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Economic Development

MCH204

CENTRE FOR DISTANCE AND ONLINE EDUCATION

ECONOMIC DEVELOPMENT
(MCH204)

REVIEW COMMITTEE

Prof. Dr. Manjula Jain
Dean (Academics)
Teerthanker Mahaveer University (TMU)

Prof. Dr. Vipin Jain
Director, CDOE
Teerthanker Mahaveer University (TMU)

Prof. Amit Kansal
Associate Dean (Academics)
Teerthanker Mahaveer University (TMU)

Prof. Dr. Manoj Rana
Jt - Director, CDOE
Teerthanker Mahaveer University (TMU)

PROGRAMME COORDINATOR

Dr. Chanchal Chawla
Professor
Department of Management and Commerce
Centre for Distance and Online Education (CDOE)
Teerthanker Mahaveer University (TMU)

BLOCK PREPARATION

Mr. Vivek Birla
Department of Management and Commerce
Centre for Distance and Online Education (CDOE)
Teerthanker Mahaveer University (TMU)

Secretarial Assistance and Composed By:

Mr. Namit Bhatnagar

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Content

Unit 01: Overview of Economic Development

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Objectives

After studying this unit the students will be able to

- Understand the meaning of development economics
- Learn about the factors that influence the economic development of the country
- Describe the measurement issues of economic development
- Know about the objectives of economic development

Introduction

Economic development is the main objective of the majority of the countries of the world. The crucial task of the majority of the nations is to raise the income,standard of living, well-being, and economic capabilities of the people. Every year, investments are undertaken, and policies are framedtoachieve this goal. Howdo we measure development?It is not easy to resolve this issue.Usually when we talk about developed country, we picture in our minds a society in which people are well fed, access to different commodities, access to luxury goods and entertainment, availability and access to health facilities, people are not sleeping on sidewalks and country is free from violence.

It istempting to suggest that thewell-being of a nation is capturedquite accurately in its per capita gross national product (GNP).Development performance of the country can be judged on the basis of growth of per capita income. But this practice is coming under debate. No one in their right mind would ever suggest that the economicdevelopment of the nation can be identifiedwith the growth of per capita income. It isuniversally accepted that economic development is not just about growth of per capita income, although incomehas a great deal to do with it. This means, in particular, that economicdevelopment is also the increase in life expectancy, access to safe drinking water, access to sanitation, decrease in infant mortality rate, access to schooling, increase in literacy rate and removal of poverty and undernutrition.

Did you know?

What is GNP?

The per-head value of final goods andservices produced by the people of a country over a given year.

Neither Lucas norany intelligent person believes that only per capita income is development. What's hidden in these wordsis actually an approach, not a definition. It may be that per capita income does notcapture all aspects of development, but a weighty assertion that no small set of variables evercaptures the complex nature of the development process and that there are always otherconsiderations is not very helpful.

1.1 Measurement Issues in Economic Development

Gross National Product (GNP): It is one of the methods that can be used to measure the economic development of the country. Economic development is in terms of an increasein the economy's real national income over along period of time.But this method is not satisfactory due to the following reasons:

- The GNP does not reveal the costs to society of environmental pollution, urbanization, industrialization, and population growth.
- GNP is always measured in money, but there are a number of goods and services which are difficult to be measured in terms of money like painting as a hobby by an individual, and the bringing up of children by the mother. By excluding all these services from it, the calculated GNP will be less than what it actually is.
- Sometimesfinal goods and intermediate goods are not distinguished properly while calculating GNP due to thatthe problem of double-countinghas arisen.
- The calculation of GNP in terms of money is the underestimation of real GNP. It does not include the leisure forgone in the process of production of a commodity. The income earned by two individuals may be equal, but if one works longer hours than the other, it would be correct to say that the real income of the former has been understated.

GNP Per Capita: Another measure related to an increase in the percapita real income of the economy over a long period. This indicator of economic growth explains that the rate of increase in real per capita income should be higher than the growth rate of the population for the economic development of the country.The major limitations of this measure are:

- If per capita income of the country is rising then it does not mean thatstandard of living of the people is also raising. It is possible that when per capita real income is increasing, per

capita consumption might be falling. People might be increasing the rate of saving or the government might itself be using up the increased income for military or other purposes.

- If the increased income is distributed in favour of rich people then poor people will remain poor in spite of an increase in GNP per capita.
- It fails to take into account problems associatedwith basic needs like water, education nutrition, health and sanitation.The improvement in living standards by providing basic needs cannot bemeasured by an increase in GNP per capita.

Welfare: There is also a tendency to measure economic development fromthe point of view of economic welfare. Economic development isa sustained, secular improvement in material well-being, which we mayconsider to be reflected in an increasing flow of goods and services. The main limitations of this indicator are:

- While measuring economic welfare caution has to be exercised with regard to the composition of the total output that is giving rise to an increase in per capita consumption, and how this output is being valued. The increased total output may be composed of capital goods. It may be at the cost of a reduced output of consumer goods.
- The real difficulty arises in the valuation of the output. The output may be valued at market prices whereas economic welfare is measured by an increase in real national output or income. In fact, with a different distribution of income, prices would be different and both the composition and value of national output would also be different.
- It is not essential that with the increase in national income, the economic welfare might have improved. It is possible that with the increase in real national income/per capita income, the rich might have become richer and the poor poorer. Thus, a mere increase in economic welfare does not lead to economic development till the distribution of national income is equitable or justifiable.

1.2 Factors in Economic Development

There are two kinds of factors that can effect influence the economic development of the country

1. Economic factors
2. Non-economic factors

1. Economic factors: The role of economic factors is decisive in the economic development of the country.The main economic factors that are effecting to economic development are:

A. Capital Formation: The paucity of capital is one of the obstacles to the economic development of the country. If a country is relying on foreign aid that is also risky as the country has to repay that. It is universally admitted that if a country wants to accelerate the

pace of growth, then it should save more part of its income with the objective of investment. More capital formation and more investment will increase the production of goods that will further accelerate the pace of growth.

B. **Natural resources:** Availability of natural resources like land area, quality of soil, minerals, good river system, forests, etc. effect the economic development of the country. There should be an abundance of natural resources for the economic development of the country. The country may not be in a position to develop rapidly if there is a deficiency of natural resources.In developing countries, natural resources are unutilized or under-utilized which is one of the reasons of their backwardness. A country which is poor in resources but it can become rich in resources by discovering new methods to utilize the resources.

 Example: Japan is a country where there is a deficiency of resources but it is one of the advanced countries because this country has discovered new methods to utilize natural resources.

C. **Marketable Surplus of Agriculture:**Increase in agricultural production and productivity is one of the important factors that can effect the economic development of the country. But the more important is increase in marketable surplus. With the development of an economy, the percentage of the urban population increases and increasing demand for food grains. If there will beless marketable surplus and it will be difficult for the country to meet the demand of the people and that negatively effect the economic development of the country. If the marketable surplus will be less than the country will be dependent upon imports which adversely affects to the balance of payment condition of the country.

 **Did you know**

What is a marketable surplus?

Marketable surplus refers to the excess of output in the agriculture sector over and above what is required to allow the rural population to subsist.

D. **Conditions in Foreign Trade:**Adam Smith suggested that there should be trade among countries because countries can gain from trade. Nowadays, there is trade between developed and developing countries. Developed countries are exporting manufactured goods whereas developing countries are exporting primary goods that is why developing countries are suffering from secular deterioration of terms of trade. So the pace of development is dependent upon the goods that the country is exporting and importing.

E. **Economic System:**The economic system of the country also effect the economic development of the country. There was a time when a country could have a laissez-faire economy.Nowadays, the situation is different, there is the interference of the government in economic activities.The developing countries will have to find their own path of development. The developing countries can follow the capitalist path of development or economic planning.

 **Did you know**

What is laissez faire economy?

Laissez faire economy is that where there is no intervention of the government.

2. **Non-Economic Factors :**The main non-economic factors that can effect the economic development of the economy are:

A. **Human Resources:**If the people of the country are illiterate and unskilled then their productivity will be less which will negatively effect to growth and development of the country.If the labour power is more efficient in the country, its capacity to produce and contribute to growth will be more. In case skilled manpower is available but these resources are unutilized that will create the burden on the economy.

B. **Technical Know-How:**Country should invest more in research and development. As the country will invest more in R&D; technological knowledge advances, individualdiscover sophisticated techniques of production which will raise the productivity and production of goods.

C. **Social Organisation:**Mass participation in development programs is a pre-condition for accelerating the growth process. However, people show interest in the development activity only when they feel that the fruits of growth will be fairly distributed. Experiences from a number of countries suggest that whenever the defective social organisation allows some elite groups to appropriate the benefits of growth, the general mass of people develop apathy towards State's development programs. Under the circumstances, it is futile to hope that masses will participate in the development projects undertaken by the State.India's experience during the whole period of development planning is a case in point. Adoption of new agriculture strategy has increased the inequalities among farmers because it is a costly package. The majority of farmers are small and marginal farmers in India.

D. **Corruption:**It operates as a negative factor in their growth process. Until and unless these countries root-out corruption in their administrative system, it is most natural that the capitalists, traders and other powerful economic classes will continue to exploit national resources in their personal interests.The regulatory system is misused in India and people are not paying taxes or they are evading the taxes.

1.3 Structural Features of Economic Development

Demographic characteristics

Poor countries are characterized by high birth rates and high death rates. Asdevelopment proceeds, death rates falldownward and birth rates still remain high. In the process, a gap opens up between the birth and death rates. This leads to high population growth in developingcountries.

High population growth has two effects. Population growth help in increasing the income of the country because as population is increasing that will increase the supply of manpower. It means that overall income must grow faster to keep percapita growth at reasonable levels. However, it is not clear who wins thisseesaw contest: the larger amount of production or the larger population that makes it necessary todivide that production among more people. The negative population effect may well end up dominant,especially if the economy in question is not endowed with large quantities of capital.

A second effect of high population growthis that the overallpopulation is quite young. It is easy to get an intuition for this: high birth rates mean that aproportionately larger number of children are always entering the population at any given point oftime. This means that the population is heavily weighted in favor of children. This may be quitedelightful, as any of us who has grown up with several brothers, sisters, and cousins knows, but itdoes not change the grim reality of utter economic dependence, especially for those in poverty.

Occupational and Production Structure

Indeveloping countries significant proportion of population is dependent upon the agriculture sector. In developing, agricultural production is for selfconsumption basically. For thepoorest forty-five countries for which the World Bank publishes data, called the low-incomecountries, the average proportion of output from agriculture is close to 30%. Data for middle-income countries,

which are the next poorest sixty-threecountries and include most Latin American economies, is somewhat sketchier, but the percentageprobably averages around 20%. This stands in sharp contrast to the corresponding income sharesaccruing to agriculture in the economically developed countries: around 1–7%.

