income. At point "*x*" savings are zero. Left to the point, saving is negative while it is increasing along investment growth curve (*d*K/*p*).

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- Panel (3) shows curves of population growth rate ($dP/p$) and per capita income growth ($dY/Y$) by taking $dP/p$ and $dY/Y$ along $y$-axis and per capita income along $x$-axis. Both curves ($dP/p$) and $dY/Y$ are intersecting at point "$y$" where $dY/Y = dP/p$. Before point "$y$" $dP/p < dY/Y$ which push an economy to point "$y$" where zero saving is equal to minimum subsistence level of per capita income. Above "y" point $dP/p > dY/Y$ pushing an economy again to point "$y$". This process goes on and on entrapping an economy of UDC's in an equilibrium trap of low-level of per capita income.

### Getaway from the trap

According to Nelson following steps can avoid trap;

- Favorable socio-economic and political environment.
- Reduction in family size.
- Change in income distribution.
- Proportion of public investment must be changed.
- Loans should be taken from foreign countries to support investment and capital.
- Improved techniques of production.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.

   See the graph, (Fig. 2).

   *(i)* Curve $\frac{dp}{P}$ intersects x-axis at point "a" indicating minimum subsists tence per capita income where $dp/p = y/p$

   *(ii)* Population is increasing left to point "a" while it is increasing right to the same point shown by arrows.

   *(iii)* In panel 2 of figure 2 left to the point, saving is negative while it is increasing along investment growth curve.

   *(iv)* According to Nelson, there should not improved techniques of production for avoiding trap.

   *(v)* There should be reduction in family size.

## 11.3 Summary

- According to Nelson the malady of underdeveloped economies can be diagnosed as a stable equilibrium level of per capita income at or close to subsistence requirments.
- If per capita income is increased above the minimum subsistence level, it encourages growth in population.
- Nelson uses a model with three equations First, there is an income determination equation.
- Population growth increases till it reaches its upper physical limit after which it declines.
- Nelson's thesis advocates that if the country is to break the shackles of low level equilibrium trap, its rate of growth of total income must be higher than 3 percent per year.
- " The population tends to rise when per capita income rises above minimum subsistence wage."

Notes

## 11.4 Key-Words

- Trap : A clever plan designed to trick somebody either by capturing ghem or by making them do.
- Determination : The quality that makes you continue trying to do something even when this is difficult.
- Equilibrium : State of balance, especially between apposing forces.
- Demonstration : a public meeting or march at which people show people show that they are protesting against something.

## 11.5 Review Questions

1. What is income determination equation?
2. Explain the population growth income.
3. What are the reasons behind the trap?
4. Give some steps to avoid trap.

### Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | Saving created | *(ii)* | population growth | *(iii)* | | negative | |
| | *(iv)* | 3% | *(v)* | capital | | | | |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | F |
| | *(v)* | T | | | | | | |

## 11.6 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 12: Dualism and Dependency Theory

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## Objectives

After reading this unit students will be able to:

- Know about Dualism.
- Explain the dual kinds of play and extensions
- Explain the Dependency theory and dependency theory of development.

## Introduction

**Dualism theories** belong to the range of topics of the development theories. On the basis of the acceptance of at least two connected economic, social, technological or regional sectors in case of developing countries a pessimistic prognosis is particularly placed.

Often becomes from a "traditional", subsistenzorientierten (i.e. on self-sufficiency) sector put on and a "modern" industrially organized sector gone out.

## 12.1 Dualism Theory

Dualism denotes a state of two parts. The word's origin is the Latin *duo*, "two" . The term 'dualism' was originally coined to denote co-eternal binary opposition, a meaning that is preserved in metaphysical and philosophical duality discourse but has been diluted in general usage.

Dualism theories assume a split of economic and social structures of different sectors so that they differ in organization, level of development, and goal structures. Usually, the concept of economic dualism (BOEKE 1) differentiates between two sectors of economy:

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The traditional subsistence sector consists of small-scale agriculture, handicraft and petty trade, has a high degree of labour intensity but low capital intensity and little division of labour; the modern sector of capital-intensive industry and plantation agriculture produces for the world market with a capital-intensive mode of production with a high division of labour.

The two sectors have little relation and interdependence and develop each according to its own pattern. The modern sector can be considered an economic enclave of industrial countries, and its multipli-cator and growth effects will benefit the industrial countries but have little effect on the internal market.

Economic, technological, and regional dualism are often the consequence of a social dualism, the absence of relationships between people of different race, religion, and language, which, in many cases, is a legacy of colonialism.

Development in dualism concepts is the suppression of the traditional sector by concentrating on and expanding the modern sector. In time, it is assumed that the trickle down effects will reduce and abolish dualism. In this line of thinking the main problem is capital formation because its degree determines the scope and speed of expansion of the modern sector. In general, agriculture has to provide the resources, labour as well as capital, for expanding the modern sector. In details, the strategies vary. Some authors, like LEWIS (14) and FEI/RANIS (5), assumed that a reduction of the labour force in agriculture, because of the widespread disguised unemployment, would not reduce agricultural production. The productive employment of these labourers in the modern sector would increase the total production of the economy and hence priority of investment in industry is necessary. Concentration on the modern sector led to an increasing regional disparity, rural urban migration, urban unemployment, a decrease in agricultural production, and hindrance in industrial development because of a lack of purchasing power in the rural areas. The anticipated trickle-down effects hardly ever happened. In praxis, development plans following this line of thinking led to failures like the early Indian development planning. Therefore, other authors, like JORGENSON (10), LELE (12), and MELLOR (17), emphasize the important role of agriculture at the beginning of development, i.e., preceding or parallel to industrial devel-,, opment in order to provide enough internal resources for the development process.

*Task* Describe the Dualism in your own words.

## 12.2 Kinds of Dualism

**A social dualism** is present e.g. if western social system beside the "tradtitionellen" native "imported" exists With it often go an **economic dualism of a** supplying ("traditional") sector with a substantially smaller modern sector of the economy, which aims at a small native group of buyers or for the export produced. **A technological dualism** exists with the parallel existence more modern and all technologies. The term **regional dualism** implies a division in two parts into developed an under development/regions left. The different kinds of dualism cause and complement each other often mutually.

Characteristics of the traditional sector are often small capital resources and the use of simple production engineering and organization along the extended family, like them in agriculture. handicraft, to find trade and small industry are.

**Political recommendations**

Economics aiid devclopment policy recommendations refer due to the Nichtverbundenheit and postulated Nichtverbindbarkeit of the sectors often on a one-sided promotion alone the modern sector (see also modernization theory).

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Disagreement prevails with the question of the intensified international economic integration of developing countries into the world economic system. Dependency theoreticians reject this due to bad trading terms (*term OF trade*) for developing countries. Others see straight in the economic integration a chance for the overcoming of the dualisms.

## 12.3 Kinds of Play and Extensions

A kind of play of the dualism theories is in 20th Century is enough popular dependency theory of the Raul Prebisch (see also center and periphery). A newer kind of play are the modernization theories.

### Criticism

A main point of criticism at the dualism theories is the unsatisfactory explanation of the causes of the division in two parts into different sectors.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* The ..... subsistence sector consists of small-scale agriculture, handicraft and petty trade, has a high degree of labour intensity but low capital intensity.
   - *(ii)* Economy, technological, and regional dualism are often the consequence of a ..... dualism.
   - *(iii)* A ..... exists with the parallel existence more modern and all technologies.
   - *(iv)* ..... prevails with the question of the intensified international economic integration of developing countries into the world economic system.
   - *(v)* A main point of ..... at the dualism theories is the unsatisfactory explanation of the causes of the division in two parts into different sectors.

## 12.4 Dependency Theory

Dependency theory is a body of social science theories. lt contends that resources flow from a periphery of poor and underdeveloped states to a core of wealthy states, enriching the latter at the expense of the former. It is a central contention of dependency theory that poor states are impoverished and rich states are enriched, by the way poor states are integrated into the world system. In the next unit, you will be reading the Gandhian theory of development, which is based on Gandhian thought.

Aftre studying this unit, you should be able to : explain the dependency theory of development, and the basic characteristics of a dependent economy; distinguish between the Marxian and non Marxian approaches of dependency theory; and narrate criticisms of dependency theory.

## 12.5 The Dependency Theory of Development

Our discussion on the dependency theory of development is comprised of the characteristics of a dependent economy, approaches to dependency, and criticisms of dependency theory. Dependency theory evolved around 1950 as a reaction to some earlier theories of development. The main propounders of dependency theory are: Prebisch, Singer, Paul Baran, Paul Sweezy, C. Furtado, F H Cardoso, Gunnar Myrdal, A Gunder Frank, Girvan, and Bill Warren. Many of these scholars focused their attention on Latin America. The leading dependency theorist in the Islamic world is the Egyptian economist, Sarnir Amin.

Earlier theories held that all societies progress through similar stages of development. They say that at some time in the past, today's developed areas 39

**Theories of Development** were in a situation that is similar to that faced by today's underdeveloped areas.

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Therefore, the task of helping the underdeveloped areas out of poverty is to accelerate them along the supposed common path of development by various means, such as investment, technology transfers, and closer integration into the world market. Dependency theory rejected this idea, arguing that underdeveloped" countries are not merely primitive versions of developed countries; rather they have unique features and structures of their own. They are weaker members in a world market economy and the developed nations were never in an analogous position. They never had to exist under the patronage of more powerful countries than themselves. Dependency theorists argued, in opposition to free market economists, that underdeveloped countries needed to reduce their connectedness with the world market so that they might pursue their own path, more in keeping with their own needs, and less dictated by external pressures.

Hans Singer and Raul Prebisch, the prominent dependency theorists, observed that the terms of trade for underdeveloped countries, relative to the developed countries, had deteriorated over time. The underdeveloped countries were able to purchase fewer and fewer manufactured goods from the developed countries in exchange for a given quantity of their raw materials exports. This idea is known as the Singer-Prebisch thesis. Prebisch, an Argentinian economist at the United Nations Commission for Latin America (UNCLA), went on to conclude that the underdeveloped nations must employ some degree of protectionism in trade if they were to enter a self-sustaining development path. He argued that import substitution industrialization (ISI), but not a trade-and-export orientation, is the best strategy for underdeveloped countries.

The advocates of dependency theory believe that the theories of Smith, Ricardo, and the other European classical economists are not suitable to an analysis of the dualistic dependent structure of many nations such as Brazil, Mexico, and India. According to the dependency theorists, the less developed countries are to be understood as part of the global process. Their fate is merely to provide inputs for advanced nations. They provide low wage manufacturing under adverse terms of trade. Dependency analysis was built on the ideas of structuralists, more specifically, on the distinction between centre and the periphery made by Prebisch. The centre is viewed as the cause, and the periphery as the effect. Dependency theory found the causes for the lack of development to be external to the socioeconomic formations of the LDCs (Less Developed Countries). It does not treat dysfunctional institutions of the LDCs as the cause of backwardness. Internal institutional structures such as corruption levels, unproductive land holdings, concentration of wealth, and unresponsive political systems are never considered the causes of underdevelopment. Many dependency theorists advocate social revolution as an effective means to reduce economic disparities in the world system.

The basic premises of dependency theory are

(i) Poor nations provide natural resources and cheap labor. They are export destinations for obsolete technology and for markets for the wealthy nations, without which, the latter could not have the standard of living they enjoy. Poor natiol , a e at a disadvantage in their market interactions *n* Wealthy nations actively perpetuate a state of dependence by various means.

**Dependency Theory**

This influence may be mult&mted, involving economics, media control, politics, banking and finance, education, culture, sport, and all aspects of human resource development, including the recruitment and training of workers.

(ii) Wealthy nations actively counter all attempts made by dependent nations to resist their influences by means of economic sanctions, and, possibly, by the use of military force. The poverty of the countries in the periphery is not because they are not integrated into the world system, or not fully integrated as is often argued by free market economists, but because of how they are integrated into the system.

*Notes* Dependency theory was popular in the 1960s and 1970s as a criticism of modernization theory.

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## 12.6 The Characteristics of Dependent Economy

After knowing the fundamentals of dependency theory, let us now discuss the characteristics of a dependent economy. Dependency is said to have been created with the industrial revolution, with the expansion of European empires around the world, and due to the superior military power and accumulated wealth of these empires. Some argued that before this expansion, the exploitation was internal, with the major economic centers dominating the rest of the country. The establishment of global trade patterns in the nineteenth century, allowed capitalism to spread globally. The wealthy became more isolated from the poor, because they gained disproportionately from imperialistic practices. This control ensures that all profits in less developed countries are remitted to the developed nations. It prevents domestic reinvestment, causing capital flight and, thus, it hinders economic growth.

The underlying conditions for dependency of any country are as follow : exporting firms are primarily owned by foreigners **iQ** exports are dominated by one, or a few commodities (iii) the export sector dominates the economy, and imports are larger in relation to GDP (iv) mineral and petroleum products are produced under conditions of vertical integration. The characteristics of a dependent economy are as follows **9** economic growth is not self activating **iQ** profits are normally repatriated, but not reinvested the production of export industries is dependent on imported inputs (iv) income, employment, and growth are determined by

(a) the prices and the demand conditions of international market

(b) the willingness of transnational corporation to invest

(v) income, employment and growth are conditioned by

(a) changes in the prices and types of imports

Theories of **Develepment b)** economic fluctuation abroad

(c) changes in taste and fashion

(d) changes in technologically created substitutes

vii) backward and forward linkages of export activities are very rare

(vii) foreign capital, foreign technology, and management **are** dominant economic actors.

According to Vernengo (2004), the **sine qua non** of the dependency relationship is not the Merence in technological sophistication as tditional dependency theorists believe. It is the difference in financial strengths between core and peripheral countries. In fact, the peripheral countries **are** incapable of **bornwing** in their own currencies.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.

   *(i)* Dependency theory evolved around 1990 as a reaction to some earlier theories of developent.

   *(ii)* Dependency theory evolved around 1990 as a reaction to some earlier theories of development.

   *(iii)* The leading dependency theorist into the Islamic world is the Egyptian economist, Sarne's Amin.

   *(iv)* Dependency theory found the causes for the excess of development to be external to the socioeconomic formations of the LDCs.

   *(v)* Poor nations provide natural resources and cheap labour.