Clearly, agricultural activity forms a significant part of the lives of people living in developingcountries. Whereas, agriculture has lower productivity than other economicactivities. In many developing countries, capital intensity in agriculture is at abare minimum, and there is often intense pressure on the land. Add to this the fact that agriculture,especially when not protected by assured irrigation and ready availability of fertilizer and pesticides,can be a singularly risky venture. Many farmers bear enormous risks. These risks may not look veryhigh if you count them in U.S. dollars, but they often make the difference between bare-bonessubsistence (or worse) and some modicum of comfort.

Rapid Rural–Urban Migration

Most of the people movesfrom rural to urban areas because of landlessness and extreme poverty in developing countries. Forthe forty-five lowincomecountries covered by the World Bank, the average rate of urban population growth over theperiod 1980–93 was 3.9% per year. Compare this with an average rate of population growth of 2%per year for the same countries over the same period of time. On the other hand, the high-income developed countriesexhibit near balance: urban populations grew at 0.8% per year, while overall population grew at0.6% per year.

International Trade

By and large, all countries, rich and poor, are significantly involved in international trade. A quickplot of the ratio of exports and imports to GNP against per capita income, does not reveal asignificant trend. There are large countries, such as India, the United States, and Mexico for whichthese ratiosare not very high—perhaps around 10% on average. There are countries some countries like suchas Singapore and Hong Kong for which ratios of exports and imports to GNP are probably around 20%. Trade is an importantcomponent of the world economy.

1.4 Objectives of Economic Development

Increase in the level of national income: The main objective of economic development is the increase in the level of national income. The level of national income of the country can be increased by increasing the quantityof different goods and services.

Increase in the investment: It is also one of the objectives of economic development as it plays animportant role in the economic development of a country. Investment must be made in all important sectors like in industrial sector, service sector and primary. Investment must discourage in unimportant consumption sectors. When the investment is made on large scale then more goods will be produced in the economy.

Did you know

What is investment?

Investment is addition to the stock of capital.

Provision of employment: Most of the developing countries are facing the problem of unemployment. The main aim of economic development is to eliminate unemployment from the country by providing employment to individuals who are ready to work. Government can introduce the employment generation program for the people and apart from that self-employment schemes, roads and communications, transport etc have to be adopted for overcoming the dangers of unemployment problem in underdeveloped countries.

Removal of Poverty: Most of the countries are suffering from the problem of poverty. Economic development aims to remove poverty and provision of social justice for all. Poverty could be removed when the poorest section of society will have access to basic necessities of life like food, shelter, clothing, medicine etc. Basically in developing countries, gap can be seen between the rich and poor people. Progressive taxation can be adopted to reduce this gap between the rich and poor people. Decentralization of economic power, nationalization of key industries, special help to weaker sections etc have to be implemented with sincerity to remove poverty from the country.

Did you know?

What is progressive tax?

The marginal tax rate is increasing with the increase in income.

Self-reliance: Every country wants to achieve self-reliance and self-sufficiency in all matters. This objective could be achieved with the enormous efforts of the people, government, and social institutions. As economic development takes place, production in all sectors will increase. Exports will increase and imports will be minimized.

1.5 Nature of Development Economics

Traditional economics is concerned with efficient utilization of resources. Traditional economics deals with the perfect knowledge, invisible hands and rationality. The main motive of the producers is to maximize their profits. Goods and services are produced according to the tastes and preference of the people. They believe that supply creates its own demand. There is no surplus in the economy. Whatever is produced in the economy is sold out.

The political economy is concerned with the social and institutional process through which economic and political elites effect the allocation of scarce resources. Political economy discussed the relationship between economics and politics with the main stress on the role of power in decision-making.

In developing countries, consumers have imperfect information about the commodities, market is imperfect, structural changes are taking place in the economies, and disequilibrium situation prevailingin these economies unlike developed economies. In most of the cases, economiccalculations are dominated by political and social priorities like replacement of foreign advisers with local advisers, resolving of tribal issues and conflicts.Thus development economics, to a greater extent than traditional economics and political economy., must be concerned with theeconomic, cultural, and political requirements for effecting rapid structuraland institutional transformations of entire societies in a manner that willmost efficiently bring the fruits of economic progress to the broadest segmentsof their populations. It must focus on the mechanisms that keep families,regions, and even entire nations in poverty traps, in which past povertycauses future poverty, and on the most effective strategies for breaking outof these traps. Consequently, a larger government role and some degree ofcoordinated economic decision-making directed toward transforming theeconomy which essential for development of the economy. In recent years, activities of nongovernmental organizations, both nationaland international, have grown rapidly and are also receiving increasing attention.

1.6 Capability approach to Measure Economic Development

Amartya Sen, the 1998Nobel laureate in economics, argues that the "capability to function" is whatreally matters for status as a poor or nonpoor person. Development has to be concerned with enhancing the lives we lead and the freedoms peopleof the country enjoy.Sen argue that poverty in a country cannot be properly measured by incomeor by the utility as conventionally explained; what matters fundamentally isnot the things a person has—or the feelings these provide—but what a personis, or can be, or can do. What matters for well-being is not just thecharacteristics of commodities consumed, as in the utility approach, but whatuse the consumer can and does make of commodities. For example, a book isof little value to an illiterate person.To make any sense of the concept of human well-being in general, andpoverty in particular, we need to think beyond the availability of commoditiesand consider their use: to address what Sen calls functioning, that is,what aperson does with the commodities of given characteristics that theycome to possess or control. Freedom of choice, or control of one's own life, is itselfa central aspect of most understandings of well-being.

Sen explains the concept of "functioning's" reflects the various things a person may valuedoing or being. The valued functioning's may vary from elementary ones to very complexactivities.Sen explained five sources of disparity between real incomesand actual advantages that are:

- Personal heterogeneities, like those connectedwith a disability, age, gender and illness.

- Environmental diversities, like infectious diseases in tropics, need of heat and clothing in the cold, or the impact of pollution.
- Variations in social climate
- Distribution within the family: Economic statistics measure incomes received in a family becauseit is the basic unit of shared consumption, but family resources may bedistributed unevenly, as when girls get less medical attention or education thanboys do.

Differences in relational perspectives, meaning thatthe commodity requirements of established patterns of behavior may vary betweencommunities, depending on conventions and customs. For example, beingrelatively poor in a rich community can prevent a person from achieving some elementary"functioning" eventhough her income, in absolute terms, may be much higher than the level of incomeat which members of poorer communities can function with great ease andsuccess. For example, it may requirehigher standards of clothingto be able to appear in public without shame.In a richer society, the ability to partake in community life would be extremelydifficult without certain commodities, such as a telephone, a television, or anautomobile; it is difficult to function socially in Singapore or South Koreawithout an e-mail address.Thus real income levels or levels of consumption ofsome specific commodities cannot serve as a measure of well-being.It may be possible that the person hasa lot of different commodities but he has little desire for these commodities.A person may have income, but certaincommodities necessary for well-being, such as nutritious foods, may beunavailable. Even when providing an equal number of calories, the availablestaple foods in one country willdiffer in nutritional content from staple foods in other countries. Moreover,even some subvarieties of, for example, rice, are much more nutritious thanothers. If we arecomparing completely identical commodities in that case also each personhas to frame their consumption in a personal and social context.

Sen providesan excellent example:A commodity like breadhas many characteristics and out that yieldingnutrition is one. This can—often with advantage—be split into different types of nutrition,related to calories, protein, etc. Apart from nutrition, bread have some other characteristics as well, e.g., helping get-togethers overfood and drinks, and meeting the demands of social conventions or festivities. Butin comparing the functioning of two different persons, we do not get enough informationby looking merely at the amounts of breadenjoyedby the two persons respectively. The conversion of commodity characteristics intopersonal achievements of functioning depends on a variety of factors—personaland social. In the case of nutritional achievements, it depends on such factors as metabolic rates, body size, age, sex, activity levels, medical conditions, access to medical services and the ability to use them, nutritionalknowledge and education, and climactic conditions.In part, because such factors, even on so basic a matter as nutrition, canvary so widely among individuals, measuring individual well-being by levels ofconsumption of goods and services obtained confuses the role of commoditiesby regarding them as ends in themselves rather than as means to an end. Inthe case of nutrition, the end is health and what one can do with well as personal enjoyment and social functioning. Sen stresses a person's own valuation of what kind of life would beworthwhile is not necessarily the same as what gives pleasure to that person.If we identify utility with happiness in a particular way, then very poor peoplecan have very high utility. Sometimes even malnourished people either have adisposition that keeps them feeling rather blissful or have learned to appreciategreatly any small comforts they can find in life, such as a breeze on a veryhot day and to avoid disappointment by striving only for what seems attainable. If there is really nothing to be done about a person'sdeprivation, this attitude of subjective bliss would have undoubted advantagesin a spiritual sense, but it does not change the objective reality of deprivation.

Sen defines capabilities as "the freedom that a person has in terms ofthe choice of functioning, given his personal features and his command over commodities." Sen's perspectiveexplained why emphasis is laid on health and education in development economics. Real income is essential, but to convert the characteristics of commoditiesinto functioning, in most important cases, surely requires healthand education as well as income. The role of health and education rangesfrom something so basic as the nutritional advantages and greater personalenergy that are possible when one lives free of certain parasites to the expandedability to appreciate the richness of human life that comes with abroad and deep education. People living in poverty are often deprived—attimes deliberately—of capabilities to make substantive choices and to takevaluable actions, and often the behavior of the poor can be understood in thatlight.

Three Core Values of Development

Three basiccomponents or core values serve as a conceptual basis and practical guidelinefor understanding the inner meaning of development. These core values aresustenance, self-esteem, and freedom.

Sustenance: There are some basic needs that every person of society has and without these needs life of the person is not possible. These basic needs include food, clothing and shelter, and health. If any person of society do not have access to these basic needs that individual will be considered as poor. The main economic activity of each country is to provide access to these basic needs to every person of the society.Without sustainedand continuous economic progress at the individual as well as the societallevel, the realization of the human potential would not be possible. Oneclearly has to "have enough in order to be more."Greater employment opportunities, elimination of poverty, increase per capita income and reducing income inequalities are necessary conditions for development.

Self-Esteem: Good lifeis self-esteem—a sense of worth and self-respect, of not being used as a tool byothers for their own ends. All peoples and societies seek some basic form ofself-esteem, although they may call it authenticity, identity, dignity, respect,honor, or recognition. The nature and form of this self-esteem may vary fromsociety to society and from culture to culture. Many societies in developingcountries suffer fromserious cultural confusion when they come in contact with economically andtechnologically advanced societies. This is because national prosperity has becomean almost universal measure of worth.