## 12.7 Approaches to Dependency

There are two main streams in dependency theory : The Structuralist stream, typified by the works of Prebisch, and Furtado; and the Marxist stream, developed by **Baran,** Sweezy, and **Frank.** Thus, two approaches are developed by two classes of economists. They are

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(i) the Marxian theory of dependency

(ii) the Structuralist theory of dependency

## 12.8 The Marxian Theory of Dependency Theory

This theory was developed from a Mmian perspective by Paul Baran in 1957 and is detailed in his book, The **Political Economy of Growth.** Dependency theory shares many points with earlier Marxist theories of imperialism. It continues to attract interest from Marxists. Celso Furtado of Brazil was one of the first economists to use the term 'dependency' and to argue that development and underdevelopment are two aspects of one economic structure. Both Keynes and Myrdal greatly influenced his thinking concerning the link between the economy and power, the crucial role of the state, and the ways in which the international economy influenced, or constrained, the development process of national economies. **Arer** a political coup in 1964, Brazil strictly followed the development strategy of industrialization which generated a social exclusion process in the country. According to Furtado, however, development should be a social pmcess. So, he argued for the necessity of incorporating Brazil's vast population of poor workers, farmers, and marginalized people into a process of inclusive social development. In his view, industrialization can unleash new social forces and pressures which bring about a process of inclusive social development. Being the head of National Bank of Brazil, Furtado focused on the northeast region and observed that the income gap between poor fmers and those residing in Sao Paul was greater than the income gap between the average income in Sao Paul and Europe in the 1950s. He created SUDENE (Superintendency for the Development of the Northeast), a Brazilian government agency created in 1959, which was designed to promote industrial development and land reform in the northeast region to counteract 'internal colonialism', as manifested in the exclusion of the northeast from Brazil's economic growth. According to Furtado, the northeast faced falling terms of trade for its commodity exports, and falling terms of trade in relation to its income earnings on the industrial goods bought from Sao Paul and Rio. Development and underdevelopment are one totality constantly produced within the structure of the economy. He maintained that there was a necessary link between FDI-led growth and rising internal inequality. To overcome dependence, the underdeveloped nations would have to create their own economic plans.

Marx believed that capitalism is characterized by creative destruction. It has two effects : destruction, and regeneration. Paul Baran emphasized the destruction side of capitalism in underdeveloped countries. He did not find evidence of regeneration. Rather, the monopoly capitalism of the twentieth century, unlike the competitive capitalism of the nineteenth century, had a vested interest in maintaining backwardness and dependence in the periphery. Baran's analytical contribution led to the flowering of the pessimistic and stagnationist school of dependency in Latin America and Africa. He found that Indian social scientists, having experienced British imperialism, had developed concepts very similar to the dependency theorists of the late nineteenth century.

Baran's theoretical point of departure was an analysis of economic surplus.

He defined economic surplus as the mass of resources (actual and potential) which a society could have at its disposal, in order to facilitate economic growth. It is the amount that might be reinvested in productive ways to **Theories of Development** increase the future level of social output. This surplus is the residual from total income after society's basic needs for food, clothing, shelter, and human companionship have been met. But, this surplus may be grossly misused. It may be utilized to erect sumptuous and multiple residences for the rich, or it may be wasted through a variety of ways of conspicuous consumption. The military, or the church may make tremendous demands on the surplus, or it may be drained away by foreign power **via** plunder, or, by simple profit repatriation as a result of foreign control over less developed countries. The historical analysis made by Baran makes it clear that the sources of poverty of less developed countries are found in the extraction of this surplus under colonialism. Thus, colonialism blocked the potential for change. Backwardness and poverty is perpetuated in these regions. According to him, the oppression of the feudal lords was ruthless, but

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tempered by tradition. It was further worsened by the domination of both foreign and domestic capitalists. According to dependency theory, the exploitation of the people is multiplied because the oppression and violence inherited from the feudal past is combined with the rationality and intelligent rapacity of the capitalists. The fruits of capitalism were not to raise productive wealth in many countries such as India. These fruits went abroad and served to support a parasitic bourgeoisie at home. People lived in abysmal misery, and they had no prospect of a better future. Poverty and underdevelopment continued. They lost their time honoured means of livelihoods, their arts and crafts. There was no modern industry to provide new ones in their place. They were thrust into extensive contact with the advanced science of the west, yet they remained in a state of darkest backwardness.

By reviewing the history of colonialism, Baran made the following conclusions

(i) profit margins fall due to the workers demand for higher wages

(ii) foreign capital becomes the targeted source of increasing state revenue (by imposing higher taxes and higher royalty payments, for example)

(iii) foreign exchange control is imposed to curb the funds flowing out of the country as repatriated profits

(iv) tariffs on imported wage goods are imposed to protect domestic manufacturing.

Theoretically speaking, the state could break this deadlock by opting for new programmes that-would make import substitution industrialization (ISI) more successful and dynamic. But the state, in the backward regions, is incapable of making the decisions needed to move forward on any front of development ladder. Baran argued that political revolution is necessary to break this pattern. He argued that by following the capitalistic route, these countries are not expected to achieve Rostow's stage of' high mass consumption'. Instead, these countries would head towards their economic and social graveyards. Thus, by following the socialistic route, the less developed countries could reasonably expect some relief from poverty.

*Did u know?* Baran's favourite example of the destructive effects of capitalism was that of India.

## 12.9 The Structuralist Theory of Dependency

There is a group of structuralist dependency theorists who are not Marxians.

They reject the perspective of stagnation. Amongst them, the most reputed writer was Fernando Henerique Cardoso, an active Brazilian sociologist and **Dependency Theory** economist of international repute. He argued that nations on the periphery suffer from a type of'peripheral capitalism'. One of the important features of these economies is economic stagnation, or, in the words of Andre Gunder Frank, an eminent dependency writer, 'development of underdevelopment'. Cardoso says that the dependent countries are not stagnant. The societies and economies of the periphery are continuously evolving. There are three major stages in the economic history of LDCs.

The first is the agro-export stage of the colonial period, when economic dualism was prevalent. During this stage, precapitalist sectors of artisans, petty producers, and peasant producers accounted for the bulk of economic activity. At this stage, *r* some sectors, such as precious metals, minerals, and tropical products are integrated with the world market. The production of these exportables takes place in modem and semi-capitalist enclaves.

The second is the stage of developmentalist alliances. After the Second World War, some LDCs experienced major transformation through import substitution industrialization (ISI). In this stage, a new social structure of accumulation is created which is based on the collective interest of industrial workers, peasants, and capitalists.

The third is a corporatist regime stage, where there are drastic curbs on democracy, unions, universities, and other areas of society where dissent might be encountad. The populist orientation of the second

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stage (in which social security, minimum wage legislation, public health care, and public education are expanded) is broken. There are drastic cuts in the state's budget for public services. Above all the TNCs (transnational corporations) are welcomed. They become pivotal in the new process of accumulation, and are central to the growth process. According to the structuralists, one should not be surprised at some economic progress, nor should one think LDCs are powerless to shape their destiny.

The third stage is not immutable either. There is no continuous stagnation.

Under this new regime in which the authoritarian state and TNCs cooperate.

### Self-Assessment

3. *Choose the correct option*

   *(i)* Who was of the following is related to structural stream of dependency theory.

   *(a)* prebisch *(b)* born *(c)* sweezy *(d)* frank

   *(ii)* Celso Fur tado of Brazil was one of the first economist to use the therm Development and to argue that development and underdevelopment are two aspects of one ..... structure.

   *(a)* physical *(b)* economic *(c)* social *(d)* political

   *(iii)* ..... that capitalism is characterized by creative abstruction.

   *(a)* Jorgenson *(b)* Lewis *(c)* Marx *(d)* Baran

   *(iv)* Paul Baran emphasized the destruction side of capitalism in ..... countries.

   *(a)* developed *(b)* underdeveloped

   *(c)* poor *(d)* underprivilages countries

## 12.10 Summary

- Dualism denotes a state of two parts. The word's origin is the Latin *duo*, "two" . The term 'dualism' was originally coined to denote co-eternal binary opposition, a meaning that is preserved in metaphysical and philosophical duality discourse but has been diluted in general usage.
- The traditional subsistence sector consists of small-scale agriculture, handicraft and petty trade, has a high degree of labour intensity but low capital intensity and little division of labour; the modern sector of capital-intensive industry and plantation agriculture produces for the world market with a capital-intensive mode of production with a high division of labour.
- Dependency theory is a body of social science theories. lt contends that resources flow from a periphery of poor and underdeveloped states to a core of wealthy states, enriching the latter at the expense of the former.

## 12.11 Key-Words

- Dualism : The theory that there are two opposite principles in everything.
- Dependency : The state of relying on something or somebody.
- Development : The gradual growth of something so that it becomes more advanced.
- Structuralism : A theory that considers any text as structure whose various parts only have meaning when they are considered in reaction meaning when they are considered in to reach than.

Notes

## 12.12 Review Questions

1. What are the characteristics of Dependent Economy?
2. Explain the term "Dualism".
3. Give an overview of Dependency theory of development.
4. What are the types of dualism?
5. explain the Marxion theory of Dependency theory.

### Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | traditional | *(ii)* | social | *(iii)* | technological dualsim | | |
| | *(iv)* | disagreement | *(v)* | criticism | | | | |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | F |
| | *(v)* | T | | | | | | |
| 3. | *(i)* | *(a)* | *(ii)* | *(b)* | *(iii)* | *(c)* | *(iv)* | *(b)* |

## 12.13 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development*, Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
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# Unit 13: Theories of Development: Classical Theories of Development

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## Objectives

After reading this unit students will be able to:

- Know about the Adam Smith's Theory of Economic.
- Understand Ricardian theory of economic development.
- Describe the Malthusian theory of economic development.
- Learn the J.S Mill's Theory of economic development, etc.

## Introduction

The classical school of economic thought was formally propounded by Adam Smith, who is called 'father of Economics', Malthus, David Ricardo, John Mill and J. B. Say. Each thinker has put forward a view which is different from others but still has some similarities. Therefore these theories are grouped under one heading of classical theories of development. While Malthus and Mill emphasized on demand side; Smith, Ricardo and Say gave greater importance to supply side. This unit discusses the ideas of Adam Smith, David Ricardo, John Mill, Malthus and also Karl Marx.

## 13.1 Adam Smith's Theory of Economic Development

Adam Smith wrote a book 'An inquiry into the nature and causes of wealth of nations' which was published in 1776. The publication of this book gave birth to Economics as a separate discipline. Although he did not propose any systematic growth theory but his ideas that are expressed in his book do give an idea of how growth occurs in a country. Adam Smith gave a supply side driven model of growth that can be explained with a simple production function

$$Q = F(L, L_1, K)$$

Where Q is quantity produced, L is labour, $L_1$ is land and K is capital. Since output is dependent on labour, capital and land, any growth in output ($g_r$) is driven by growth in labour ($g_l$), growth in capital ($g_k$) or improvement in land ($g_{Ll}$) and improvement in overall productivity ($g_f$).

$$g_y = a(g_l, g_k, g_L 1, g_f)$$

Notes

*Assumptions*

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

*Notes* Technological progress can also take form of improvements in machinery and international trade which can act as engines of growth.

*Main Features*

1. **Natural Law:** Adam Smith strongly believed in the efficiency of laissez faire market system. He proposed maximization of self interest automatically leads to maximization of social interest. When each individual tries to maximize his own individual interest, he is led by an 'invisible hand'. When each individual will maximize his own wealth in a free Laissez faire economy, then all individuals, if left free, will maximize aggregate wealth. He supported free trade and criticized any form of government intervention.
2. **Division of Labour:** Division of labour increases the specialization of a worker and thereby increases the overall productivity. Division of labour : (a) increases the dexterity of every worker; (b) saves time of producing goods; (c) leads to invention f large number of labour saving machine. However, increase in productivity also stems from capital through improved technology which depends on the size of market.
3. **Process of Capital Accumulation:** Division of labour leads to capital accumulation and this capital accumulation leads to a higher rate of development. But it is capital accumulation which must precede division of labour because it will stimulate specialization. Smith assumed that only capitalists and landlords were capable of savings. Labourers could not save because of 'Iron Law of Wages' which states that at any point of time wages tend to equal to the amount necessary for subsistence of labourers. If it is more than this, then there will be increase in competition for employment and wages will decrease.
4. **Investment is made to earn Profits:** Classical economists stated that capitalists made investment in an expectation to earn profits on them and these expectations depended on the present climate for investment and actual profits in the present. Smith also proposed that profits tend to fall with increase in the rate of capital accumulation. As economy's capital stock grows, demand for labour force increases, it increases competition for getting labour which leads to increase in wage bill and thereby reduces profits.
5. **Interest:** Quantity of capital for lending will increase with the fall in interest rates and *vice versa.* Interest rates will fall with progress and prosperity and hence supply of capital will go up.
6. **Agents of Growth:** Smith believed that farmers, producers and business man are agents of economic growth. The function performed by these agents of economic growth are inter-related.

Notes

*Did u know?* Smith stated that the process of economic growth is cumulative. The process of expansion is not endless. Scarcity of natural resources finally stops growth.

***A Critical Appraisal Merits***

(a) It gives a thorough explanation of how growth occurs in an economy.

(b) He explained the importance of capital accumulation, technological improvement, division of labour-increase in market size in the process of economic growth.

**Weaknesses**

(a) Smith's theory is based on the assumption of a rigid division of society between capitalists and labourers. The theory neglects the role of middle class.

(b) In advanced society maximum savings are being generated from salary class however, he assumed labour can't afford to save.

(c) Perfect competition does not exist in real life scenario. It limits the application of Smith's theory.

(d) Smith neglected the role of entrepreneur and thereby the role of innovations in development.

## Self-Assessment

1. Fill in the blanks:
   - *(i)* Adam Smith wrote a book an inquiry into the nature and causes of wealth of nations which was published in .....
   - *(ii)* Smith assumed that there existed perfect ..... in the market.
   - *(iii)* ..... strongly believed in the efficiency of laisser faire market system.
   - *(iv)* Smith believed that ..... and ..... are agents of economic growth.
   - *(v)* ..... is called father of economics.

## 13.2 Ricardian Theory of Economic Development

Like Smith, Ricardo also never gave a systematic theory of development but gave his views in an unsystematic manner in his book 'The Principles of Political Economy and Taxation'. Ricardo gave his most important contribution in the form of his concept of diminishing returns to land.

***Assumptions***

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

***Main Features***

1. **Rent, Profit and Wages:** Ricardo defined rent as that portion of the produce of the earth which is paid to the landlord for the use of original and indestructible powers of the soil. The wage

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rate is determined by wage fund divided by number of workers employed at subsistence level. Ricardo opined that in total produce of the corn, the first payment is made to landlord; the residual is distributed between wage and profits (interest is included in profits). Had land been in unlimited supply and uniform it would have earned no interest.

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

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

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

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

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

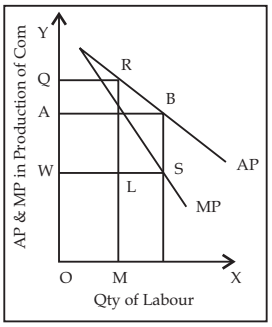
   (a) **Taxes:** Ricardo suggested that taxes should be levied to reduce conspicuous consumption as it is unproductive consumption and no how increases the productivity of labour. These taxes can be used by government for capital accumulation. The taxes which affect incomes of landlords or labourers were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

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

**Stationary State:** According to David Ricardo, in the long run, profits have a natural tendency to fall so that country ultimately reaches a stationary state.

Rise in profits → Rise in Capital Accumulation → Rise in production → Increased wage fund → Increase in population → increase in demand for corn and price of corn goes up → Demand for land increases → rent increases and profits and wages decrease → wage become equal to subsistence level

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



Notes

*A Critical Appraisal Merits*

(a) He emphasized that growth of ago culture is important for economic growth because it supports industrial growth.

(b) He emphasized the role of high rate of profit for economic development.

(c) He gave due importance to foreign trade in economic development.

(d) His theory is dynamic as it considers the effects of change in different variables on economic development such as population, wage, rent profit etc.

**Weaknesses**

(a) Ricardo neglected the role of technology in economic development.

(b) No economy reaches at a stationary state as claimed by Ricardo in which profits are increasing, production s rising and capital accumulation is taking place.

(c) It is baseless to assume that wages can not increase above subsistence level.

(d) Advanced countries have shown increasing returns for a long time proving the notion of diminishing returns to be wrong.

(e) In today's world there is no economy where there is no government interference. Hence, the assumption of Laissez faire policy is invalid.

(f) The theory does not distinguish between capitalist and entrepreneur and interest as a part of profits.

(g) Ricardian theory is theory of distribution and not growth.

(h) Land has alternative uses and can not be used only for the production of corn.

*Caution* Capital and labour are not fixed coefficients of production.

## 13.3 Malthusian Theory of Economic Development

Malthus in his book 'The Progress of Wealth' gave a more systematic theory of growth. Malthus in his theory of population states that unchecked population growth always exceeds the growth and the means of subsistence which makes means more and more scarce. He stated that population rises in geometric progression while food supply increases in arithmetic progression. There is thus disequilibrium between increase in population and food production and this inequilibrium is tending to be wider with time.

According to Malthus, this disequilibrium would create conditions of starvation and under nourishment leading to high mortality and low life expectancy. There could also be epidemics, famines, other man made and natural calamities. Malthus referred to these as 'positive checks' which follow inevitably if human beings do not take preventive measures. According to Malthus, preventive checks may be celibacy, late marriage, moral restraints etc.

Malthus warns that there is nothing automatic about economic growth. Population growth by itself is not sufficient, to bring economic development. He says population growth cannot take place without proportionate or nearly proportionate increase of wealth. Secondly, even if population grows, it must also bring about increase in effective demand of labour which in turn depends on rate of capital accumulation.

*Effective Demand*

Malthus flatly repudiated 'Say's Law' which stated that "supply creates its own demand".

Malthus gave a different kind of circular flow of income. He states that national income is generated by investment, capitalists' consumption and workers' consumption. It can be shown as follows:

$$O = P + W$$

Or $$P = O - W$$

Where, P is profit, W is wages and O is output.

Since wages are quite less, workers are not able to save at all. They spend their entire income on consumption. It is shown by $C_w$. Capitalists spend a portion of their income denoted by Cc and save the other potion denoted by I

Hence, $$O = C_w + C_c + I$$

$$P = O - W \text{ or } C_w + C_c + I - C_w = I + C_c$$

Therefore, profits are equal to the sum total of capitalists' consumption and investment.

***Role of Capital***

Malthus gave a concept of Optimum propensity to save. He considered two aspects of savings. It increases investment but decreases consumption. To a certain level, the positive effect of saving i.e. increase in investment due to enlarged saving is greater and hence savings increase total output in the economy. But after attainment of optimum propensity to save, savings bring consumption down to such a low level that even investments start getting discouraged. Malthus advocated free trade and Laissez faire economy and that each individual is best judge of his personal interest.

*Task* Write the role of capital.

***Structural Change***

Malthus was the first economist who gave a germ which was later developed by Colin Clark that with the increase in the level of economic development structural changes of such type take place in the economy that reduces the relative importance of agriculture. Malthus believed that there are two sectors in the economy; agriculture and industrial sector; the former triggers the growth of the latter.

Malthus assumed that capital was invested in agriculture as long as it could profitably absorb it. After all arable land was brought into cultivation, stocked and improved; then there were no profitable investment opportunities in agriculture sector, then only industrial sector offered profitable opportunities of investment. If enough investment took place to absorb the increasing population; then cost of living of workers will, reduce on the land and wage rates will reduce in corns.

Malthus suggested that in underdeveloped economies remain underdeveloped because each sector constitutes the market for the other sector; thus if one sector is not able to expand it also hampers the growth in other sector. Hence, economy needs to follow Balanced Growth strategy to have any growth at all. He further explained that the poverty of agriculture sector in underdeveloped countries is the main cause of under development of industrial sector.

He explains the causes of poverty in agriculture. He said, large land owners have no incentive to do more intensive cultivation due to limitations of the market and peasants lack capital to do agriculture more efficiently.

Therefore, industrial sector remains limited in total size. It is capital intensive in nature and provides employment for relatively few people.

***A Critical Appraisal***

Malthus contribution in theory of growth is worthwhile. His repudiation of Say's Law of Market and bringing in the concept of effective demand is also appreciable. His theory is more valuable to under developed countries.

## Self-Assessment

Notes

2. Multiple choice questions:

   *Choose the correct option*

   *(i)* Who did give his most important contribution in the form of his concept of diminishing returns to land?

   *(a)* Ricardo *(b)* Smith *(c)* Marshal *(d)* Malthus

   *(ii)* "The principles of political economy and taxation" is written by

   *(a)* Smith *(b)* Ricardo *(c)* Marshal *(d)* Malthus

   *(iii)* "The progress of wealth" is written by

   *(a)* Smith *(b)* Ricardo *(c)* Marshal *(d)* Malthus

## 13.4 J.s. Mill's Theory of Economic Development

J. S. Mill recognized economics as a science of welfare. His work was more subtle and original. He concerned himself with well being of men and women in society.

***J. S. Mill's Coherent Exposition of the Growth Process***

Mill defined in an orderly manner the three agents land, labour and capital followed by the degree of productiveness of his three productive agents. He propounded that however, land is subject to diminishing returns but innovations and inventions are capable of exercising an antagonistic influence on the law of diminishing returns to agriculture labour. He suggested innovations should include improved education of the working force, improved system of taxation, improved system of land tenure, preparing richer strata for constructive roles in society. He drew a sharp line between production and other human institutions.

***Population and Work Force***

Mill extended the basic proposition given by Malthus and Ricardo. He advocated a sustained public policy for family planning to ensure smaller family size; efforts must be made to popularize education and moving the society to a higher level of income. He believed in popularizing birth control. He even favoured that birth control policy can be made explicit. He further added that the productivity of labour depends upon the quality and quantity of other factors of production with which it must combine.

***Investment and Technology***

Mill distinguished between fixed capital and working capital. While dealing with profits, he catagorized profits into three components interest, insurance against risk, and wages for superintendence. He also gave the determinants of a minimum profit rates and variations he suggested that there is a tendency of the profit in various sectors to reach towards equality. Mill is criticized by some economists like Schumpeter for not giving complete investment process.

***Business Cycles***

Mill propounded that the calculations of the producers and traders are imperfect. There are almost at all times, some commodities are in excess and some others are in deficiency. Rising prices may dupe the producers of riches. Mill believed that an almost periodical cyclical process operates in which individuals have made decisions in the conditions of imperfect knowledge of the market conditions, investment decisions of others in response to the future expectation of profit or loss.

***The Stages of and the Limits to Growth***

Rostow expressed Mill's dynamic analysis in the form of different cases:

**Case I :** When population increases with stationary capital and arts of production, there will be decline in real wages and rise in rents.

Notes

**Case II:** When capital increases with stationary population and arts of production, there will be rise in real wages, demand for food and rents but profits fall.

**Case III:** When population and capital increase equally, with stationary arts of production, there will be decline in profits and rise in rents; real wage rate will remain same.

**Case IV:** When population and capital remain stationary and arts of production progress, there will be decline in rents, rise in real wages and profits remain unchanged.

**Case V:** When population, capital and arts of production, increase together, there will be increase in rents only.

## 13.5 Marxian Theory of Economic Development

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

***Organic Composition of Capital and Surplus Value***

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

Organic composition of capital is the ratio of constant capital to variable capital. Constant capital means circulating capital like raw material. Variable capital means advancement to labour i.e. total wage bill. So, Marx gave total value of output as :

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

Marx defined rate of profit is equal to

$$r = s/(v + c)$$

and,

$$s = y - (c + v)$$

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

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

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

***Declining Rate of Profit***

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

***It will have two effects***

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

(b) "Reserve army of labour" will affect wage rate and reduce it to subsistence level. Therefore, it declines further. It will increase $c/v$ and the rate of profit will fall.

However, introduction of labour saving machinery and laying off of labour would mean rise in $c$ and fall in $v$ i.e. organic composition of capital rises. Therefore $r$, rate of profit falls.

***Increasing Rate of Exploitation***

Capitalists make an effort to compensate themselves for this declining rate of profit by increasing the rate of exploitation. The rate at which labour is released is higher than the rate at which it is

Notes

reabsorbed. Therefore, it creates permanent technological unemployment. However, there is a limit to which this rate of exploitation can be increased.

As large firms will buy small firms, there will be concentration of capital in fewer hands. This in combination with the misery of labour would create giant crisis leading to destruction of capitalism as a whole.

*A Critical Appraisal Strengths*

(a) Smith, Ricardo and Marx all concluded that increasing share of rent in total output leads to declining rate of profits and results in stationary state.

(b) It proved that capitalism can't sustain for long.

(c) He explained class struggle through his version of economic growth.

*Weaknesses*

(a) Fall in profit is possible but not inevitable.

(b) Marx's rate of exploitation is limited by the length of working day. It is not plausible.

(c) Technological progress may not necessarily increase organic composition of capital.

### Self-Assessment

3. State whether the following statements are 'true' or 'false'.

   *(i)* Mill extended the basic proposition given by Malthus and Ricarde.

   *(ii)* He did not believe in popularizing birth control.

   *(iii)* Kari Marx's contribution in the theory of economic development is critical.

   *(iv)* There is not a limit to which the rate of exploitation can be increased.

   *(v)* Marx's rate of exploitation is limited by the length of working day.

## 13.6 Summary

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

## 13.7 Key-Words

- Efficiency : the quality of doing something well with no waste of time or money
- Accumulation : process to gradually get more and more of something over a period of time
- Interference : the act of interfering

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## 13.8 Review Questions

1. Give the assumptions of adam smith's theory of economic devlopment and describe the main features.
2. Critically evaluate the strengths and weaknesses of Smith's theory of economic development.
3. State the assumption of Ricardo's theory of development. Compare the Ricardian model with Adam Smith's theory of development.
4. Critically examine the contribution of Malthus to the theory of economic development.
5. Describe J.S Mill's theory of economic development and briefly state his views on business cycles.
6. Compare marx's theory of economic development with the Ricardian theory.
7. Explain Marx's theory of increasing rate of explanation and declining rate of profit in a capitalist economy.

### Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | 1776 | *(ii)* | Competition | *(iii)* | Adam Smith | | |
| | *(iv)* | farmers, producers, businessman | | | *(v)* | Adam Smith | | |
| 2. | *(i)* | *(a)* | *(ii)* | *(b)* | *(iii)* | *(d)* | | |
| 3. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | F |
| | *(v)* | T | | | | | | |

## 13.9 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 14: Schumpeter Model of Growth

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## Objectives

After reading this unit students will be able to:

- Know about the Schumpeter's Theory of Capitalistic Development.
- Describe the Schumpeter's Theory as a model of evaluationary growth.
- Learn the some Neo-schumpeterion models.

## Introduction

J.A. Schumpeter is an economist who emphasized the role of innovations in economic growth and development. Majority economists have claimed that perfectly competitive form of market gives the most efficient allocation of resources but Schumpeter favored imperfect competition because it gives a fertile ground for innovations. He is an economist who strongly defends monopoly for the freedom it gives for innovations and entrepreneurial activity. This chapter explains the views of Schumpeter on development in a capitalist economy and also some new theories which are an extension of Schumpeter theory.

## 14.1 Schumpeter's Theory of Capitalistic Development

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

(a) Introduction of a new good

(b) Introduction of new method of production

(c) Innovating a new market

(d) Finding new source of supply of raw materia

(e) Designing a new form of organization.

Notes

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

Schumpeter had a different notion of competition. He understood competition to mean 'do or die'. It is always a win-lose game. He did not think of win-win situations. Schumpeter claimed if innovations stop, excess profits will eliminate and gradually there will be no competition at all. But entrepreneurs will undertake a thorough research and development activity to ensure continuity of excess profits.

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

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

The differences between views of Schumpeter and Neo-Classical Economists can be summarized as follows:

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

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

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

*Notes* Schumpeter felt that it was innovations through which a producer could grasp a larger market share and not price war.

## 14.2 Schumpeter's Theory as a Model of Evolutionary Growth

Schumpeter did not use mathematical tools to find the quantitative relationships between innovations and critical economic variables. He never believed in rigid quantitative relationships as he based his ideas on innovations and dynamic nature of the economy, he did not make any rigid model based on any restrictive assumptions. His theory is descriptive and not mathematical in nature.

Schumpeter's theory also gives an explanation for business cycles. Business cycle refers to the up and down trend in business which has four phases: boom recession, depression and recovery. He claimed these ups and downs are recurrent in a capitalism system.

Schumpeter's theory is evolutionary in nature because he concluded that capitalism would eventually give rise to socialism. It is so because gradually, innovations itself will become monotonous and a routine activity.

Some times it is very much possible that new innovations do come but do not make the old ones obsolete. It will happen when there are respective merits and demerits of both. For example, even the

Notes

introduction of online coaching has not reduced importance of face to face learning sessions as both have their own respective merits and demerits. So Schumpeter's concept of creative destruction does not work.

Schumpeter believed money to have a vital and role in the economic system here he agreed to Keynes but he criticized Keynes for not considering the basic structural change in the economy in his theories.

In nutshell, Schumpeter's theory is dynamic, realistic and convincing but lacks any mathematical or quantitative means to have a definite relation between economic variables but this is also the merit of the theory as it makes it flexible.

When Schumpeter claims that gradually, with innovations capitalism will evolve into socialism, he recognizes that psychological fact that even innovations which are so creative become monotonous through repetition.