Freedom from Servitude: Athird and final universalvalue that we suggest should constitute the meaning of development is the conceptof human freedom. Freedom here is to be understood in the sense of emancipationfrom alienating material conditions of life and from social servitudeto nature, other people, misery, oppressive institutions, and dogmatic beliefsespecially that poverty is predestination. Freedom involves an expandedrange of choices for societies and their members together with the minimizationof external constraints in the pursuit of some social goal we call development.Amartya Sen writes of "development as freedom." W. Arthur Lewis explained thatWealthcan enable people to gain greater control over nature and the physical environmentthan theywould have if they remained poor. It also gives them the freedom to choosegreater leisure, to have more goods and services, or to deny the importance ofthese material wants and choose to live a life of spiritual contemplation. Theconcept of human freedom also encompasses various components of politicalfreedom, including personal security, the rule of law, freedom of expression,political participation, and equality of opportunity. Although attempts torank countries with freedom indexes have proved highly controversial,studies do reveal that some countries that have achieved high economicgrowth rates or high incomes, such as China, Malaysia, Saudi Arabia, and Singapore,have not achieved as much in human freedom criteria.

Summary

- The crucial task of the majority of the nations is to raise the income, standard of living, well-being, and economic capabilities of the people.
- Economic development is in terms of an increasein the economy's real national income over along period of time.
- It is universally admitted that if a country wants to accelerate the pace of growth, then it should save more part of its income with the objective of investment. More capital formation and more investment will increase the production of goods that will further accelerate the pace of growth.
- If the labor-power is more efficient in the country, its capacity to produce and contribute to growth will be more. If human resources are not utilized in that case literate manpower will also become a burden on the country.
- Economic development aims to remove poverty and provision of social justice for all. Poverty could be removed when the poorest section of society will have access to basic necessities of life.

- Three core values serve as a conceptual basis and practical guidelinefor understanding the inner meaning of development. These core values aresustenance, self-esteem, and freedom.
- Human freedom also encompasses various components of politicalfreedom, includingpersonal security, the rule of law, freedom of expression,political participation, and equality of opportunity.

Keywords

- Gross national product
- Welfare
- National income
- Employment
- Poverty
- Self-reliance

Self Assessment

1. Higher the real per capita income higher will economic development of the country

A. True

B. False

2. Economic development means increase in real per capita income of the country during short time period.

A. True

B. False

3. More investment will increase

A. production

B. employment opportunities

C. income

D. all of the above

4. Majority of the population of developing countries is dependent upon

A. industrial sector

B. agriculture sector

C. service sector

D. any of the above

5. Which of the following factor can increase the dependence of developing countries on developed countries for food grains?

A. Increase in foreign aid

B. Increase in exports

C. Less marketable surplus

D. More marketable surplus

6. Rural-urbanmigration is comparatively more in developing countries.

A. True
B. False

7. The death rate is falling but the birth rate is still high in developing countries.
A. True
B. False

8. How can the government reduce the gap between the rich and poor people in developing countries?
A. Progressive taxation
B. Regressive taxation
C. Proportional taxation
D. None of the above

9. Which of the following have positive effect on economic growth of the country?
A. Efficient manpower
B. Literate manpower
C. Conservative people
D. Both a and b

10. Which of the following factors can effect the economic development of the country?
A. Human resources
B. Capital formation
C. Availability of naturally resources
D. All of the above

11. Which of the following are three core values of development?
A. Sustenance
B. Self esteem
C. Freedom
D. All of the above

12. Population will grow rapidly when
A. Death rate is falling and birth is increasing
B. Both death rate and birth rates are increasing
C. Birth rate is falling and death rate is increasing
D. Birth rate is falling and death rate is increasing

13. Greater happiness may expand human
A. Capacity to function
B. Capacity to eat
C. Capacity to drink
D. None of the above

14. Which of the following are objectives of economic development?
A. To raise level of living

B. To provide employment opportunities to people
C. To invest more
D. All of the above

15. The problem of double counting raised when final goods and intermediate goods are
A. Not distinguished properly
B. Distinguished properly

Answers forSelf Assessment

1.	A	2.	B	3.	D	4.	B	5.	C
6.	A	7.	A	8.	A	9.	D	10.	D
11.	D	12.	A	13.	A	14.	D	15.	A

Review Questions

1. Explain the structural features of the economy with relevant examples.
2. Write a note on nature of development economics.
3. Write a brief note on capability approach to measure development.
4. What are different economic and non-economic factors that can effect the economic development of the economy.
5. Write a brief note on measurement issues of economic development.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 02: Overview of Economic Development (contd.)

CONTENTS

Objectives

After studying this unit, the students will be able to

- Learn about the stylised facts of growth.
- Describe the different sources of growth.
- Describe the measures of inequality.

Introduction

Nicholas Kaldor has introduced the term Stylized facts in 1961. Kaldor has criticized neoclassical model of economic growth, he argued that theory of construction should begin with a summary of relevant facts. Moreover, to handle the problem that facts as recorded by statisticians, are always subject to numerous snags and qualifications, and for that reason are incapable of being summarised. Stylized facts can be defined as the simplified presentation of empirical findings. Example of stylized fact is that education significantly raises the lifetime income of people. More educated people will earn more income. A stylized fact is an informal, verbal description of some phenomenon. Stylized facts are a summary of what we know about economic reality.

2.1 Stylized Facts of Economic Growth

1. The enormous variations can be seen in per capita income across countries. The per capita income of developing countries is less than the per capita income of the developed countries. Gross domestic product (GDP) of developing countries is comparatively less as shown in figure 1.

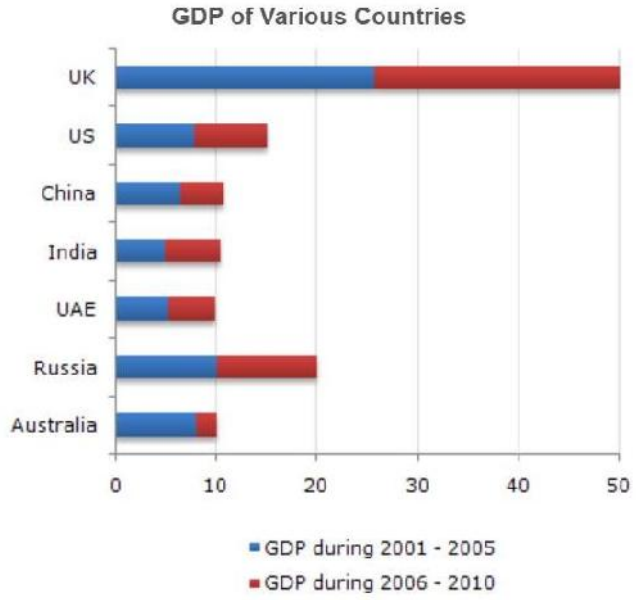


Figure 1: GDP of various Countries

2. Economic growth rate vary across the countries. Developed countries do not always grow fast. Figure 2 is depicting the fluctuations in growth of real GDP of USA from 1991 to 2021. Fluctuations can be seen in the growth rate of developed countries but still growth of poor countries is less due to high population growth.Zimbabwe experienced negative growth rate as shown in figure 3.

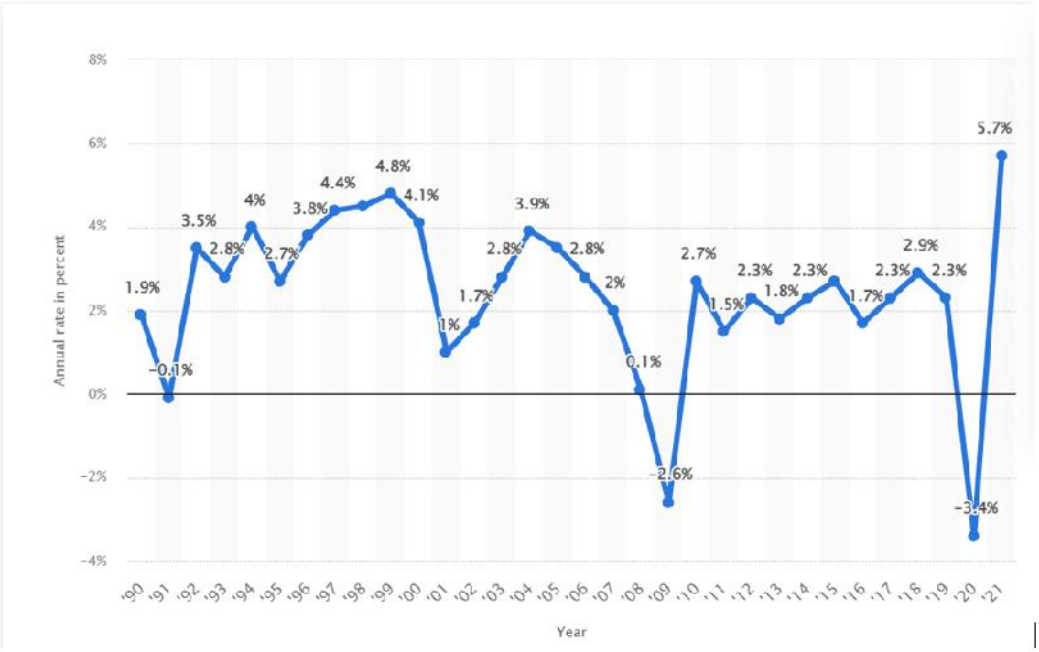


Figure 2: Annual growth of real GDP in USA

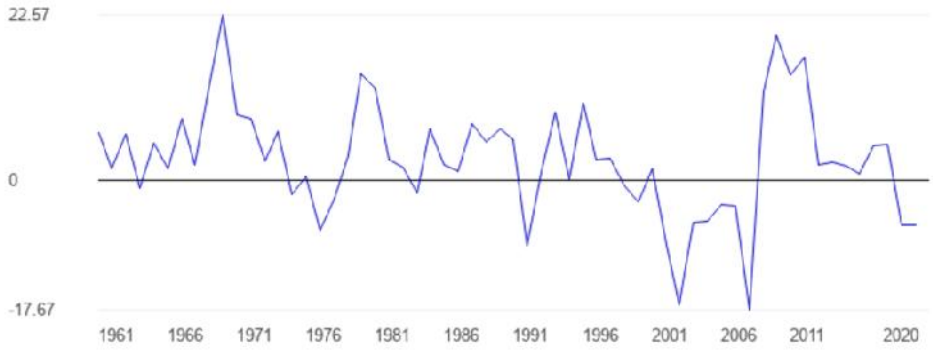
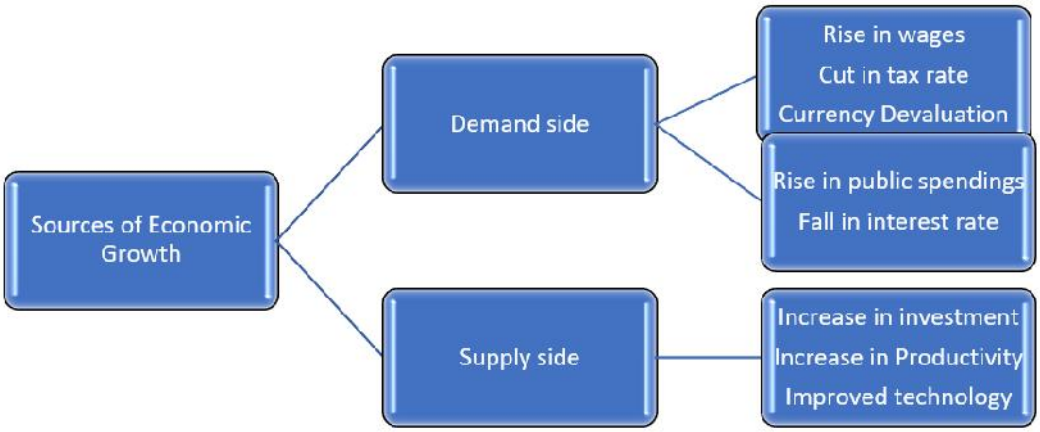