*Did u know?* He also agrees that socialism is the only economic system that can prevail in the long run.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* J.A. Schumpeter is an ..... who emphasized the role of innovations in economic growth and development.
   - *(ii)* All theories given by ..... economists emphasized on the supply side of the production.
   - *(iii)* More effective ..... lead to more efficient utilization of resources and thereby higher profits.
   - *(iv)* ..... theory is evolutionary in nature because he concluded that capitalism would eventually give rise to socialism.
   - *(v)* Some times it is very much possible that new innovations do come but do not make the ..... ones obsolete.

## 14.3 Some Neo-schumpeterian Models

There are some models in which research and development process has been taken as a force for economic growth and development. These models also model growth as an endogenous process. Main point on which these Neo Schumpeterian models differ from each other lies in the way new technology comes into the picture.

***A Comparison of Schumpeter's Theory with Grossman-Helpman Model***

Grossman-Helpman Model also considers innovation as an engine of growth. But this innovation comes about through an expanding variety of consumer goods. There is also an enhancement in knowledge. The model is based on formulation of product diversity in monopolistic competition in an article by two economists: Avinash Dixit and Joseph Stiglitz in the year 1977. They formulated the diversity in consumer goods by studying the behaviour of a typical consumer. Suppose, there are N different consumer goods and a typical consumer consumes them in amounts $x_1, x_2, x_3 \ldots\ldots x_n$. Then the utility function of this consumer is :

$$U = \sum_{i=1}^{N} X_i^{\alpha} \text{ with } 0 \le \times \le 1$$

Notes

Let us assume that there are only three goods then

$$U = X_1\alpha + X_2\alpha + X_3\alpha$$

Now if there are N goods with Prices are $P_1$, $P_2$.... $P_n$ and Budget equal to $M_1$, then

$$\Sigma_1 P; Y: = M$$

Hence, the first order condition to menimize the utility of consumer that must be satisfied is.

$\alpha \times \alpha\text{-}1 = \lambda\, p$; where $\lambda$ is lagrange multiplies.

Grossman and Helpman extend this formulation on supply side and brings in the concept of optimization over time and hence making the model dynamic. When we optimize over a period of time, we do not choose a single optimal value of a variable quantity but we choose a variable function. In dynamic optimization, it is determined what the optimal magnitude of a variable is in each period of time.

*Task* What are differences between view of schumpeter and New-classical economists?

**A comparison of Schumpeter's theory with Aghion and Howitt's theory:** Aghion and Hewitt's theory is based on Grossman and Helpman Model but incorporates the element of uncertainty into it. The theory incorporates the element of uncertainty in Research and Development also. They did not take an assumption of full employment. Nor did they use capital accumulation as a guiding force for growth. In a simplified economy, where there is one good and one factor of production, labour, final output can be represented by a function,

$$Q = Af(x)$$

In the economy some labour is engaged in research and development. Due to this, innovations take place overtime. Innovations bring interest income to the firms. Interest income of the firms are equal to current income *plus* expected capital gains.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   - *(i)* There are same models in which research and development process has been taken as a force for economic growth and development.
   - *(ii)* There is not also an enhancement in knowledge.
   - *(iii)* In dynamic optimization, it is determined what the optimal magnitude of a variable is in each period of time.
   - *(iv)* Grossman-Helpman model does not consider innovation as an engine of growth.
   - *(v)* Avinash Dixit and Joseph formulated the diversity in consumer goods by studying the behaviour of a typical consumer.5

## 14.4 Summary

- J.A. Schumpeter is an economist who emphasized the role of innovations in economic growth and development.
- All theories given by classical economists emphasized on the supply side of the production. They claimed that economic growth meant increase in productive capacity or supply of greater goods and services.
- Schumpeter called his theory 'a creative destruction' because every new innovation makes the old things obsolete.

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- All classical economists took mobilization of savings as a source of capital formation and economic growth.
- Schumpeter did not use mathematical tools to find the quantitative relationships between innovations and critical economic variables.
- Schumpeter's theory also gives an explanation for business cycles.
- Some times it is very much possible that new innovations do come but do not make the old ones obsolete.
- Schumpeter believed money to have a vital and role in the economic system here he agreed to Keynes but he criticized Keynes for not considering the basic structural change in the economy in his theories.
- There are some models in which research and development process has been taken as a force for economic growth and development.
- Grossman-Helpman Model also considers innovation as an engine of growth. But this innovation comes about through an expanding variety of consumer goods.
- Aghion and Hewitt's theory is based on Grossman and Helpman Model but incorporates the element of uncertainty into it.

## 14.5 Key-Words

- Model : a simple description of a system, used for explaining how something works or calculating what might happen.
- Growth : the process of growing physically, mentally or emotionally.

## 14.6 Review Questions

1. What do you mean by the process of creative destruction? How is it related to investment in research and development?
2. How is schumpeter's vision of competition different from that of neo-classical economists.
3. Provide a critique of schumpeter's theory of development?
4. In what way can schumpeter's thory be considered a theory of evaluationary growth?
5. Describe the basic grossman-Helpman model of economic growth.
6. Discuss Aghion and Howitt's model of growth through creative destruction. In what way does their model differ from schumpetyer's theory?

### Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | economist | *(ii)* | classical | *(iii)* | innovation | *(iv)* | schumpeter's |
| | *(v)* | old | | | | | | |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T | *(iv)* | *F* |
| | *(v)* | T | | | | | | |

## 14.7 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 15: Theories of Underdevelopment

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## Objectives

After reading this unit students will be able to:

- Describe the vicious circle of poverty and the methods to break the vicious circle.
- Know about the big push theory.
- Learn the theory of social dualism.
- Understand the Harris-Todaro model, etc.

## Introduction

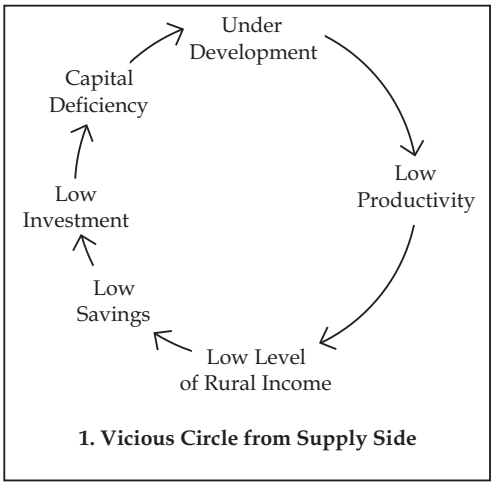
So far we have studied many growth models and many aspects related to development. But most of these models were suitable to the conditions of developed countries. During post World War II period many theories of economic growth developed that addressed the problems of under developed economies. Amongst various theories Ragner Nurksey is recognized the most for his exposition of vicious circle of poverty. Some notable theories are *Big Push Theory* propounded by Rosenstein Rodan; *Critical Minimum Effort Theory* propounded by Libenstein; L*ow level equilibrium theory* given by Nelson; *Social dualism theory* given by Boeke; and *Technological dualism theory* given by Higgins and Lewis Model developed by Arthur W. Lewis. This chapter will elaborate each of these theories in detail.

## 15.1 Vicious Circles of Poverty

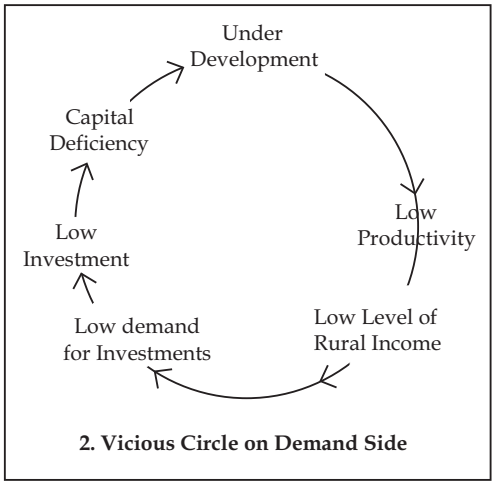
Vicious circle of poverty implies that poverty itself is the biggest cause of poverty. It explains poverty as a hen-egg phenomenon. It implies a circular constellation of forces that tend to act and react upon each other in such a way that a poor country continues to remain in the clutches of poverty. Technically

speaking, vicious circles are a set of inter-locking equilibrium situations that reinforce each other. Three such vicious circles were given by the profounders.

**Notes**



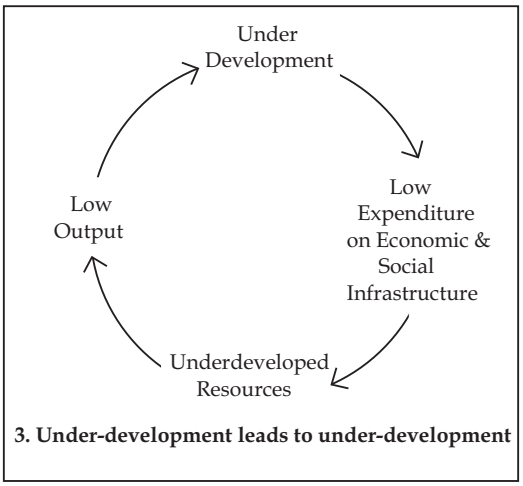

**1. Vicious Circle from Supply Side**




**2. Vicious Circle on Demand Side**

The first circle shows the vicious circle of low level of capital formation from supply side. In the UDCs, people have low productivity due to backwardness and therefore little is left after fulfilling the present consumption needs. This leads to low of savings and if savings are low, certainly the level of investment will also be low. It will lead to capital deficiency.

The second circle shows the vicious circle of capital formation from demand side. It shows that due to lower levels of income, entrepreneurs do not find it profitable to invest as they don't see any potential for the demand for the goods that they shall produce. It reduces the demand for investment funds. Lesser investment leads to low level of income and hence the economy falls into a vicious circle.




**3. Under-development leads to under-development**

The third circle shows the overall vicious circle. The people with low level of incomes will be illiterate, unskilled and immobile which will reduce their ability to make efficient use of natural resources.

Notes

> *Notes* When resources will remain under utilized, the economy will continue to remain in the clutch of under development.

## 15.2 Methods to Break the Vicious Circle

There are two approaches regarding as to how an economy can break through the vicious circle. One is called 'Gradual Approach to Economic Development' and the other is called 'Big Push Approach to Economic Development'.

***The Gradual Approach***

The gradual approach relies on market mechanism and private effort and believes in the saying that slow and steady wins the race. It advocates a step-by-step approach to economic development. It suggests that in the initial stages of development, it is advisable that an economy concentrates on agricultural improvements, social overhead capital and the establishment of small scale industry.

This approach strongly advocates that development must initiate from primary sector and will spill over to other sectors automatically through spill over effects. As the level of income increases in primary sector, it will have a higher effective demand for secondary goods and the services produced by territory sector. It will lead to increase in demand for capital goods to make manufactured goods.

***The Big Push Approach***

The big push theory advocates that if we wish to ensure a minimum rate of development in the economy, we can't rely on automatic market mechanism. It requires an effort from the government's side. It needs a rapid and extensive capital formation in all the sectors. It rejected the idea that development can be self generating.

Advocators of big push theory claimed that unless the rate of increase in GDP is large enough, it will be eaten away by the increase in population leading to small or no change in per capita income. Therefore, development must exceed a certain 'critical minimum effort' that would enable economy to escape the gravitational pull of population increase. Some other economists argue that without a big push vicious circle of poverty can't be broken. Nurkse advocates such approach when he talks in his theory of balanced growth that in order to ensure a reasonable rate of development we need to make simultaneous large scale investments over a wide range.

## 15.3 The Big Push Theory

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

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

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

**(b)** **Indivisibility of Demand:** In UDCs, the size of markets is very small. The small size of market

increases uncertainty and thereby hinders capital investment in the economy. To increase the size of market and reduce uncertainty, a simultaneous large scale investment is required to be made in a number of industries.

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

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

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

***Criticisms of the Theory***

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

1. The theory suggests something which everyone knows by common sense but the hurdle in a big investment is lack of funds, skilled labourers, and availability of dynamic entrepreneurs.
2. Investment involves risk. Risk factor has been ignored by the theory. What if, investment does not produce expected returns?
3. The assumption of the creation of external economies by large scale investment is unrealistic and may not prove to be true. In short run, it may rather increase demand for resources and thereby increase input prices. In such case, investment will create diseconomies rather than economies.
4. The theory underestimates the importance of development in agriculture to bring about overall economic development.
5. It might get difficult for an underdeveloped economy with underdeveloped resources to supervise and efficiently manage with so many projects at one time.
6. Externalities certainly lead to reduction in cost but it does not always lead to increase in output. However, development must include reduction in cost as well as expansion in output. Therefore, the theory is incomplete.
7. In an UDC, government with narrow tax base may not have funds to invest. Private sector may also not afford big push due to lower levels of income. In such situations small investment proves to be a boon which is left un-discussed by Rodan.

In spite of limitations discussed above, the contribution of theory can't be under estimated. It explained the pre requisite for development.

### Self-Assessment

1. Fill in the blanks:
   - *(i)* vicious circle of poverty implies that poverty itself is the biggest cause of .....
   - *(ii)* There are ..... approaches regarding as to how an economy can break through the vicious circle.
   - *(iii)* The big push theory was propounded by prof. Paul N. Resenstein Rodan in .....
   - *(iv)* There is a minimum speed which must be passed before the craft can become .....
   - *(v)* The gradual approach relies on market ..... and private effort.

## 15.4 Theory of Critical Minimum Effort

The theory was formulated by Harvey Leibenstein. The theory relates per capita income to population growth adversely i.e. he considered population to be a shock or income depressing factor and per capita income to investment i.e. investment is a stimulant i.e. income generating factor. Hence, population is acting as a shock and investment as a stimulant. Growth can take place when the

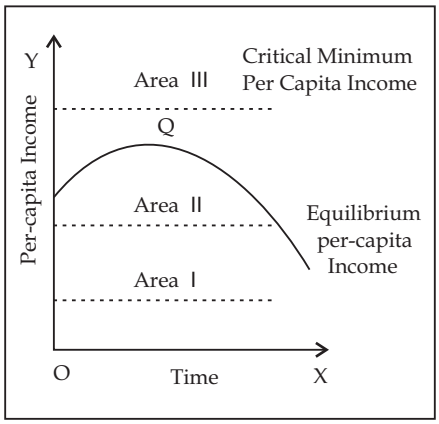
Notes

impact of stimulant dominates or overtakes the impact of shock. A small investment will increase GDP by a small amount which might be so less that per capita income instead of rising may even fall because of simultaneous increase in population.

It is necessary to ensure that an investment large enough takes place which can overweigh the negative impact of population growth.

Leibenstein believed that it is not mandatory that critical minimum effort has to be incurred in one go. It can be split into a series of smaller efforts. It can be explained with the help of a diagram.

In the diagram, time is taken on horizontal axis and per capita income is measured on vertical axis. Unless and until per capita income could be raised to a level OM which is minimum critical level, the economy will follow a growth path like PQR which shows that after a certain level, per capita income starts to fall because shocks are overweighing the stimulants. Therefore, income must be raised to OM level to ensure that stimulant overweighs the effects of shocks.




***Reasons for Critical Minimum Effort***

Leibenstein gave following reasons for requiring a critical minimum effort :

(a) Unless and until economy operates at a scale minimum enough to utilize the indivisible factors to the fullest or to minimum level of efficiency, there will be internal diseconomies. These internal diseconomies will disappear only when scale of operations is increased to a certain level.

(b) There are some external economies that can be availed only at a minimum scale of the industry.

(c) A certain minimum critical effort is required to ensure that shocks will not overcome stimulants.

(d) A large investment creates an eagerness amongst entrepreneurs to take risk, to spend on research and development and gives them a strong incentive for profit.

Hence, investment must be made at a larger scale and not in small bits for the positive forces to set in strongly.

***Criticism of the Theory***

The theory is criticized on following grounds:

(a) Leibenstein assumed population to be function of income but in practice it is seen and observed that population is a function of social attitudes, religious factors and educational attainments as well and not only per capita income.

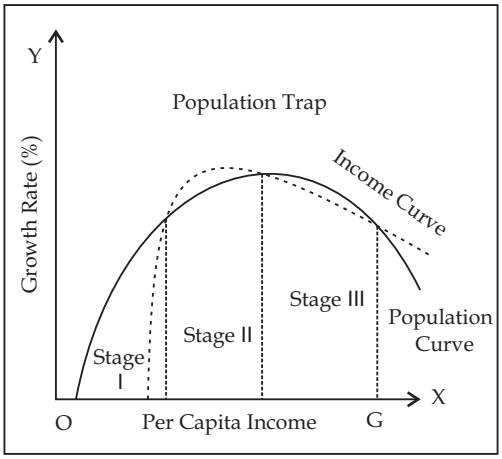
(b) Myint criticized Leibenstein for over-simplifying the relationship between per capita income and growth rate and not explaining the stages through which it passes in the process.

(c) In UDCs level of foreign trade, foreign capital, international relationships etc. play an important role in determining the levels of development which are ignored by the theory.

## 15.5 The Low Level Equilibrium Trap Theory

Notes

This theory was formulated by R.R.Nelson. The theory states that if per capita remains below a critical level, a population growth rate that exceeds the income growth rate will always bring economy back to 'Low Level Equilibrium Trap'. It is shown with the help of a diagram given below.



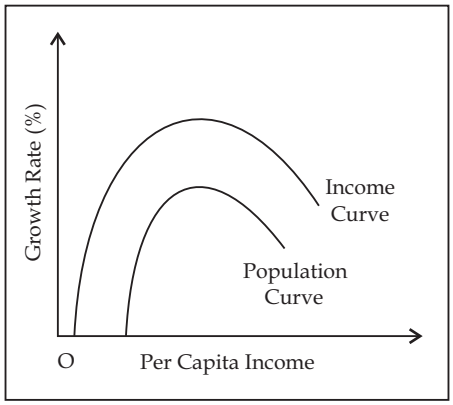

As long as per capita income is less than OD, Population is stable due to high levels of death as well as birth rates. They cancel out each other. After OD level of income, population starts to increase mainly because of fall in death rates. It continues till point *t* where population grows at a faster rate. After point *t* i.e. when per capita income is more than of, population starts to fall due to fall in birth rates until it reaches point *s* which is stable equilibrium. The situation when rise in population is more than rise in per capita income is called population trap. Following factors can explain the causes of this trap :

(a) A strong negative correlation between level of per capita income and rate of population growth.

(b) A low marginal propensity to invest;

(c) Scarcity of uncultivable arable land;

(d) Inefficient methods of production this trap can be avoided either by increasing the rate of per capita income, or by lowering the rate of growth of population or both so that the rate of increase in per capita income is always greater than the rate of population growth as shown below :



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Nelson has put forward following suggestions to escape population trap:

(a) Favourable change in socio-economic environment;

(b) Levy a greater emphasis on smaller family and habit of thrift.

(c) Government needs to take initiative to enlarge savings and control the size of population.

(d) Resources should be used more efficiently to get better output from inputs.

***Criticisms of the Theory***

(a) The correlation between per capita income and population growth rate is not so strong particularly in initial stages, as theory assumes.

(b) The theory ignores many factors of development like the role of innovations, technology etc.

(c) The theory does not make any distinction between short run and long run economic activities of the developed countries and under developed countries.

(d) The role of state in population growth control as well as stimulating income growth rate is totally ignored.

*Did u know?* The theory is appreciated for its valuable inputs and explanation how rate of population growth eats away increase in per capita income.

## 15.6 Theory of Social Dualism

Boeke developed a general theory of economic and social development in which he maintained that there are three characteristics of a society in economic sense.

These characteristics are the social spirit; the organizational forms; and the dominating chniques.

There can be society in which only one social system prevails. It is called a homogeneous society. Generally speaking, a society has more than one social system that prevails simultaneously. Such a society is called dual or plural society.

A dual society may have a simultaneous existence of advanced imported machinery and the indigenous production techniques. In India, the simultaneous existence of over ambitious urban and satisfied rural are one example of social dualism.

There is a difference between social dualism in eastern countries and in western countries.

(a) When immediate needs of the people are met, then people are influenced more by social rather than economic goods. Therefore, needs of an eastern society are limited.

(b) Goods in eastern countries are evaluated according to their prestige value rather than value in use.

(c) Native industries are unorganized, characterized by low capital and ignorance of the market.

(d) People lack initiative and organizational skill. Therefore, they indulge more into speculative activities rather than profit giving enterprises.

(e) Urban development creates hindrance and is conflicting with rural development.

(f) In eastern societies, foreign trade is expected to increase foreign trade.

Boeke recognized that we need to develop different theories for eastern countries as they are underdeveloped and the theories for developed countries are not applicable to it. He advocated gradual approach to development.

***Criticisms of the Theory***

Theory of social dualism is criticized on following grounds:

(a) The assumption of limited wants is inconsistent.

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(b) The theory ignores the role of trade unions.

(c) The explanation that migration is problematic is also not acceptable.

(d) Social dualism is found in developed countries as well.

(e) Like many other theories, this theory is also focusing on one dimension of development and ignoring others.

*Task* Write the criticism of social dualism theory.

## 15.7 Theory of Technological Dualism

Benjamin Heggins, the founder of this theory, claimed that technological dualism implies coexistence of most modern techniques of production in advanced sector and the use of primitive or traditional techniques in an under-developed sector of the economy. The existence of such technological dualism has following implications:

(a) Industrial sector is capital intensive and has fixed technical coefficients. There is little or no option of substituting labour for capital. As industrial sector expands with foreign capital, this sector is not able to create employment at the same rate at which population increases. It creates structural or technical unemployment in industrial sector.

(b) The rural sector faces the problem that it is very difficult to increase output even by increasing the inputs i.e. labour or capital. In the initial stages neither capital nor labour is scarce. With the increase in population, land the form of capital in rural areas, starts to become scarcer. It creates excess pressure on the land with surplus labour. It creates disguised unemployment in this sector.

In nutshell, technological dualism creates technical and disguised unemployment in two sectors because of fixed factor proportion in industrial sector and growing population in rural sector.

***Criticism of the Theory***

The theory has been criticized on following grounds :

(a) Empirical study does not prove fixed technical coefficient in industrial sector.

(b) Institutional and psychological factors in determining the price of the factors of production have been neglected.

(c) Theory does not explain the extent of unemployment in two sectors.

(d) The theory neglected the possibility of the labour intensive techniques in production.

(e) Factor prices are determined by many factors and not only on factor endowments. Other factors affecting factor prices are ignored by the theory.

### Self-Assessment

2. *Choose the correct option*

*(i)* "Theory of critical minimum effort" was formulated by .....

*(a)* Haruly Leibenstein *(b)* R.R. Nelson

*(ii)* "The low-level equilibrium trap theory" was formulated by .....

*(a)* Harvey Leibenstein *(b)* R.R. Nelson
*(c)* Boeke *(d)* Benjamin Heggins

*(iii)* Boeke developed .....

*(a)* Theory of critical minimum effort *(b)* The low level equilibrium trap theory
*(c)* Theory of social dualism *(d)* None of these

Notes

## 15.8 Lewis's Model

W. Arthur Lewis, the founder of this theory, emphasized on structural transformation of primary subsistence labour surplus economy.

The model works in the following manner:

(a) In UDCs, a large labour surplus exists with zero or even negative marginal product. Its supply is perfectly elastic at 'Subsistence-Plus' wage.

(b) Since labour supply is perfectly elastic at subsistence wage rate, the new industries can be set up without altering wage rates. Initially it might require to train unskilled workers.

(c) Since marginal product of labourers is higher than wage rate in industrial sector, it creates surplus of the entrepreneurs. This surplus is reinvested until marginal product of labour becomes equal to wage rate. Thereafter, labour supply becomes inelastic.

(d) Initial Capital can also be arranged from bank credit.

(e) The process of growth comes to an end due to any of the following factors :

  (i) If all labour surplus is absorbed by the process of capital formation.

  (ii) If increased demand for labour in capital sector leads to increase in wage rates.

  (iii) If the rural sector adopts better techniques and reduces disguised unemployment.

  (iv) If workers form trade unions in capitalist sector and demand higher wages.

***Criticism of the Model***

(a) The model is based on unrealistic assumptions.

(b) There are some leakages in the process of conversion of disguised unemployment into saving potential.

(c) Labour may be immobile due to social and emotional factors.

(d) The model perpetuates unequal distribution of income and hence does not reconcile with welfare aspect of development.

*Caution* In nutshell, the exhaustion of surplus labour brings the process of development to an end.

## 15.9 Ranis and Fei Model

The theory was formulated by John C. H. Fei and Gustav Ranis in 1964. The theory explains how surplus labour gradually shifts from primary to other sectors. The model is based on following assumptions :

(a) Economy is facing technological dualism.

(b) It is possible to transfer agriculture labour to non agriculture sector.

(c) The labour is disguisedly employed in agriculture i.e. their MP is zero.

(d) Funds are generated in agriculture sector to finance the projects in other two sectors.

(e) The industrial sector makes use of labour intensive techniques so as to absorb maximum labour.

The model is explained by taking agriculture as a sector that is supplying manpower as well as funds for investment. The disguisedly unemployed labour is transferred to industrial sector, thereby income increases, it increases demand for industrial goods in agriculture market. Therefore, the movement of mass surplus labour from rural to urban or from agriculture to industrial sector is an essential condition for development.

Notes

*Criticism of the Model*

(a) Labour is not so mobile due to socio-cultural factors.

(b) Agriculture sector may not be able to generate surplus to finance industrial sector.

(c) These days no economy is a closed economy as assumed by the model.

## 15.10 Harris-Todaro Model

The model was formulated by John R. Harris and Michael P. Todaro. The model explains that accelerated rural-urban migration has led to increased urban unemployment.

The four basic elements of the model are :

(a) Rural-urban migration is influenced not only by economic but also by socio-psychological considerations.

(b) The migration depends on expected and not actual wage difference.

(c) The probability of finding a job in urban area is a function of urban employment rate.

(d) Excessive migration over and above top opportunity growth rate in urban areas is bound to create urban unemployment.

*Implications of the Model*

1. The government must develop strategies to create an appropriate rural-urban economic balance.
2. It is advisable that industries should use labour intensive techniques.
3. More labour absorbing industries should be settled.
4. It is important to eliminate the factor prices distortions.
5. Various capital subsidies must be removed to eliminate factor price distortions.
6. A developing country must introduce an effective education system that will be able to meet the needs of rural development and create employment for perspective job-boders.
7. It is important to control populuion so as to avoid unemployment in the economy
8. Local self government can play a positive role in minimizing the rural urban migration.

*Relevance of the Model*

(a) The model focuses on institutional determinants of urban wage rates.

(b) It also explains the high cost of labour turnover.

(c) High wage rates in urban areas enable urban employers to get hign quality work force and greater productivity.

### Self-Assessment

3. State whether the following statements are 'true' or 'false'.

   *(i)* W. Arthur Lewis, the founder of Lewis's model, emphasized on structural transformation of primary subsistence labour surplus economy.

   *(ii)* Ranis and Fei model was formulated by R. R Nelson.

   *(iii)* Harris-Todaro model was formulated by John R. Harris and michael P. Todaro.

## 15.11 Summary

- Vicious circle of poverty implies that poverty itself is the biggest cause of poverty. It explains poverty as a hen-egg phenomenon.
- The gradual approach relies on market mechanism and private effort and believes in the saying that slow and steady wins the race.

Notes

- The big push theory advocates that if we wish to ensure a minimum rate of development in the economy, we can't rely on automatic market mechanism.
- In the words of Resenstein Rodan, "Launching a country into self-sustaining growth is a little like getting an aero plane off the ground.
- Leibenstein believed that it is not mandatory that critical minimum effort has to be incurred in one go. It can be split into a series of smaller efforts.
- Boeke developed a general theory of economic and social development in which he maintained that there are three characteristics of a society in economic sense.
- A dual society may have a simultaneous existence of advanced imported machinery and the indigenous production techniques.

## 15.12 Key-Words

- Phenomenon : a fact or an event in nature or society, especially one that is not fully understood
- Consumptions : the act of using energy, food or materials
- Homogeneous : consisting of things or people that are all the same or all of the same type

## 15.13 Review Questions

1. What do you mean by vicious circle of poverty? How does it work?
2. Distinguish between the gradual approach and the push approach to economic development.
3. State the Big Push Theory of growth. Also bring out its limitations.
4. State the theory of critical minimum effort. Also bring out its limitations.
5. State and explain the theory of low-level equilibrium trap. Also bring out its limitations.
6. State and explain the theory of sociological dualism. Also bring out its limitations.
7. State and explain the theory of technological dualism. Also bring out its limitations.
8. Critically examine Lewis Model of economic growth.
9. Critically examine Ranis and Fei Model of economic growth.
10. Examine the relevance and implications of the Harris—Todaro Model.

### Answers: Self-Assessment

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | *(i)* | poverty | *(ii)* | two | *(iii)* | 1943 | *(iv)* | airborne |
| | *(v)* | mechanism | | | | | | |
| 2. | *(i)* | *(a)* | *(ii)* | *(b)* | *(iii)* | *(c)* | | |
| 3. | *(i)* | T | *(ii)* | F | *(iii)* | T | | |

## 15.14 Further Readings


*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development*, Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

Notes

# Unit 16: Development Strategies: Allocation of Resources

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Objectives
Introduction
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16.2 Investment Criteria in Developing Countries
16.3 Marginal Per Capital Reinvestment
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## Objectives

After reading this unit students will be able to:

- Know about the growth strategy.
- Understand the investment criteria in developing countries.
- Describe the marginal per capita reinvestment.
- Learn the choice of techniques, etc.