Figure 3 Annual Growth of Real GDP of Zimbabwe

3. A country's relative position in the world distribution of per capita incomes is not immutable. Countries can move from being poor to being rich, and vice versa.
4. Growth in output and growth in the volume of international trade are closely related. The trade volume has been growing faster than GDP for most countries since 1960s. Countries with relatively large values of trade volumes are called open economies Some countries like Hong Kong, Singapore, Korea are crucially depend on trade.
5. Both skilled and unskilled workers tend to migrate from poor to rich countries or regions. Workers are migrating to developed countries in search of work as employment opportunities are comparatively less in developing countries. Skilled workers can earn more in developed countries.

2.2 Sources of Economic Growth



1. **Demand side:** Demand side factors which can effect the economic growth of the country are:

The rise in wages: If there is an increase in wages of the workers then the consumption demand of the workers will increase because some part of the increased income will be spent on goods and services. The rise in wages has a positive effect on the demand for goods and services. Increased demand for the goods will motivate investors to invest more money in the economy. When investors will invest more money in the economy that will create employment opportunities for the people that will further increase the production of goods.

Cut in the tax rate: There are different kinds of taxes imposed by the government on the people. Taxes have impact on consumption. If there is any reduction in tax rate then the disposable income of the people will rise and they will spend some part of that increased income goods and services. So if there is any reduction in taxes that will increase consumption demand of the people.

Did you know

What is tax?

Tax is compulsory payment where there is no quid pro que.

Currency devaluation- Devaluation of currency is a reduction in value of the currency in terms of foreign currency. Imports will become costlier and exports will become cheaper as the country will announce the devaluation of currency. As the country will announce the devaluation of currency the demand for imports will fall because it became costlier and demand for exports will increase as these become cheaper. So devaluation of currency of have a positive impact on the the economic growth of the country. But the devaluation of currency will have positive impact on balance of payment and economic growth of the country if the demand for country's exports is elastic.

Did you know

What is devaluation?

When government deliberately reduce the value of its currency relative to one or more foreign countries.

Notes: Devaluation will be beneficial for the country if

Elasticity of demand for exports of the country is more elastic

Rise in public spendings: If the government is investing more money in the economy that will create the employment opportunities for the people. When people will get employment then their income will increase which further increase the consumption demand. As the demand will increase the t will motivate to the investors to invest more money in the economy.

Fall in interest rate: Fall in rate interest will encourage to the investors to borrow more money and invest that in the economy. More investment will increase the employment opportunities for the people and that will further increase the income and consumption demand.

2. **Supply side:**The following are supply side factors that can effect the economic growth of the country.

Increased investment: Employment opportunities will increase as the investment will increase in the economy. When more people will get employment then production will increase. Income of the people who got employment will increase. As their income is increasing their demand for goods and services will increase. The increased demand for goods will work as a motivating factor to invest more money in the economy.

Increased labour productivity: If the productivity of workers is less then production of goods will also be less in the economy. If labourers are skilled, efficient and more productive then the production of goods will be more in the economy. If the country is producing more goods then the country can exports more to other countries.

New discovery of inputs and raw material: If the country has discovered any new input or any new source of raw material then the country can produce more goods. Apart from the increase in production, the cost of production will also fall as the country discovered any new cheaper source of raw material.

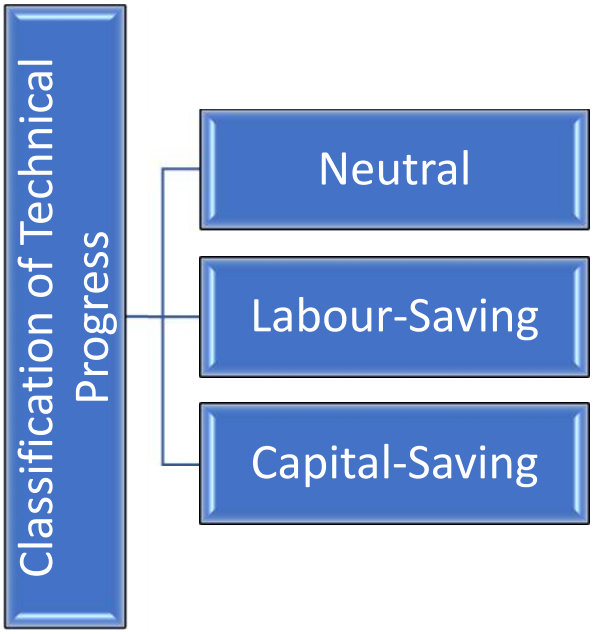
Increase in skilled manpower: As the availability of skilled manpower is increasing, the production of goods and services will increase and the cost of production will fall. So, an increase in skilled manpower is also one of the sources of economic development.

Improved technology: The improvement in technology will reduce the cost of production. The improvement in technology will lead to the introduction of new products also which will increase the demand.

Economic Development and Technological change: Economic development of the country is dependent upon the state of technology in the country. Technology means the technological that is used to produce goods. Technology includes the methods used in marketingas well as non-marketing activities. Technology extends to services like education, administration, banking, insurance etc.

2.3 Role of Technology in Economic Development

Economic development and technological progress are related to each other. The extent of economic development is dependent upon the technological changes or technical progress that has taken place in the country. Technical progress is that technological which lead to increase in output per unit of labour. Thus, technological progress can determine the pace of growth and development in the country. There is lack of modern technology in developing countries. So increase the pace of development, developing countries should introduce new technology in the economy. There are three classifications of technical progress that are neutral, labour saving and capital saving technique.



Did you know

What is neutral technical progress?

Neutral progress takes place when more unit of output can be produced with same units of labour and capital.

Did you know

What is labour-saving technique?

Labour-saving technique means more units of output can be produced with use of same units of labour.

Did you know

What is capital-saving technique?

Capital-saving technique takes place when more units of output can be produced with same units of labour.

Notes: Technical progress can be labour augmented, and capital augmented.

- Labour augmented technical progress takes place when the skills of labour force is improved.
- Capital augmented technical progress results in more productive use of existing capital goods.

The sources of economic growth can be traced back to different numerous factors but investment that improve the quality of existing resources, raise the productivity of all specific resources through invention will continue the main factor in accelerating the economic growth of the country. In case of western countries, innovations are cost reducing and demand increasing. The increased demand serve as an incentive for the entrepreneur to invest more money in the economy. It motivates the entrepreneurs to produce new products with improved technology.

Example: a century ago, people of Japan was dependent upon agriculture but now Japan has surpassed to most of the countries in terms of economic progress because it has used modern techniques of production in economic field.

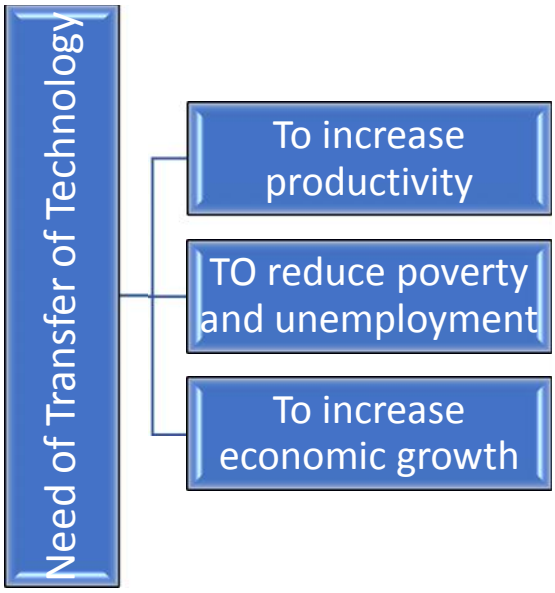
So technical progress is one of the most important factors that can accelerate the pace of economic development of the countries. The most cause of poverty in developing countries is technological backwardness. The cost of production is high, productivity of capital and labour is low just because of technological backwardness. The developing countries should focus on technological improvement to accelerate the pace of development. Technical progress and innovations will bring out more opportunities of progress which result in production of new goods, efficient use of resources and increase in production.

Transfer of technology to developing countries

Transfer of technology implies the transfer of technical knowledge from one country to another country either through government policy or private channels. Modern technology entered in developing countries through foreign capital, foreign direct investment.

Need for Transfer of Technology

Developing countries are suffering from technological backwardness which is the most important reasons of low productivity and high cost of production in these countries. The need for transfer of technology arises on the following grounds:



a. **To increase productivity:** Productivity is low in developing countries. Transfer of technology is required to increase the productivity of labour and capital.
b. **To reduce poverty and unemployment:** poverty and unemployment are the main problems basically faced by developing countries. By transferring technology from developed countries employment opportunities can be created for the people and further their income can be increased.
c. **To increase economic growth:** transfer of technology will improve the productivity of labour and capital further production of goods and services. This is will be helpful in increasing the economic growth of the country.