## Introduction

There are two approaches to development. One is within the framework of laissez faire economy. In such an economy, allocation of resources is done by invisible hands of demand and supply. But it is more relevant for developed countries. For developing economies, this approach is not justified as these economies do not leave development open to be determined by market forces rather make well planned strategies according to their expectations and motives. This unit deals with various criteria to take optimum decisions regarding allocation of resources.

## 16.1 Growth Strategy

First and foremost task for an economy is to determine the strategy for planning. Strategy for planning refers to identifying and establishing a system of ends or goals that may be pursued with definite techniques. Two important strategies for growth can be identified as:

**(a)** **The Strategy of Balanced Growth:** Balanced growth implies that all sectors of an economy must grow in a harmonious manner, no sector should go far ahead of others or lack behind from them, no sector is facing shortage or surplus. Balanced growth has horizontal as well as vertical aspects.

**(b)** **The Strategy of Unbalanced Growth:** This approach suggests that to start with an investment should be made in some selected areas, and gradually the economy will move from unbalanced growth to balanced growth.

Notes

## 16.2 Investment Criteria In Developing Countries

Adam Smith, father of economics, opined invisible hands of demand and supply are efficient and trusted fully in the market mechanism but this trust was based on the assumption of existence of perfect competition in the market. But in real world market there is not perfect but imperfect competition. In such an economic set up it becomes necessary to plan the allocation of resources. It can't be left for market mechanism. Now the problem arises to select an ideal criterion to judge the best allocation of resources. Some of the criterions offered by economists are discussed below:

***Social Marginal Productivity (SMP) Criterion***

The criterion was formulated by A. E. Khan and was refined by Hollis B. Chennery. The criterion is based on Marginal Productivity Approach. It states that the allocation of resources will be optimum when social marginal productivity of such resource is same in all uses. As more and more labour is employed with fixed amount of other resources, according to the law of returns to a factor, the MP of labour starts falling after a certain stage. This criterion says that labour should be divided in different projects in such a way that its SMP is same in all projects. SMP is different from MP.

In other words, it is social value of national income measured in terms of shadow or accounting prices of the products produced by projects.

$$SMP = \frac{X + E - Mi}{L} - \frac{K + Md - O}{L} + \frac{r(aB_1 + B_2)}{L}$$

$$= \frac{V - C}{L} + Br$$

Where, L is increment in capital;

X is increased value of output;

E is added value of output due to external economies;

Mi is cost of imported material;

V is annual value added domestically

K is capital cost

Md is cost of domestic materials;

O is overhead costs;

C is total social cost of domestic factors;

$B_1$ is effect of installation of project on BOP;

$B_2$ is effect of operation of project on BOP;

A is combined amortization and interest rate on foreign borrowings;

B is total BOP effects;

R is average over evaluation of national currency at existing rate of exchange.

Substitution between different projects would continue till the following equality i.e. reached.

$SMP_x = SMP_y = SMP_n$

Where *a*, *b*, *n* are different projects.

*Notes* SMP is average annual increment in national income.

***Limitations of the SMP Criterion***

1. SMP criterion concentrates on maximization of aggregate output but ignores following aspects:
   (a) Indirect effect of the expansion of entrepreneurship on quality of labour.

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(b) The effect of investment on saving habits.

(c) The effect of investment on future consumption patterns.

(d) The indirect effect of investment on rate of population growth.

(e) The effect of resource allocation on distribution of income.

2. SMP assumes that economy is experiencing diminishing returns to a factor, however, up to a certain level; it might be subject to law of increasing returns.
3. SMP assumes that production technique remains constant.

***Capital Turnover (or Capital-Output Ratio) Criterion***

This criterion was developed by J. J. and N. D. Buchanan. Capital turnover is the increase in output resulting from a unit investment in a project. In other words, it is percentage increase in output due to investment made in a project. Capital turnover = increase in national output divided by increase in capital stock.

It states that such technique should be chosen which yields the maximum output per unit of capital employed. In other words, projects which have low capital-output ratio should be chosen. Those projects which have shorter gestation period with a low capital intensity should be chosen because such projects will start giving returns at the earliest and the make resources available for reinvestment. For labour abundant countries this criteria is extremely useful as it will also generate maximum employment per resource in developing countries.

***Advantages of Capital Turnover Criterion***

(a) It will help to increase production by choosing less capital intensive projects with quick yielding returns. Hence, it will help to check inflation in the economy.

(b) Generally less capital intensive projects don't use imported goods. It will reduce pressure on foreign exchange.

(c) It will promote equitable distribution of income.

***Limitations of Capital Turnover Criterion***

1. Projects with shorter gestation period may have high capital output ratio in the long run.
2. It does not consider supplementary benefits that generally flow with the projects having high capital output ratio.
3. In some industries, working capital requirement is more than fixed investment. In such cases, low capital output ratio may appear outwardly only.
4. A capital intensive technique can maximize the labour employed per unit of output in the long run. Hence, it is rejected that labour intensive projects will maximize employment in the economy.
5. This criterion does not consider factors other than investment involved in determining growth rate.

## 16.3 Marginal Per Capital Reinvestment

### 16.3.1 Quotient (MRQ) Criterion

This criterion was developed by W. Galenson and Harvey Leibenstein. The criterion states that the main aim of economic development in developing countries is to maximize not present but future output and consumption. It calls for maximization of saving rate and reinvestment.

**Meaning and Determinants of MRQ:** It is defined as the ratio of productivity per worker minus consumption per worker divided by capital per worker. MRQ depends upon :

Productivity per worker:

(a) 'Wage goods' consumed per worker;

(b) Capital replacement cost;

Notes

(q) Increase in output due to exogenous factors;

(d) Reduction in mortality;

(e) Direction of investment.

The first five factors determine the total volume of investment available and sixth factor determines the purpose for which it will be invested.

According to this criterion, "the allocation of resources is optimum when MRQ of capital is equalized in its various alternative uses."

If capital labour ratio is increased, it will increase productivity of labour; which in turn will increase proportion of profits in the additional income generated. To put it differently, the projects with high capital intensity will increase productivity of labour and profits. Hence a higher rate of reinvestible surplus will be ensured. The formula fro estimating rate of reinvestment is :

$$\text{MRQ} = \frac{\text{Pm} - e.w}{c}$$

Where, MRQ is Marginal reinvestment quotient; Pm is net output per machine; $e$ is number of workers per machine; $w$ is real wage rate; and $c$ is cost per machine.

To get per capita MRQ the above equation can be divided by number of workers per machine i.e. $e$ on both sides.

$$\text{Per capital MRQ} = \frac{pm/e - e.w/e}{c/e}$$

Where, $pm/e$ is productivity per worker; $c/e$ is capital-labour ratio; $w$ is real wage tare.

*Did u know?* Maximum rate of reinvestment would be attained by the maximization of capital labour ratio. Wage rate also plays an important role in determining MRQ.

***Limitations of the Criterion***

1. The assumption of constancy of consumption over time is unrealistic. However, APC keeps falling with increase in incomes.
2. The principle contradicts with the principle of falling Marginal efficiency of capital as we increase the amount of capital investment.
3. The criterion ignores the role of fiscal policy in determining level of reinvestment.
4. It also ignores the effect of investment on BOP.
5. It advocates sacrifice of current consumption for future gains but social and religious attitude play a role in such decisions.
6. Capital intensive projects may create unemployment in labour abundant countries and hence may rather reduce reinvestment capacity of the economy.

***The Time Series Criterion***

This criterion was developed by Maurice Dobb. As the name suggests, the criterion emphasizes on incorporating a finite time horizon to investment planning. This time horizon can be determined by the planner on the basis of his own value judgements. After the choice of time horizon, investment project can be chosen by comparing the total returns to the society from different projects, and the project that gives highest sum total of returns over chosen time period will be selected.

Let us assume that there are two investment projects A and B, A is capital intensive project. B is labour intensive project. In project A the returns are less than project B up to time period D. After it, project A gives returns that are more than the returns on project B. The time period in which the total

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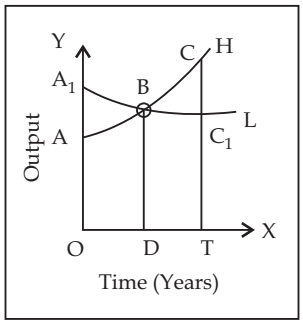
output from the two projects becomes equal is known as period of recovery. It is shown with the help of following diagram:




If the planner chooses any time period say, X then

(a) When X > T, capital intensive project A will be chosen;

(b) When X < T, then project B, labour intensive will be chosen;

(c) When X = T, either of the projects may be chosen;

(d) When X = 1, then the investor will be interested in maximization of current output, i.e. he will use capital turnover criterion and choose labour intensive project;

(e) When X = infinity, investor will use MRQ criterion, he will choose capital intensive project and maximize output at some future point of time.

*Limitations of the Criterion*

1. Decision of time horizon is left on the judgment of planner and criterion does not give any guidelines to choose the appropriate time horizon.
2. It is very difficult to know with precision the expected future returns of the projects.
3. For shorter time horizon, it coincides with capital turnover criterion and with longer time horizon, it coincides with MRQ criterion and the criterion itself does not give any guidelines for choosing the optimum time horizon.

*Leading Sectors Criterion*

This criterion was developed by W. W. Rustow. He classified the economy into three sectors:

1. **Primary Growth Sectors:** These are the sectors where possibilities for innovation are high that yields a high growth rate and set in motion expansionary forces in other sectors of the economy.
2. **Supplementary Growth Sector:** These are the sectors where rapid expansion occurs in response to expansion in primary sector.
3. **Derived Growth Sectors:** These are the sectors where some fairly steady growth occurs in relation to growth of total real income, population, industrial production etc.

   Growth in the economy is dependent on direct and indirect consequences of rapid growth in certain key sector.

   Key sector is one which has:

   (a) Enlarged effective demand for their products;

   (b) High productivity;

   (c) High capacity of generating reinvestible surplus;

Notes

(d) Capacity of setting up chain of effective demand in other sectors of the economy;

(e) Capacity to generate external economies which promote industrialization.

***Limitations of the Criterion***

1. It is difficult to identify key sectors as all the sectors are inter-dependent and any growth in one sector affects other sectors but degree of influence may variate.
2. As it includes some qualitative variables, it is not possible to measure the full impact of an investment.

## 16.4 Application of Investment Criteria

After discussing various investment criteria offered by different economists, we can conclude that there is one common limitation to all these criteria which makes it impracticable. It ignores the influence of non-economic factors in deciding about any investment project. For example, if a liquor producing firm is giving higher productivity than a milk dairy, it is advisable to shut down the milk dairy and start up a liquor firm as per these criteria. It does not consider social factors, like family systems, emotional stability, gender issues etc. An ideal investment criterion should, on the one hand, give a well defined economic testimony for deciding feasibility of investment and on the other hand, must pay some reasonable attention to non-economic factors.

### Self-Assessment

1. Fill in the blanks:

*(i)* There are ..... approaches to development.

*(ii)* ..... and ..... task for an economy is to determine the strategy for planning.

*(iii)* ..... is father of economics.

*(iv)* The Criterion was formulated by A.E. Khan and refined by.....

*(v)* If capital labour ratio is ..... it will increase productivity of labour.

## 16.5 Choice of Techniques

**Meaning and Determinants:** Choice of technique refers to proportion in which factors of production are employed in any project. In fact, choice of technique is mainly a choice between labour intensive or capital intensive technique. However, there are also problems of selection of form of organization, division of labour but in this unit we limit the meaning of choice of technique to the labour intensity and capital intensity. The guiding principle is that technique should be chosen that maximizes the given objective function. The choice of technique depends on the following factors :

(a) A technique with shorter gestation period is preferable.

(b) The technique must not conflict with the objective function.

(c) The chosen technique must be able to create wide external economies.

*Task* On which factors the choice of techniques depend?

## 16.6 Approaches to the Choice of Technique

**The Traditional Approach:** As per this approach, the objective of an entrepreneur is profit maximization. Hence, given the cost, the entrepreneur will choose a technique that gives maximum output or given the output, a firm will choose a technique that minimizes cost. Hence, this approach is based on the relative prices of the factors of production. But output must be evaluated at shadow prices. It must consider external economies and diseconomies created by investment.

Notes

*Limitations*

1. It is static approach and can't justify with dynamics of economic growth.
2. It does not emphasize on optimum growth path over a period of time.
3. This approach does not consider the future requirements of development.

**Maurice Dobb's Approach:** He recommended such techniques should be employed that has highest positive effect on the rate of growth. He claimed that in developing countries the 'real' constraints are surplus of wage goods and limited productive capacity in investment goods industries. Both these constraints guide us to prefer capital intensive techniques as labour intensive techniques will aggravate both these constraints. He believed that capital intensive techniques create more employment in the long run (however, this is not supported by empirical evidence). But it is not so infinitely.

**A. K. Sen's Approach:** Sen has developed a full fledged model for the choice of technique on the basis of following assumptions:

(a) After being produced one, capital goods exist in perpetuity and are produced with labour alone.

(b) There are two factors only, labour and capital.

(c) Economy is subject to constant returns to scale.

(d) All techniques have uniform gestation period.

(e) Real wages remain constant irrespective of technique of production.

(f) Workers consume their entire income and entrepreneurs reinvest their entire income.

(g) Technology remains constant over time.

(h) Sen divided economy into two sectors, the precapitalist family based agriculture sector and the state owned advanced sector. He called former as B i.e. backward sector and latter as A i.e. advanced sector. He assumed that labour supply to sector A is perfectly elastic and at subsistence wage rate because of unemployment in sector B.

**Statement of the Model:** The problem is to make a choice between two alternative techniques of production H and L, the former is capital intensive and he latter is labour intensive. The model makes the choice of technique contingent on the investment criterion chosen for allocation of investment resources.

*Caution* At a point where Marginal cost of capital = marginal benefit from capital is the optimum capital intensity.

*Choice of Technique and Investment Criteria*

**(a)** **Capital Turnover criterion or Social Marginal Productivity Criterion:** With this criterion, such technique should be chosen which maximizes current output of consumer goods with a fixed volume of investment. Therefore, with this criterion labour intensive technique is preferable to capital intensive technique.

**(b)** **MRQ Criterion:** If in allocating reinvestible surplus, MRQ criterion was employed, then technique H will be chosen as it generates maximum surplus over consumption from reinvestment though it will employ lesser labour.