Notes: Technology can transfer from one country to another country through various channels. The main channels of transfer of technology are:

- Movement of people from one country to another country
- Foreign investment and import of machinery
- Flow of books, journals and other published information

Problems of Transfer of Technology

The problems related to the transfer of technology from developed to developing countries are:

a. **Technological Dependence:** As more and more technology transfer takes place from developed to developing countries the technological dependence will increase of developing countries will increase. When MNCs from developed countries entered into developing countries they restrict their right to transfer the technology according to their discretion or requirements which led to technological dependence.
b. **Hinder Development of Local Entrepreneurship:** MNCs transfer the technology to developing countries but these corporations use new technology for their own benefits only these corporation do not share the new technology with the local producers. As a result, new technologies fail to enter into other spheres of national economies and thus reduce the opportunities for the development of local entrepreneurship.
c. **Exploitation of Workers:** When technology transfer is tied to the training of workers in new skills and trade in the host country, they are unable to shift to other industries. Thus the

mobility of labour is restricted. As a result, such firms exploit the workers by forcing them to work for long working hours.

d. **Limited Labour Absorption:** Highly developed countries transfer capital-intensive technology in developing countries which absorb less labour or create limited employment opportunities for the people.

e. **Worsens Balance of Payments:** Technology transfer leads to the repatriation of profits to the developed countries (supplier countries). This will adversely affect the balance of payment condition of the developing countries.

Did you know

What is balance of payment?

Balance of payment is record of transactions of one country with rest of the world.

2.4 Redistribution with Growth

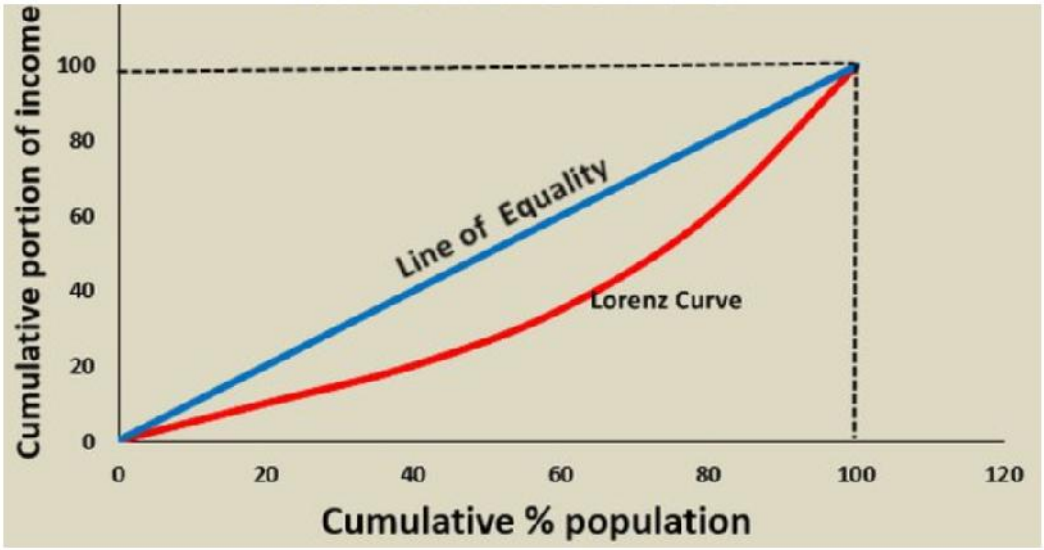
Economic growth is described as an increase in per capita income of the country over a long period of time. Economic growth is one of the measures of economic development. If the benefits of economic growth are equally distributed among the population of the country in that case economic growth is always welcome but if the benefits of growth are distributed unequally then it's a matter of concern and need to be re-evaluated.

Economic growth resulted in increasing inequalities in income and wealth in third world countries. It has increased the gap between rich and poor people.

2.5 Measurement of Economic Inequality

1. **Personal Income:**Personal income approach deals with the income that individual receives. How the person has earned income that is not important, important is how much person earns. Suppose Reeta and Seema are receiving same amount of income annually. Reeta is working for 4 hours whereas, Seema is working for 13 hours irrespective of that both are included in the same income group. According to this approach, the person who is earning more income will be included in the category of rich people.

2. **Lorenz curve:** Conard Lorenz, who in 1095 devised the convenient and widely used diagram to explain the relationship between population groups and their income shares. Cumulative percentage of income recipient is shown on X-axis and cumulative percentage of income on Y-axis. The ray drawn from the origin at an angle of 45^{o} is called Lorenz curve this curve shows the quantitative relationship between percentage of income recipients and the percentage of total income. The inequality is measured by the vertical distance between the line of equality and Lorenz curve. Larger the gap, greater will be the inequality and vice-versa. The case of perfect inequality is a situation in which one person receives all income while others receives nothing. This is represented by Lorenz curve with bottom horizontal and right and vertical axis. Since it is difficult to have either perfect income equality or inequality in any country, therefore Lorenz curve for different countries will lie to the right of the line of equality.



3. **Gini coefficient:** It is another measure of inequality. It is obtained by calculating the ratio of the area between diagonal line and Lorenz curve to the total half the square in which the curve lies. Gini coefficient can vary between zero and one. In case of perfect equality the value of Gini coefficient will be zero and it will be one in case of perfect inequality. Larger the value of Gini coefficient greater will be inequalities. Gini coefficient is considered efficient measure as it satisfies four properties. The four properties are:
   - õ **The anonymity:**The anonymity principle simply means that this measure of inequality does not identify the class of people the rich or poor, good or bad people. This measure remains silent about the quality of the people.
   - õ **Scale of independence:**The scale of independence principle means that measure of inequality should not depend on the size of the economy. For example inequality measure should not depend on whether economy is rich or poor or average.
   - õ **Ppopulation independence:** The population independence principle states that measure of inequality should not be based on number of income recipients. The inequality measure should be independent of size of population.
   - õ **Transfer principle:** The transfer principle states that if some income is transferred from a rich person to poor one, the resulting new income distribution is more equal.

4. **Coefficient of variation:**The coefficient of variation indicates the extent of departure from normal distribution of income. Larger the coefficient of variation, greater will be inequality in income distribution and vice versa.

$$CV = \frac{\text{standard deviation}}{\text{Mean}} \times 100$$

5. **The Kuznets ratios:** Simon Kuznets introduced these ratios in his pioneering study of income distributions in developed and developing countries. These ratios refer to the share of income owned by the poorest 20 or 40% of the population, or by the richest 10%, or more commonly to the ratio of the shares of income of the richest x% to the poorest y%, where x and y stand for numbers such as 10, 20, or 40. The ratios are essentially "pieces" of

the Lorenz curve and, like the range, serve as a useful shorthand in situations where detailed income distribution data are missing.

Summary

- The per capita income of developing countries is less than the per capita income of the developed countries.
- Fluctuations can be seen in the growth rate of developed countries but still growth of developing countries is less than developed countries because of high population growth.
- Fall in rate interest will encourage to the investors to borrow more money and invest that in the economy. More investment will increase the employment opportunities for the people and that will further increase the income and consumption demand.
- Technical progress is one of the most important factors that can accelerate the pace of economic development of the countries. The most important cause of poverty in developing countries is technological backwardness. The developing countries should focus on technological improvement to accelerate the pace of development.
- Transfer of technology will improve the productivity of labour and capital further production of goods and services. This is will be helpful in increasing the economic growth of the country.
- In case of perfect equality the value of Gini coefficient will be zero and it will be one in case of perfect inequality.
- The person who is earning more income will be included in the category of rich people according to personal income approach.

Keywords

Economic inequality

Economic growth

Transfer of technology

Improvement in productivity

Devaluation

Self Assessment

1. Which of the following is the cause of dependence of developing countries on developed countries?

A. Transfer of technology
B. Export of goods
C. Investment in another countries
D. Export of engineering goods

2. The technological backwardness can be seen in developed countries.

A. True
B. False

3. Suppose earlier 10 labourers and 5 machines were required to produce 30 chairs. Now the technology is improved and 5 labours and 5 machines are sufficient to produce the same quantity of output (30 chairs). This is

A. Capital saving technique
B. Labour saving technique
C. Neutral
D. None of the above

4. Technical progress can

A. Increase productivity
B. Increase production
C. Increase poverty
D. Both a and b

5. The transfer of technology can worsen the balance of payment of recipient country. How?

A. Supply of capital will increase in supplier country
B. Demand for capital will fall in supplier country
C. Repatriation of profits by supplier country
D. Investment of capital in recipient country

6. The use of capital- intensive technique will

A. Increase employment opportunities for the people
B. Reduce employment opportunities for the people
C. Lead to fall in production
D. No impact on employment opportunities

7. Transfer of technology can hinder the development of local producers. How?

A. New technology is not shared with domestic producers by the MNCs
B. Sophisticated technology does not enter the national sphere
C. New technology is used by MNCs only
D. All of the above

8. Which of the following are sources of economic development?

A. Increase in investment in different economic activities
B. Discovery of new source of raw material
C. Availability of skilled manpower
D. All of the above

9. Which of the following can increase the consumption demand?

A. Increase in investment
B. Increase in public investment
C. Fall in rate of interest
D. All of the above

10. Exports will become cheaper and imports will become dearer as the government of the country will announce the

A. Devaluation
B. Changes in prices
C. Changes in demand
D. Changes in supply

11. Fall in rate of interest will

A. Reduce the demand for money
B. Increase the demand for money
C. Reduce the employment opportunities
D. Reduce the production

12. the value of Gini coefficient varies between

A. one and infinity
B. zero and infinity
C. zero and one
D. one and two

13. Greater the difference between line of equality and Lorenz curve, greater will be

A. Inequality
B. Equality
C. Complete equality
D. None of the above

14. There will be perfect equality in distribution of income when

A. Value of Gini coefficient will be one
B. Value of Gini coefficient will be zero
C. Lorenz curve coincide with line of equality
D. Both b and c

15. Which of the following are measures of economic equality?

A. Personal income
B. Coefficient of variation
C. Gini coefficient
D. All of the above

Answers forSelf Assessment

1. A 2. B 3. A 4. D 5. C

6.	B	7.	D	8.	D	9.	D	10.	A
11.	B	12.	C	13.	A	14.	B	15.	D

Review Questions

1. What are the different sources of economic growth? Explain with examples.
2. Briefly explain the stylized facts of economic growth.
3. Discuss the role of technology in economic development of the country.
4. What are different measures of economic inequality? Explain
5. Briefly explain the problem faced by the developing countries due to the transfer of technology.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 03: Comparative Models of Development and Underdevelopment

CONTENTS

Objectives

After studying this unit, the students will be able to

- Learn about the role of capital accumulation in economic development of the country.
- Know about the impact of population growth on economic development of the country.
- Describe the impact of infrastructure on human resource development.
- Know about the impact of backwash effects on the underdevelopment of the economy.

Introduction

Human capital formation refers to the process of increasing the number of skilled persons, education and experience which are important for the economic and the political development of a country. Human capital formation is thus associated with investment in man and his development as a creative and productive resource. There are five ways of developing human resources:

- availability of health facilities.
- on-the-job training, including old type apprenticeships organised by firms;
- formally organised education at the elementary, secondary and higher levels.
- study programmes for adults that are not organised by firms, including
- extension programmes notably in agriculture;
- migration of individuals and families to adjust to changing job

3.1 Human Resources Development and Infrastructure

Investment in human capital implies expenditure on health, education and training. It has become conventional to talk about investment in human resources in its narrower sense because expenditure on education and training is capable of measurement as compared to the expenditure on social services. The notion of investment in human capital is of recent origin. In the process of

economic growth, it is customary to attach more importance to the accumulation of physical capital. Now it is increasingly recognised that the growth of tangible capital stock depends to a considerable extent on human capital formation which is the "process of increasing knowledge, the skills and the capacities of all people of the country.

Underdeveloped countries are faced with two diverse manpower problems. They lack the critical skills needed for the industrial sector and have a surplus labour force. The existence of surplus labour is to a considerable extent due to the shortage of critical skills. So these diverse problems are interrelated. Human capital formation aims at solving these problems by creating the necessary skills in man as a productive resource and providing him gainful employment.

Physical capital becomes more productive if the country possesses sufficient human capital. Underdeveloped countries are strongly committed to the programmes of constructing roads, dams, power houses, factories pertaining to light and heavy industries, hospitals, schools, colleges, and a host of other activities associated with development planning. For this, they need engineers, technicians, technical supervisors, managerial and administrative personnel, statisticians, economists, secretaries, stenographers, etc. If there is a dearth of this varied type of human capital, physical capital cannot be productively utilized. As a result, machines breakdown and wear out soon, materials and components are wasted and the quality of production falls.

Moreover, underdeveloped countries import physical capital for development but they are unable to utilise it fully due to the lack of the "critical skills" required for its operation. Though technical know-how and skills usually come with foreign capital, yet it is insufficient to meet the diverse and varied requirements of such economies. Thus the failure of human capital to grow at the rate of physical capital has been responsible for the low absorptive capacity of the latter in underdeveloped countries. Hence the need for investment in human capital becomes of paramount importance in such countries

3.2 Theories of Development Classical Theories

In this chapter we will discuss Adam Smith theory, Ricardo Theory, Malthus Theory, Rostow's stages of economic growth and Myrdal Thesis.

Adam Smith Theory of Economic Development

Adam Smith's monumental work, An Enquiry into the Nature and Causes of the Wealth of Nations published in 1776, was mainly concerned with the problem of economic development. The main points of the theory are:

Natural Law: Adam Smith believed that every person is best judge of his/herself interest. Every individual of the society was led by invisible hand. If all individuals of the society left free then each individual will maximise wealth. Smith believed in laissez faire policy.

Did you know

What is invisible hand?

The prices are determined through the forces of demand and supply.

Did you know

What laissez faire policy?

Laissez faire policy means that there is no intervention of the government in economic activity.

Division of Labour: It result in improvement of productive power of the labourers. He attributed this increase in productivity:

- To the increase in the dexterity of every worker
- To the saving in time to produce goods
- To the invention of large number of labour-saving machines.
- Another cause of increase in productivity is improved technology that leads to division of labour and the expansion of the market.

Notes: Division of labour depends upon the size of the market. Division of labour increases with the increase in size the market.

Process of Capital Accumulation: The whole theory revolves around accumulation of capital. Capital accumulation is important for economic development of the country. Capital accumulation is dependent upon the ability to save of the people. Capital accumulation and more investment will lead to division of labour. Adam Smith believed in parsimony i.e., people should save more part of income and invest that. Investment was determined by the rate of saving. But almost all savings resulted from capital investments or the renting of land. So only capitalists and landlords were capable to save their money because labourer were getting the wages equal to their minimum subsistence level. Moreover, Adam Smith believed in parsimony i.e., the people should save more part of their income and postpone their consumption needs.

Notes: Why do Capitalists Make Investments?

Capitalists invest money in expectations of profits. Smith believed that profits will fall with economic progress. When the rate of capital accumulation will increase then more investors will invest money and competition will increase among the capitalists. Demand for labourers will increase which led to raise in wages and fall in profit.

Agents of Growth: Farmers, producers and businessmen are the agents of economic growth and development. Adam Smith believed in free trade. The functions producers, businessmen and farmers are interrelated. Development of agriculture leads to increase the demand for manufactured products which further leads to establishment of manufacturing industries. On the other hand, their development leads to increase in agricultural production when farmers use advanced production techniques.

Process of Growth: The progress of agriculture, manufacturing industries and commerce will lead to capital accumulation, technical progress, increase in population, expansion of size of markets, division of labour and rise in profits continuously.

Stationary State: This progressive state will ultimately leads to a stationary state. It is the scarcity of natural resources that finally stops growth. The competition for employment among labourers will reduce the wages to the subsistence level and competition among businessmen will reduce the profits. As the profits will fall the businessmen will invest less money and in this way end result of capitalism is stationary state. When there the economy is in stationary state then capital accumulation will stop, profits will be minimum, wages will be equal to minimum subsistence level and there will be no change in per capita income of the economy and production, the economy will reach stationary state.

Criticism of the theory

- Smith's talked about parsimony, improvement in technology and division of labour. Despite these advantages, the theory has certain limitations.
- Smith theory assumed that there is perfect competition in the market. Actually, perfect competition is myth its not a reality. This laissez-faire policy is not to be found in any economy.
- Entrepreneur is the focal point of economic development but the role of entrepreneur is ignored by Adam Smith theory.

Ricardo Theory

David Ricardo has given his views on economic development in his book entitled The Principles of Political Economy and Taxation. Ricardian theory is based on two principles i.e., marginal and surplus principles. The marginal principle explains the share of rent in the national output, and the surplus principle explains the division of the remaining share between wages and profits. This theory is based upon the following assumptions:

a. Land is fixed in supply and used for corn production only.

b. The law of diminishing returns operates on land.

c. There is capital is homogeneity.

d. The state of technical knowledge is given.

e. Subsistence wages are paid to the workers.

f. The supply price of labour is given and constant.

g. The demand for labour depends upon the accumulation of capital.

h. There is perfect competition.

Did you know

What is perfect competition?

Perfect competition is the market where the firm is price taker not a price maker. There are large number of firms in the industry.

According to this theory land is fixed in supply and used only for the production of corn. Labour and capital is used to produce corn. Total Produce is distributed among the landlords, capitalists and labourers. Total national output is distributed among the three groups as rent, profits, and wages respectively. Capital accumulation results from profits.

Division of Rent, Profits and Wages: Total produce is distributed among rent, wages and profits. The difference between average and marginal product is rent per unit of labour. The wage rate is determined by wage fund divided by the number of workers employed at the subsistence level.

Process of Capital Accumulation: Capital accumulation is the outcome of profits. Capital accumulation is dependent on capacity to save and will to save. The capacity to save is dependent upon the surplus after payment of minimum subsistence wages to the workers. Landlords and capitalists invest through this surplus. The size of this surplus of net income depends on the rate of profit. The rate of profit = profits/wages. Capital accumulation will increase continuously so long as rate of profits are increasing. As the labour force will grow the wage fund will also increase. There is a negative relationship between profits and wages. Apart of profit, taxes are also one of the source of capital accumulation but these should be imposed only to reduce conspicuous consumption. If these taxes will be imposed on capitalists and landlords then the investment will decline and resources will transfer to government.

Ricardo's theory has been illustrated in Fig. 1 where quantities of corn are measured on the vertical axis and the amount of labour employed in agriculture on the horizontal axis. The AP curve is showing the average product of labour and curve MP the marginal product of labour. With OM amount of labour, OQRM total corn is produced. Rent is shown by the rectangle PQRT, as the difference between AP and MP. At the subsistence wage rate OW, the supply curve of labour WL is infinitely elastic, and the total wage bill is OWLM. Total profits, WPTL, are the residue after deducting rent and wages from the total output: WPTL = OQRM – (PQRT – OWLM).

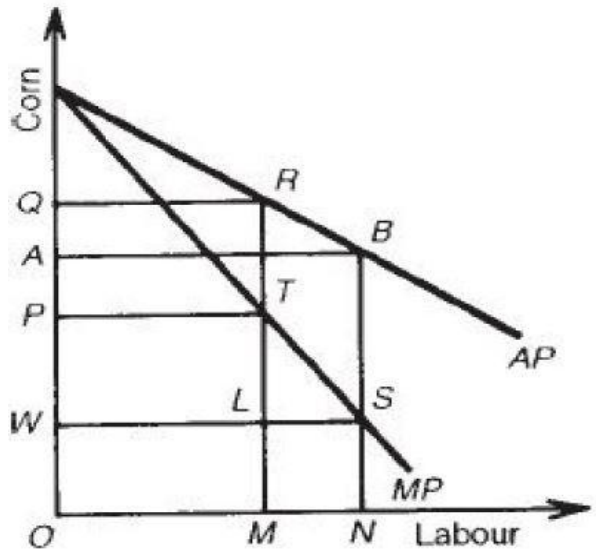


Figure 1

Stationary State: More and more capital will be accumulated as the profits will increase, total output increases which raises the wages fund. As the wage fund will increase the population will also increase. With the increase in population demand for corn will increase. Then inferior land will be taken under cultivation to meet the demand of increasing population. As the inferior land is cultivated the rent on the superior land will increase which further reduces the share of capitalists and labourer. Wages will fall to the subsistence level. This process of increasing rents and falling profits continues till profits fall to zero. This situation is explained in the above figure. During the course of capital accumulation, the amount of labour increases from OM to ON and the total output from OQRM to OABN. Of this, OWSN is the total wage bill (fund) and WABS is the rent. There are no profits at all. The stationary state arrives. In stationary state, population growth stop, capital accumulation stops and wage rate is equal to subsistence level. The movement towards the stationary state in the Ricardian model is explained in terms of Fig. 2. Population is measured along the horizontal axis and total product minus rent on the vertical axis. The curve OP is the production function which shows total produce minus rent as the function of population. As population increases, the OP curve flattens out due to the operation of the law of diminishing returns. The ray through the origin OW measures the constant real wage rate. The vertical distance between the horizontal axis and the wage rate line OW measures the total wage bill at different levels of population. Thus W1N1, W2N2, and W3N3 are the total wage bills at ON1, ON2, and ON3 levels of population. When the wage bill is W1N1 the profits are P1W1 (Total product minus rent ÷ total wage bill, i.e., P1 N1 ÷ W1 N1 = P1W1). When profits are P1W1, investment is encouraged. The demand for labour increases to ON2 which pushes up the wage bill to W2N2 but profits decline to P2W2. This will encourage further investment and technical progress and raise the demand for labour to ON3 and the wage bill will also increase to W3N3. But the profits will decline to P3W3. This process of capital accumulation, increase in population and the wage bill will continue till profits disappear altogether at point S from where the stationary state sets in.