**Criticism:** Sen's model has been criticized on following grounds:

1. All assumptions of the model are very unrealistic which limits the use of model in real life.
2. The model ignores many factors affecting choice of technique like uncertainty, input prices, natural resources, government policies, social factors etc.
3. Some times there may be no choice at all when there is only one unique technique of production.
4. The model does not consider that labour supply may be a constraint. If such a constraint is

introduced in the model, then optimal capital intensity would be different than the one given in the model.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   *(i)* Choice of technique refers to proportion in which factors of production are employed in any project.
   *(ii)* Maurice Dobb's did not recommend such techniques should be employed that has highest positive effect on the rate of growth.
   *(iii)* Sen divided economy into two sectors.
   *(iv)* Son's model has not been criticized.
   *(v)* As per the approach, the objectives of an entrepreneur is profit maximization.

## 16.7 Summary

- There are two approaches to development. One is within the framework of laissez faire economy.
- First and foremost task for an economy is to determine the strategy for planning. Strategy for planning refers to identifying and establishing a system of ends or goals that may be pursued with definite techniques.
- Adam Smith, father of economics, opined invisible hands of demand and supply are efficient and trusted fully in the market mechanism but this trust was based on the assumption of existence of perfect competition in the market.
- The criterion was formulated by A. E. Khan and was refined by Hollis B. Chennery. The criterion is based on Marginal Productivity Approach.
- As more and more labour is employed with fixed amount of other resources, according to the law of returns to a factor, the MP of labour starts falling after a certain stage.
- It states that such technique should be chosen which yields the maximum output per unit of capital employed.
- This criterion was developed by Maurice Dobb. As the name suggests, the criterion emphasizes on incorporating a finite time horizon to investment planning.
- The problem is to make a choice between two alternative techniques of production H and L, the former is capital intensive and he latter is labour intensive.

## 16.8 Key-Words

- Harmonious : friendly, peaceful and without any disagreement
- Assumption : a belief or feeling that something is true or that something will happen, although there is no proof
- Intensive : involving a lot of work or activity done in a short time

## 16.9 Review Questions

1. What do you mean by investment criterion? Why are these required?
2. Critically examine the social marginal productivity criterion.
3. Explain in brief capital turnover criterion. What are its limitations?
4. Make your own evaluation of marginal per capita reinvestment quotient criterion.
5. Critically examine the time series criterion.

**Notes**

6. What is leading sector criterion? What are its limitations?
7. Identify the drawback common to different investment criteria.
8. What is the problem of choice of techniques? State the traditional approach to it.
9. Examine Mourice Dobb's approach to the problem of choice of technique.
10. Examine sen's model of choice of technique.

### Answers: Self-Assessment

1. *(i)* two *(ii)* first, foremost *(iii)* Adam Smith
   *(iv)* Hollis B. Chennery *(v)* increased
2. *(i)* T *(ii)* F *(iii)* T *(iv)* F
   *(v)* T

## 16.10 Further Readings

*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 17: Cost-Benefit Analysis

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## Objectives

After reading this unit students will be able to:

- Know about the private and social costs and benefits.
- Understand the concept of shadow price and discounting the future.
- Learn the distributional concerns and government regulations.

## Introduction

Cost Benefit Analysis (CBA) as the name suggests, is a techniques in which we analyse the costs involved and benefit expected in any given project, decision, policy etc. If benefits exceed the costs, accept it as it is efficient. If it is other way round, reject it. CBA can be used to measure not only monetary costs and benefits but the element of non-monetary cost and non-monetary benefits can also be incorporated.

Somewhere, profits are the one most important criterion to accept or reject a project. Profits are the difference between costs and benefits. But an important point to be noted is that costs are to be incurred in the present but benefits will flow only in the future. However, some costs may also be involved for the future. Therefore we need to calculate Net Present Value (NPV) of the benefits expected. Even NPV of various possible projects have to be compared to choose the best available option.

## 17.1 Private and Social Costs and Benefits

As said earlier, costs and benefits may be monetary or non-monetary. Non-monetary costs and benefits can be quantified through various techniques and then a proper C-B analysis can be done. In order to convert private costs into social costs, we need to include the costs that are borne by the society as a whole. For example the higher rate of growth that the countries are enjoying today is taking place at the cost of environment which is being borne by the society. Private and social costs and benefits are different in following ways:

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(a) Private costs does not consider the benefits and costs accruing to all sections of society but only the ones that they are getting.

(b) There are distortions in prices within the system which motivate private producers not to bother from social point of view. The two measures of distortion are (i) Effective Protection rate which is the ratio of difference between value added at domestic prices and that at the world prices. ($VA_d$ - $VA_w$/$VA_d$). If domestic prices and world prices are equal, the effective protection ratio is zero and hence no distortion but it is not so in reality. Higher is the ratio, higher is the distortion.

There are many examples of such social costs which make private costs lower than social costs. Say, when government is giving minimum support price for some particular crops, farmers are motivated to grow more of it. For example, increased growth of rice due to its high MSP has reduced water table in Northern India and at the same time there is shortage of those crops which are not covered by MSP policy. When a flyover is constructed, other than the cost of material and inputs, the biggest social costs involved are the traffic problems it creates till completion time.

When railways is charging a high price for freight transport, much of the freight has shifted to road transport which has led to inefficient utilization of resources as railways cost less than road transport.

Social benefits also bring about distortions in the sense that we are not able to avail the social benefit to the fullest. For example, when a private firm is advertising a contraceptive, it is also creating awareness for family planning. It is a social benefit for which society does not pay the private firm.

Similarly, if industries are not given land on subsidized rates they might find it non viable to start an industry. While doing CBA of such projects we must include not only the profits of the organizer, but also the employment this industry is generating, output it is giving to the consumers, cost of subsidy being borne by the government.

## 17.2 The Concept of Shadow Price

Ravi Kanbur developed the idea of shadow price. The shadow price of a good is the net impact of social welfare if the supply of the given good is increased by one unit. He made use of 'Social Welfare Function' to evaluate inter-temporal and inter-personal distribution of consumption. It considers growth as well as distribution. The former indicates the transfer of resources from present to the future; the latter indicates the transfer from the rich to the poor.

Shadow Price can be calculated by following the principles given below which are developed by Little and Mirrlees and Squire (1974) and Van Der Tak (1975):

1. The shadow price of the goods which can be freely traded should be based on world prices.
2. The shadow price of the goods which can't be freely traded should be based on marginal social cost of production.
3. The shadow price of factors of production is estimated by considering the irrespective opportunity cost in their alternative uses.

*Notes* While calculating shadow price, the impact of income distribution should be explicitly incorporated.

***Limitations in Computation of Shadow Price***

1. For including non-monetary costs and benefits, subjective judgments are involved.
2. Data may not be available; even when it is available, it may not be reliable.
3. Different groups may have different consumption expenditure which may affect shadow price.

Notes

## Self-Assessment

1. Fill in the blanks:
   - *(i)* somewhere, profits are the one most important criterion to accept or reject a .....
   - *(ii)* Profit are the difference between ..... and .....
   - *(iii)* There are many examples of such social costs which make ..... costs lower than ..... costs.
   - *(iv)* ..... developed the idea of shadow price.
   - *(v)* The former indicates the transfer of resources from present to the future, the latter indicates the transfer from the ..... to the .....

## 17.3 Discounting the Future

When we do cost-benefit analysis, the costs involved may have to be incurred in the present or future. Similarly the expected benefits also take place in the future. This gives rise to the problem of an appropriate discounting factor that gives us the accurate present value of the future costs and benefits. NPV can give us the net present value of future benefits but social rate of discount is different from market rate of discount. When there is involvement of government and existence of taxes, the rate that is applicable is:

$$\Delta S(1+r)+\{\Delta C(1+r)/(1-t)\} -\Delta S-\Delta C/\Delta S+\Delta C .$$

Where $r$ is rate of interest;

T is rate of tax;

S is savings

C is consumption.

There are other problems also in estimating social discount rate:

(a) Returns for future period are not known for certain.

(b) Some costs can be known only once the project is over. For example, cost of cultural erosion.

(c) Some social benefits are also conceivable only on the completion of the project. For example, creating awareness for any disease.

*Did u know?* Sometimes, when individuals themselves do not invest in education or health, as they may not be sure of the benefits, it is advisable that the government should provide for subsidized education or free health care to avail of the benefits that the whole society will get from this investment.

## 17.4 Distributional Concerns

While doing cost benefit analysis of any project, we must also consider the impact of the project on distribution of income. Whether it will benefit well off section more leading to increase in inequalities of income; or the poorer section and thereby reducing inequalities of income; or the benefits are being shared equally. According to Alfred Pareto, if any project makes someone better off without making anyone else worse off it should be accepted. But if poor section remaining at the same level and richer section is better off by a project, inequalities of income will increase. It will have welfare implications for the project. For example, the recently launched Reliance Metro in Delhi, might not have worsened the poor section and have better off the well off section but the same funds had an opportunity cost. Marginal utility is more for the poor than rich. Utilitarian approach suggests that the project which brings maximum good to maximum people is most efficient. Any project which makes poor section worse off has imposed a social costing terms of class struggle and increased crime rate. According to

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Rawlsian perspective, a project is worth if it benefits the poorest of the poor section of the society. Hence, both utilitarian perspective and Rawlsian approach strongly recommends that the transfer of resources from the luxuries of the rich to the basic needs of the poor will maximize the gains of the society.

*Task* Write about distributional concerns.

## 17.5 Government Regulations

What has been suggested above can be attained through utilitarian approach and Rawlsian perspective can be attained through government regulations. With a view to maximizing social benefit, government should :

(a) Take care that resources of the economy are fully and deficiently utilized.

(b) Follow progressive tax structure to reduce the gap between the rich and the poor.

(c) Minimum wage act must be enacted and implemented

(d) Make an effort to minimize external diseconomies.

(e) Spend sufficiently on education and health.

(f) Prices must be kept under control.

(g) Give suitable incentives to motivate private sector to undertake projects which may not be profitable but are socially desirable.

(h) Give suitable tax incentives to promote savings, investment, exports and industrialization.

### Self-Assessment

2. *Choose the correct option*

*(i)* Who can give us the net present value of future benefits?

*(a)* NPV *(b)* UGC *(c)* CBSE *(d)* NCERT

*(ii)* Minimum wage act must be enacted and .....

*(a)* minimize *(b)* implemented *(c)* diseconomies *(d)* none of these

*(iii)* spend sufficiently on education and .....

*(a)* wealth *(b)* education *(c)* health *(d)* none of these

## 17.6 Summary

- Cost Benefit Analysis (CBA) as the name suggests, is a techniques in which we analyse the costs involved and benefit expected in any given project, decision, policy etc. If benefits exceed the costs, accept it as it is efficient.
- There are many examples of such social costs which make private costs lower than social costs.
- When railways is charging a high price for freight transport, much of the freight has shifted to road transport which has led to inefficient utilization of resources as railways cost less than road transport.
- Ravi Kanbur developed the idea of shadow price. The shadow price of a good is the net impact of social welfare if the supply of the given good is increased by one unit.
- When we do cost-benefit analysis, the costs involved may have to be incurred in the present or future.
- While doing cost benefit analysis of any project, we must also consider the impact of the project on distribution of income.

Notes

## 17.7 Key-Words

- Monetary : connected with money, especially all the money in a country
- Distortion : process to change the shape, apperance or sour of something so that it is strange or not clear
- Marginal : Small and not important

## 17.8 Review Questions

1. What are the reasons for the divergence of private costs and social costs?
2. Explain the concept of shadow prices.
3. Discuss the method of discounting in cost-benefit analysis.
4. How would you address the problem of distribution in cost benefit analysis.
5. State some important areas in which the government intervnes in developing countries.
6. Let government is planning the construction of a flyover on a crowded crossing. Evaluate this project using cost-benefit analysis.

### Answers: Self-Assessment

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | *(i)* | project | *(ii)* | costs, benefits | *(iii)* | private, social |
| | *(iv)* | Ravi Kanbur | *(v)* | rich, poor | | |
| 2. | *(i)* | *(a)* | *(ii)* | *(b)* | *(iii)* | *(c)* |

## 17.9 Further Readings


*Books*

1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.

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# Unit 18: Role of Planning

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## Objectives

After reading this unit students will be able to:

- Know about the meaning and features of planning and need for planning.
- Learn the nature and scope of planning.
- Understand the micro-level planning etc.

## Introduction

This chapter discusses the role of planning in economic growth and development. Adam Smith claimed that two invisible hands of demand and supply are efficient to do the best allocation of resources, but it did not happen so. So a need for central planning was realized. Planning can be defined as a mechanism whereby an economy develops a directed action plan to attain pre-determined goals and pre-determined means to carry them out. Without planning, growth and development cannot be compressed in any economy; whether it be developed economy, developing or under developed. Whenever we plan, it has to be time bound. Suppose, India says that our plan is to attain 100% literacy rates but does not say by when they are aiming to attain it; it will not make any sense. Rather, it should go like that India has planned to attain 100% literacy by 2020. Also we need to decide about the nature of planning. Then we need to develop a suitable plan model.

## 18.1 Meaning and Features of Planning

Planning can be defined as an instrument to bridge the gap between the realistic and idealistic situation. Planning is a conscious and not a coincidental activity. Planning is opposite of market. In a market system nothing is happening consciously but is an outcome of the forces of demand and supply. But planning envisages what to happen and makes action plan for how will it happen.

Two basic elements of planning are:

**(a)** **Goals:** Goals of various countries vary from each other. Even the goals of country vary time-to-time. A plan document may aim at attainment of one goal or many goals which may be

complementary or conflicting in nature.

**(b) Means :** The two means of attaining goals are policies and instruments. Policies describe the outlines of actions for the fulfilment of plan goals. Policy formation is to be done keeping in mind socio-economic-political-religious-environmental factors. Instruments are defined as the qualitatively and quantitatively defined means of action by which it is intended to achieve the plan goals. These instruments may be fiscal instruments like taxes and subsidies; Monetary instruments like bank rate, LRR etc. or Economic instruments like better infrastructure.

***Features of Planning***

**(a) Institutionalized Activity:** Planning is an institutionalized activity that means there is a proper body which has resources and power to make plans and to execute them. Planning involves following steps:

(i) Making plans;

(ii) Decision-making regarding how these plans will be executed;

(iii) Implementation of plans;

(iv) Keeping control on their execution.

**(b) Quantified Goals and Resources:** Economic wants are unlimited but means are limited; hence an economy needs to quantify the goals and resources that are required to attain them. For example, we can't say India has planned to increase its GDP; it has to be quantified like India has planned to increase its GDP by 8% in twelfth FYP.

**(c) Programmed Action:** A programme of action is necessary to attain whatever an economy plans for. Suppose, India has planned to increase its GDP by 8% in twelfth FYP, now it needs to develop a thorough action plan how will it be attained.

**(d) Periodic Action over a Definite Area :** We also need to keep a check from time to time whether the plans we prepared are working successfully in their respective areas; if there are any loopholes, they can be rectified immediately.