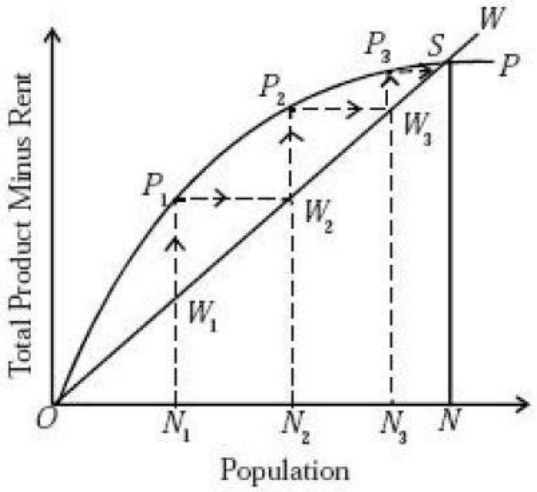


Figure 2

Criticism of the theory

Ricardo was the forerunner of modern economists and his ideas on economic development have been adopted by them. He emphasised the importance of which are discussed below:

- Ricardo's viewpoint is that the state reaches the stationary state automatically is baseless, because no economy attains the stationary state in which profits are increasing, production is rising and capital accumulation is taking place.
- This theory explained that the wages are paid equal to minimum subsistence level to the labourers. But in reality, wages are increasing.
- This theory believed in laissez-faire policy but actually there is the interference of government in economic activities in almost all the countries of the world.
- This assumed that there is perfect competition but in real-world perfect competition does not prevail.

- This theory assumed that land is used only to produce corn which is not happening in reality.

Malthus Theory

Thomas Robert Malthus, with whose name the famous Malthusian Theory of Population is associated, 'showed more appreciation than most of his contemporaries of the importance of distinct and systematic theory of growth.' Economic development is not automatic according to Malthus. Rather, it required continuous efforts by the people. He emphasised that the economy reached the slump many times before attaining the optimum level of development. According to Malthus process of economic development is not smooth. Economic development of the country can be achieved by increasing wealth in the country. Wealth of the country is dependent upon the valuation of produce and part of produce obtained by labourers. But "the, wealth of country does not always increase in proportion to increase in value, because an increase in value may sometimes take place under an actual diminution of commodities.

Population Growth and Economic Development: With the increase in rate of capital accumulation, demand for labourer will increase which will encourage the population growth. Population growth can increase wealth of the country if it increases the effective demand. Increase in effective demand will leads to increase in wealth.

Role of Production and Distribution: production and distribution are important elements of wealth. Both can increase wealth of the country if combined in right proportion. Optimum allocation of resources can increase the wealth of the country in short period.

Factors in Economic Development: Malthus explained the problem of economic development as one of explaining the difference between potential gross national product and actual gross national product. When land, labour, capital and organization are employed in right proportions, then maximum output will be produced in the agricultural and industrial sector. It is the accumulation of capital, the fertility of the soil and technological progress that lead to increase in both agricultural and industrial production. Apart of from these non-economic factors are also played an important role in economic development of the country.

Process of Capital Accumulation: Capital accumulation is the most important determinant of economic development. The source of capital accumulation is higher profits. Profits come from the savings of capitalists because workers are too poor to save. Economic growth of the country will be retarded if the capitalist and saving more part of income to enlarge their profits but they are spending very less proportion of income on consumer goods. Malthus talked about "optimum propensity to save." To Malthus this meant "saving from the stock which might have been destined for immediate consumption, and adding to that which is to yield a profit; or in other words in the conversion of revenue into capital." Thus his conclusion is that 'saving, pushed to excess, would destroy the motive to production."

Deficiency of Effective Demand: Malthus does not agree with Say's law. According to him there can be overproduction and glut of commodities in market. Workers are receiving less wages therefore they cannot purchase all commodities. This gap between supply and demand cannot be filled even by the demand of capitalists. Capitalists believe in parsimony and "deprive themselves of their usual conveniences and luxuries to save from their revenue and add to their capital". By being parsimonious, they employ more productive workers who are consumers and, in turn, are not able to buy all commodities they produce. Thus there is general over-production and glut of commodities in the market due to the deficiency of effective demand or under-consumption. This leads to fall in prices, profits, saving, investment and capital accumulation.

Did you know

What is Say's law?

According to Say's law, supply creates its own demand, there is no overproduction in the economy. Whatever is produced that is sold in the market.

Economic Stagnation: Malthus believed that the supply of labour is inelastic in the short run. Capital supply can be increased faster than increase of population. As capitalists invest on productive labour to increase the supply of capital, wages rise due to competition. Rise in wages do not increase effective demand because workers prefer leisure to increased consumption. So there is a general glut of commodities. As a result, prices fall, profits decline, investment falls, and both the

power of accumulation and the motive to accumulate are strongly checked. Thus gluts and under consumption would lead to economic stagnation.

Measures to Promote Economic Development

a. **Balanced Growth:** In the Malthusian system, the economy is divided into agricultural and industrial sectors. It is technological progress in these two sectors that can lead to economic development. Capital is invested in agriculture until all the arable land is brought under cultivation, stocked and improved. After that there are no more opportunities for profitable investment in that sector due to diminishing returns. Therefore, investment opportunities exist only in the industrial sector. Diminishing returns to increased employment in the land can be avoided only if technical progress in the industrial sector is rapid enough, and if investment takes place to absorb most of the population growth in the industrial sector and to reduce the cost of living of workers on the land, permitting reduction in their wage rates. Thus, Malthus favoured balanced growth of both—agricultural and industrial sectors for economic development of the country.

b. **Raising Effective Demand:** increase in effective demand can positively effect to economic development of the country. Malthus suggested different measures to increase effective demand. First, by more equitable distribution of wealth. Second, effective demand can be increased by the expansion of internal and external trade. It is internal as well as external trade that increases wants and tastes and the desire to consume, "which are absolutely necessary to keep up the market prices of commodities and prevent the fall of profits." Internal and external trade also increases the value of products by exchanging "what is wanted less for what is wanted more". Third, Malthus suggested the maintenance of "unproductive consumers" to increase effective demand. He defined unproductive consumers as those persons who did not produce material objects. It is under-consumption which leads to gluts and stagnation in the country. Therefore, production can be raised by increasing consumption. Lastly, employment should be provided to the unemployed people in roads and public works because it will increase the effective demand of the people.

c. **Stationary State:** According to Malthus wage has the tendency to maintain the living standard stable so that families of workers can subsist on this. Whenever the wage rate is more than the minimum, the working population will increase at a fast rate because the labour power will grow and the living standard will be high. Ultimately, the tendency of diminishing returns will apply and the demand and supply sustenance level. It can be said that in a progressive system, there is high level of investment that generally helps in raising total production which keeps the wages high and further increases the population. As the quantity of level is fixed, additional labour force leads to diminishing returns. When population increases, wage reduces the profitability of investment till the propensity to invest does not end and the economy reaches the stationary state.

Criticism of the Theory

Malthus's theory has certain weaknesses:

- Negative View of Capital Accumulation. Malthus's view that capital accumulation leads inherently to secular stagnation, is not correct from another angle. As capital accumulated increases, the share of wages and profits in aggregate income increases, and so does the demand for consumer goods. Thus Malthus had a negative view of capital accumulation.
- Commodities not Exchanged for Commodities Directly. Again, Malthus, in denying Say argues that commodities are not exchanged for commodities, but they are exchanged for labour. In fact, labour is not a correct measure of commodities. In the real world, commodities are measured by real tangible prices and not by labour.
- Unproductive Consumers Retard Progress. Another serious weakness of Malthus's theory is that he suggests spending by "unproductive consumers" to overcome underconsumption and increase effective demand. This remedy tantamount to giving doles to workers and deliberately supporting idle persons.

- One-Sided Saving Base. Like Smith, Malthus had a one-sided base of savings. He believed that it is only the landlords who save. But this is an erroneous view because the major source of savings in a society is the income earners and not profit-earners.

3.3 Rostow's theory of Stages of Economic Growth

Prof. W.W. Rostow has sought an historical approach to the process of economic development. He distinguishes five stages of economic growth, viz.,

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

The Traditional Society

The society whose structure is developed within limited production functions based on pre-Newtonian science and technology and as pre-Newtonian attitudes towards the physical world is called as traditional society.

This does not mean that there was little economic change in such societies. In fact, more land could be brought under cultivation, the scale and pattern of trade could be expanded, manufactures could be developed and agricultural productivity could be raised along with increase in population and real income. But the undeniable fact remains that for want of a regular and systematic use of modern science and technology 'a ceiling existed on the level of attainable output per head. There is not lack of incentives but there is lack of lacked the tools. The social structure of these societies was hierarchical in which family and clan connections played a dominant role. Political power was concentrated in the regions, in the hands of the landed aristocracy supported by a large retinue of soldiers and civil servants. More than 75 per cent of the working population was engaged in agriculture.

Pre-Conditions for Take-off

The second stage is a transitional era in which the pre-conditions for sustained growth are created. The pre-conditions for sustained growth were created slowly in Britain and Western Europe, from the end of the 15th and the beginning of the 16th centuries, when the Medieval Age ended and the Modern Age began. The pre-conditions for take-off were encouraged or initiated by four forces: The New Learning or Renaissance, the New Monarchy, the New World and the New Religion or the Reformation. These forces led to 'Reasoning' and 'Scepticism' in place of 'Faith' and 'Authority', brought an end to feudalism and led to the rise of national states; inculcated the spirit of adventure which led to new discoveries and inventions and consequently the rise of the bourgeoisie—the elite—in the new mercantile cities. Thus these forces were instrumental in bringing about changes in social attitudes, expectations, structure and values. Generally speaking, the preconditions arise not endogenously but from some external invasion. For example, the preconditions ended in Europe (excluding Britain) with the domination of Napoleon Bonaparte whose victorious armies set in motion new ideas and attitudes which brought about changes in the structure of traditional societies and paved the way for the unification of Germany and Italy. In pre-condition to take-off, new types of enterprising men come forward in the private economy, in government, or both, willing to mobilize savings and to take risks in pursuit of profit to modernization. Banks and other institutions for mobilizing capital appear. Investments increase, notably in transport, communications and in raw materials in which other nations may have an economic interest. The scope of commerce, internal and external, widens. And here and there, modern manufacturing enterprise appears, using the new methods." The pre-conditions for sustained industrialization, according to Rostow, have usually required radical changes in three non-industrial sectors: First, a build-up of social overhead capital, especially in transport, in order to enlarge the extent of the market, to exploit natural resources productivity and to allow the state to rule effectively. Second, a technological revolution in agriculture so that agricultural productivity increases to meet the requirements of a rising general and urban pop Third, an expansion of imports, including capital imports, financed by efficient production and marketing of natural resources for exports. The continuous development and expansion of modern industry was mainly possible by the ploughing back of profits into fruitful investment channels. But the political forces deserve further

explanations with reference to underdeveloped countries and colonial territories. It was "reactive nationalism"—reaction against the fear of foreign domination which acted as a potent force in bringing about the transition. In Japan it was the demonstration effect, not of high profits or new manufactured consumer ' goods, but of the Opium War in China in the early 1840's and Commodore Perry's seven black ships, a decade later, that cast the die for modernization. But in the colonies, the policy followed by the colonial powers to build up social overhead capital, ostensibly to meet its own requirements, helped in moving the traditional society along the transitional path. The spread of modern education brought about a gradual transformation in thought, knowledge and attitude of the people, and a growing spirit of nationalism started resenting the colonial rule. Lastly, under the influence of a powerful international demonstration effect, people wanted the products of modern industry and modern technology itself.