*Notes* Planning has to done by a government authority as it gives direction to the economy which society at large will accept. Government planning authority must consider social costs and benefits involved with all plan options.

## 18.2 Need for Planning

'Failure to planning is planning to failure'. The need for planning can be understood from the above statement. Various convincing arguments put forward for the need for planning can be catagorised into:

(a) Economic Factors

(b) Non-Economic Factors.

***Economic Factors***

1. Planning is a tool to make optimum utilization of resources and this is the central issue in the field of economics-optimization.
2. Planning takes our attention on the areas which demand immediate solution or policy formulation for example, census survey of 2011, is demanding planning authorities to have a national policy for correcting adverse sex ratio.
3. In order to stimulate the rate of capital formation, an economy needs to plan the policies and instruments to enhance savings and motivate people for investment.

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4. Planning helps to address economic issues which may have social impact as well like literacy levels, sex ratio, high infant mortality rate, poverty etc.
5. Planning helps to justify the interest of future generation and ensures that market gives enough opportunities to economic agents to perform their economic activities most efficiently. It also helps in increasing productivity of the economy and thereby takes care of the interests of future generation.
6. Planning helps to keep an eye on the data and the extent to which economy is performing up to the expectations.

*Non-Economic Factors*

1. **Symbol of Sovereignty :** Planning is taken as a symbol of sovereignty by the newly independent nations. Through planning, these nations aim to attain a national personality and a dignified position in world politics and economy.
2. **Optimism Associated with Planning:** Planning also brings about optimism that we shall learn from our past and do the best in our present to make our future bright and beautiful.

## 18.3 Nature and Scope of Planning

Economic planning is practiced in all types of economic systems but the difference lies in role and scope.

1. **Planning in a Socialist Economy:** Socialist economy survives on economic planning. Hence, economic planning is more thorough and totalitarian in this type of economic system. It is of imperative nature i.e. the implementation is provided for along with its formulation. Production units have to follow directions for planning.
2. **Planning in a Capitalist Economy:** In a capitalist economy, no direct enforcement of rules and regulations is done but indirect controls are adopted. Hence, planning is more indicative in nature. Since planning is indicative, it may not achieve its targets to the fullest.
3. **Planning in a Mixed Economy:** In this type of economic system, planning has to be a judicious mix of inductive and imperative; totalitarian and democratic. It has to make use of both direct and indirect controls to attain its goals**.**

### Self-Assessment

1. Fill in the blanks:
   - *(i)* Planning can be defined as an ..... to bridge the gap between the realistic and idealistic situation.
   - *(ii)* The two means of attaining goals are ..... and .....
   - *(iii)* Failure to planning is planning to .....
   - *(iv)* The need for ..... can be understood from the above statement.
   - *(v)* ..... economy survives on economic planning.

## Decentralized and Indicative Planning

*Democratic Planning and Totalitarian Planning*

When a plan is prepared, next step is to think of the methods by which it will be put into action. There are two methods by which a plan can be implemented.

(a) Planning by direction or Totalitarian approach

(b) Planning by inducement or democratic planning.

Notes

*Planning by Direction or Totalitarian Approach*

In planning by direction, directions are used for plan implementation. These directions are generally legal and binding on the economic agents. Hence, it is compulsory for the economic agents to follow the orders and instructions.

*Advantages of Totalitarian Planning*

(a) More successful as rules and regulations are followed strictly.

(b) Clear and precise.

(c) Element of compulsion makes it more practical and workable.

*Disadvantages of Totalitarian Planning*

**(a) Imbalances:** Such planning may create surplus in one sector and shortage in other. This is because a single human mind or a group of human minds can never coordinate so effectively as invisible minds of demand and supply chain.

**(b) Rigidity:** If on implementation stage, some loopholes of planning come into the picture, planners are generally reluctant to back out their orders. Even if they are not eluctant, it is difficult to reverse the directions, once they are given.

**(c) Standardization:** Standardization freezes the possibilities of improvements in these goods and thereby reduces the rate of technological improvement.

**(d) Bureaucracy:** Bureaucracy leads to loss of democracy, efficiency, red tapism etc.

**Planning by Inducements or Democratic Planning:** When instead of legally binding the economic agents to follow the directions, planning authority makes use of monetary incentives; it is called planning by incentives or induced planning. They do not take form of laws but change the market price of goods and factors of production. They lack in precision but give liberty to the economic agents.

*Did u know?* Planning by inducement is more democratic and gets easy acceptance from the public at large.

*Advantages of Planning by Inducements*

1. It helps in elimination of or at least reduction in surplus.
2. It has been possible to make the adjustments in planning according to change in taste and preferences, technology, availability of resources etc.
3. Standardization is not required as there is competition in the market which forces each producer to provide quality good in order to survive in the market.
4. The implementation of planning does not require supervision or a team of experts. It gets implemented automatically through market forces of demand and supply.

*Disadvantages of Planning by Inducements*

1. There is no certainty of attaining desirable and expected outcomes.
2. Results come out very slowly.
3. In some situations, this planning does not work at all. For example, say we want to have an efficient public transport system; we can't rely on planning by indumenta but need to develop it through planning by direction in the form of DMRC or Green line buses.

**Centralized Planning and Decentralized Planning:** Centralized planning is a system of planning in which there is a central authority or central office which does the planning for the country. It does not mean that all decisions are made by central office but generally the decisions of national level interest for the economy are taken by the central office.

Notes

Decentralized planning is a system of planning in which there is dominance of market in decision-making. All major decisions are taken by the market through the forces of demand and supply.

In a capitalist or mixed economy, there is dominance of decentralized planning as market is dominating in these forces. Through planning, either centralized or decentralized, prices of goods as well as factors of production particularly capital are to be increased in case of excess demand and opposite is true if there is excess demand.

**A Comparative Analysis of Centralized Planning and Decentralized Planning:** Generally speaking, merits of one form of planning are demerits of the other form because they are based on opposite forces.

**(a)** **Compatibility:** Centralized planning assures full compatibility (only theoretically, there are practical problems). Decentralized planning does not ensure whether the planned outcome will be supported by market forces. There may be a gap between what the plan requires and what the market does.

**(b)** **Adjustment Difficulty:** Due to the fact that there are uncertainties about the reactions of the market reaction in case of decentralized planning, adjustments in planning are made difficult. However, in centralized planning it is not so.

**(c)** **Non-Planning:** Some extreme thinkers have claimed that decentralized planning is not planning at all. They claim it on the ground that the choices take on the contents of the market and not that of non-market determined forces. Planning is ex-ante but the reactions of demand and supply forces can't be anticipated.

**(d)** **Difficulties of Calculations:** In decentralized planning there is a big problem in collecting data and making calculations to announce appropriate policies.

**(e)** **Inadequate Control and Information:** Practically, the biggest hurdle in centralized planning is non-availability of data and lack of control on economic agents.

**(f)** **Rigidity and Bureaucracy:** On implementation stage, some loopholes of the plans may come into the picture. But, in practice, rigidity and inflexibility develops. Therefore, centralized planning may fail.

*Indicative Planning and Imperative Planning*

Indicative planning, as the name suggests, only indicates what is desirable but does not enforce anything on economic agents. On the contrary, imperative planning not only indicates what is desirable but ensures through its policies and instruments that the economic agents behave as per the desirability. For example, in India family planning programmes are indicative in nature but one child norm by China is imperative.

**Indicative Planning:** Planning aims at coordination of economic units. There may be three approaches to coordination:

**(a)** **Forecasting Approach:** In this approach, individuals or groups are given information about probable and desirable future. On the basis of such information, makes the future path of the economy transparent and comparatively certain. But the problem is it coordinates in the model of the economy but leaves the implementation out of the picture.

**(b)** **Policy Approach:** Policy approach coordinates the activities of the government and the other economic units by making use of policy variables. It coordinates policy making of government and thereby affects rest of the economy.

**(c)** **Corporate:** It seeks coordination of the behaviour of the economic agents who have market power; the relation between public and private activities. This form of planning has an endogenous strength for its implementation.

Notes

**Imperative Planning:** In this type of planning the implementation is planned along with the formulation of plans. In other words, plan document does not only tell what is to be achieved but also how is it to be achieved. Therefore, it is also called directive planning. This enforcement of plans into action can be through command system or price system.

(a) In the command system, directions are given to the economic agents who are obligatory to be followed and binding on them.

(b) In price system, such instruments are used which affect market price and thereby influence market forces of demand and supply.

## 18.5 Micro-Level Planning

Planning at micro level i.e. regional or sector or industrial level is called micro level planning. There is a need for micro level planning for following reasons:

***Rationale of Micro-level Planning***

The rationale of micro-level planning is found in following arguments:

**(a)** **Special Needs:** Can Central Government planning be effective in tackling the problem of people's backward attitude in sending their daughters to school in a village, or the problems that a flood or cyclone prone area has. No. there is a need for planning at regional level.

**(b)** **Special Capabilities:** Certain regions have special capabilities due to availability of some natural resources or skilled labour, or better infrastructure etc. Development of these capabilities to the optimum will not only help in the development of these regions but also in national development. For example, hill stations have special potential for tourism industry; if developed to the optimum it will help in increasing growth rate of the country.

**(c)** **Regional Differences:** There exist wide regional differences in culture, socio-economic factors, resources, level of development and political factors of various regions. These must be considered to make optimal use of regional resources.

**(d)** **Regional Industries:** Micro-level planning helps to develop regional market and other resources for regional industries.

*Caution* Micro-level planning helps to get the maximum cooperation from the regional people; rather they may also take initiative of making and implementing the plans.

***Problems in Micro-Level Planning***

1. Lack of mobility of resource.
2. Coordination between regional plans and national plans.
3. Marketing facilities for regional.
4. Problems in relocating shiftable industries.

## 18.6 Plan Models

Plan models set out the quantitative relationships among the variables (endogenous to the model) in the process of economic growth. There are three types of models; descriptive models, development models, planning models.

Notes

*Elements of Planning Models*

1. **Objectives of Economic Policy or Dependent Variables:** A plan must have a clearly defined (in quantitative terms) time bound goals. These goals are the dependent variables of the model.
2. **Instrument or Independent Variables:** These are the means i.e. policies or tools through which plan will be put into action and implemented. Values of independent variables are exogenously determined by the planner.
3. **The Functional Relationship:** The goals (dependent variable) and Instruments (independent variable) are functionally related to each other in the form of coefficients. Given the value of independent variable, planner can estimate the value of dependent variable.

*Task* What are the elements of planning?

*Types of Planning Models*

(a) **Aggregative or Macroeconomic Models:** When a planning model is developed for the economy and not sectors or industries, it is called macro economic model. Macro economic models do not into Sectoral details.

(b) **Sectoral Models:** These models can be:

   (i) **Single-Sector Project Models:** Such models help in formulation of plan for a single sector say primary. Once separate single sectors models are developed for all the sectors, they can be merged to see whether resources are sufficient for their implementation.

   (ii) **Complete Main-Sector Model:** These models cover the entire economy by differentiating the economy into main sectors. The model should be realistic and consistent.

(c) **Comprehensive Inter-Industry Model:** These models use input-output technique for setting Sectoral targets and ensuring their internal consistency; and linear programming for optimization objective.

*Factors Affecting Choice of Planning Models*

1. **Stage of Development:** Low stage of development-macroeconomic model is more suitable. High level of development inter industry planning model is more suitable.
2. **Institutional Structure:** Which of the two sectors dominate-private or public is also a determining factor.
3. **Availability and Reliability of Data:** Detailed planning model demands availability of reliable data.
4. **Resource Constraints:** Resources are always a constraint in the choice of an appropriate model.

*Uses of Planning Models*

1. Help to test consistency and optimality of plans.
2. Act as a framework for the evaluation of projects.
3. Help in choice of policies for plan execution.
4. Help to develop functional relationship between economic variables.

*Criticism of Planning Models*

1. Planning models ignore socio-cultural-religious-political factors.
2. Assumption of 'other things being equal' makes model unrealistic.
3. Due to isolation of economic variables, important correlations may be overlooked.

Notes

4. In many economic situations, quantification is impossible. These models do not work in such situation.

### Self-Assessment

2. State whether the following statements are 'true' or 'false'.
   *(i)* When a plan prepared, next step is to think of the methods by which it will be put into action.
   *(ii)* Results come out very fastly.
   *(iii)* A plan must have a clearly defined (in quantitative terms) time bound goals.

## 18.7 Summary

- Planning can be defined as an instrument to bridge the gap between the realistic and idealistic situation.
- Planning is an institutionalized activity that means there is a proper body which has resources and power to make plans and to execute them.
- Economic wants are unlimited but means are limited; hence an economy needs to quantify the goals and resources that are required to attain them.
- Planning is a tool to make optimum utilization of resources and this is the central issue in the field of economics-optimization.
- Planning helps to keep an eye on the data and the extent to which economy is performing up to the expectations.
- Such planning may create surplus in one sector and shortage in other. This is because a single human mind or a group of human minds can never coordinate so effectively as invisible minds of demand and supply chain.
- Centralized planning is a system of planning in which there is a central authority or central office which does the planning for the country.
- Due to the fact that there are uncertainties about the reactions of the market reaction in case of decentralized planning, adjustments in planning are made difficult. However, in centralized planning it is not so.
- Indicative planning, as the name suggests, only indicates what is desirable but does not enforce anything on economic agents.
- Can Central Government planning be effective in tackling the problem of people's backward attitude in sending their daughters to school in a village, or the problems that a flood or cyclone prone area has.
- Plan models set out the quantitative relationships among the variables (endogenous to the model) in the process of economic growth.

## 18.8 Key-Words

- Planning : the act or process of making plans for something
- Role : the function or position that somebody has or is expected to have in an organization
- Indicative : showing or suggesting something

Notes

## 18.9 Review Questions

1. What do you mean by planning? Bring out its essential elements.
2. Highlight the major feature of planning.
3. State both non-economic and economic reasons that bring out the need for planning.
4. How does the nature or planning differ in different economic systems?
5. Distinguish between democratic and totalitarian planning. Also weigh their relative merits and demerits.

### Answers: Self-Assessment

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|---|---|---|---|---|---|---|
| 1. | *(i)* | instrument | *(ii)* | policies, instruments | | |
| | *(iii)* | failure | *(iv)* | planning | *(v)* | socialist |
| 2. | *(i)* | T | *(ii)* | F | *(iii)* | T |

## 18.10 Further Readings

*Books*


1. A.P. Thirlwall, *The Economics of Growth and Development,* Vol-I. Caterloury, UK, 1995.
2. Michael P. Todaro, Economic Development, Pearson Education India, 2002.
3. J.S.L. McCombie, Roger William Vickerman, Growth and Economic Development, Edward Elgar Publishing.