Take-off

The take-off is the 'great watershed' in the life of a society "when growth becomes its normal condition, forces of modernization contend against the habits and institutions. The requirements of take-off are the following three related but necessary conditions:

1. Rate of Net Investment over 10 per cent of National Income. One of the essential conditions for take-off is that the increase in per capita output should outstrip the growth of population to maintain a higher level of per capita income in the economy. An increase of 2 per cent per annum in NNP per capita requires, under these assumptions that something between 10.5 and 12.5 per cent of NNP be regularly invested.
2. Development of Leading Sectors. Another condition for take-off is the development of one or more leading sectors in the economy, Rostow regards the development of leading sectors as the 'analytical bone structure' of the stages of economic growth. There are generally three sectors of an economy:
    a. Primary Growth Sectors, where possibilities of innovation or of exploiting new or unexplored resources lead to a higher growth rate than in the rest of the economy. The cotton textiles of Britain and New England in the early stages of growth fall into this category.
    b. Supplementary Growth Sectors, where rapid growth takes place as a consequence of development in the primary growth sectors. For example, the development of railways is a primary growth sector and the expansion of iron, coal and steel industries may be regarded as a supplementary growth sector.
    c. Derived Growth Sectors, where growth takes place "in some fairly steady relation to the growth of total income, population, industrial production or some overall modestly increasing variable." For example, the production of food and the construction of houses in relation to population. Historically, these sectors have ranged from textiles in Britain and New England to railways in the United States, the USSR, Germany and France; to modern timber cutting in Sweden. In addition, modern agriculture also forms part of the leading sectors. For example, the rapid growth of Denmark and New Zealand has been due to the scientific production of bacon, eggs, and butter, and mutton and butter respectively.
3. Cultural Framework that Exploits Expansion. The last requirement for take-off is the existence or emergence of cultural framework that exploits the impulses to expansion in the modern sector.

Drive to Maturity

Rostow defines it "as the period when a society has effectively applied the range of (then) modern technology to the bulk of its resources." It is a period of long sustained economic growth. New production techniques take the place of the old ones. New leading sectors are created. Rate of net investment is well high over 10 per cent of national income. When a country is in the stage of technological maturity, three significant changes take place:

- Work force become skilled. People of the country prefer to live in urban areas. Wages of the workers will start rise.
- The character of entrepreneurship changes. Rugged and hardworking masters give way to polished and polite efficient managers.

- The society feels bored of the miracles of industrialization and wants something new leading to a further change.

Age of High Mass-Consumption

The age of high mass-consumption has been characterised by the migration to suburbia, the extensive use of the automobile, the durable consumers goods and household gadgets. In this stage, attention of the society is shifted from supply to demand, from problems of production to problems of consumption and of welfare in the widest sense.

Criticism of the theory

- There are number of countries such as the United States, Canada, New Zealand and Australia were born free of traditional societies. So it is not essential for growth that a country must pass through the first stage.
- It is not necessary that preconditions to take- off must proceed to take-off stage.
- Overlapping in the Stages. In fact, the experience of most countries tells us that development in agriculture continued even in the take-off stage. The take-off in the case of New Zealand and Denmark is attributed to agricultural development. Similarly, social overhead capital in transport, especially in railways, has been one of the leading sectors in the take-off, as Rostow himself tells us. It shows that there is considerable overlapping in different stages.

3.4 Myrdal Backwash and Spread Effects

Prof. Myrdal builds his theory of economic underdevelopment and development around the idea of regional inequalities on the national and international planes. In order to explain his theory, he used two concepts i.e., backwash and spread effects. He defines backwash effects as "all relevant adverse changes of economic expansion in a locality caused outside that locality. The spread effects refer to certain centrifugal "spread effects" of expansionary momentum from the centres of economic expansion to other regions." Backwash effects are stronger, spread effects are weaker in underdeveloped countries and this is the main cause of regional inequalities.

Regional Inequalities

The genesis of regional inequalities within a country has a non-economic basis. It is associated with the capitalist system which is guided by the profit motive. The profit motive results in the development of those regions where the expectations of profits are high while other regions remain underdeveloped. Prof. Myrdal attributes this phenomenon to the free play of market forces which tends to increase rather than decrease regional inequalities. He says, "If things were left to market forces unhampered by any policy interferences, industrial production, commerce, banking, insurance, shipping, and indeed, almost all those economic activities which in a developing economy tend to, give a bigger than average return—and, in addition, science, art, literature, education and high culture generally—would cluster in certain localities and regions, leaving the rest of the country more or less in a backwater." In this way, regional inequalities are accentuated when some localities grow at the expense of other regions which stagnate.

The Backwash Effects of Migration, Capital Movement and Trade: Myrdal analyses the backwash effects of migration, capital movements and trade on the backward regions. The localities and regions where economic activity is expanding will attract young and active people from other parts of the country. This will tend to favour the developing region and depress economic activity in the backward region, wherefrom such labour migrates. Capital movements also tend to increase regional inequalities. In regions which are developed, increased demand will stimulate investment which, in turn, will increase income and demand, and lead to a second round of investment, and so on.

The scope for better investment in the centres of expansion may create capital shortage in the backward regions. Similarly, trade operates with a fundamental bias in favour of the developed regions and in disfavour of the less developed regions. The development of industries in former regions may ruin the existing industries of the backward regions and the poorer regions remain mainly agricultural.

The Spread Effects: About the spread effects, Myrdal writes, "Against the backwash effects, there are, however, also certain centrifugal "spread effects" of expansionary momentum from the centres of economic expansion to other regions. It is natural that the whole region around a nodal centre of

expansion should gain from the increasing outlets of agricultural products and be stimulated to technical advance all along the line." There will also be spread effects to localities producing raw materials for the growing industries in the centres and those having consumer goods industries will be stimulated. These will overcome the backwash effects from the older centres and encourage self expansion of new centres. Similarly, the spread effects flowing from a centre of industrial expansion to other localities and regions, operating through increased demands for their products and in many other ways, weave themselves into the cumulating social process by circular causation.

Criticism of the theory

There is no denying the fact that in underdeveloped countries the spread effects are dampened by the strong backwash effects. National and international forces tend to perpetuate them and thus accentuate regional and world inequalities. Moreover, the free play of market forces and unhampered trade have tended to cramp the export potential of such countries. As a result, a Great Gap has developed between imports and exports of underdeveloped countries which has made their economic development a costly and lengthy affair. Even empirical evidence indicates that the Myrdal thesis has been vindicated.

Summary

- Capital accumulation is dependent upon the ability to save of the people. Capital accumulation and more investment will lead to division of labour. Adam Smith believed in parsimony i.e., people should save more part of income and invest that.
- Capitalists invest money in expectations of profits. When the rate of capital accumulation will increase then more investors will invest money and competition will increase among the capitalists. Demand for labourers will increase which led to raise in wages and fall in profit.
- More and more capital will be accumulated as the profits will increase, total output increases which raises the wages fund. As the wage fund will increase the population will also increase. With the increase in population demand for corn will increase. Then inferior land will be taken under cultivation to meet the demand of increasing population. As the inferior land is cultivated the rent on the superior land will increase which further reduces the share of capitalists and labourer. Wages will fall to the subsistence level. This process of increasing rents and falling profits continues till profits fall to zero.
- Malthus does not agree with Say's law. According to him there can be overproduction and glut of commodities in market. Workers are receiving less wages therefore they cannot purchase all commodities. This gap between supply and demand cannot be filled even by the demand of capitalists.
- Capital movements also tend to increase regional inequalities. In regions which are developed, increased demand will stimulate investment which, in turn, will increase income and demand, and lead to a second round of investment, and so on.

Keywords

- Capital accumulation
- Take-off
- Stationary state
- Backwash effect
- Spread effect

Self Assessment

1. Capital accumulation depends upon

A. Ability to save

B. Willingness to save

C. Both a and b

D. None of the above

2. Which of the following are sources of capital accumulation?

A. Taxation

B. Savings

C. Expenses

D. Both a and b

3. Backwash effects are strong in

A. Developed countries

B. Underdeveloped countries

C. Highly developed countries

D. None of the above

4. According to Ricardo, supply of land is

A. Perfectly inelastic

B. Perfectly elastic

C. Elastic

D. Less elastic

5. In the stationary state

A. Capital accumulation stop

B. Population growth stop

C. Savings stop increasing

D. All of the above

6. When the inferior land brought under cultivation then the rent on superior land will

A. Increase

B. Decrease

C. Remains constant

D. None of the above

7. Which of the following can negatively effect the economic development of the country according to Malthus?

A. Deficiency of effective demand

B. Increase in investment

C. Increase in demand

D. Increase in supply

8. Rate of investment will increase from 5 to 10 percent under

A. Traditional society

B. Pre-condition to take-off

C. Take-off

D. All of the above

9. Which of the following are features of age of high mass consumption?

A. Use of mobile phones

B. Durable goods

C. Use of automobiles

D. All of the above

10. Which of the following are assumptions of Ricardian theory?

A. Land is fixed in supply

B. Land can be used for the production of corn only

C. Perfect competition

D. All of the above

11. Which of the following are features of traditional society?

A. Majority of people are dependent upon agriculture

B. Lack of tools

C. Availability of modern techniques of production

D. Both a and b

12. Capital movement also tend to increase regional inequalities according to Myrdal.

A. True

B. False

13. Which of the following measures can be used to increase effective demand according to Malthus.

A. Equitable distribution of wealth

B. Free trade

C. Disparities

D. Both a and b

14. productivity of workers is low in

A. underdeveloped countries

B. developed countries

C. highly developed countries

D. none of the above

15. According to Malthus, means of subsistence increased at

A. Geometric Progression

B. Arithmetic Progression

C. Proportionately

D. None of the above

Answers for Self Assessment

1.	C	2.	D	3.	B	4.	A	5.	D
6.	A	7.	A	8.	C	9.	D	10.	D
11.	D	12.	A	13.	D	14.	A	15.	B

Review Questions

1. Critically examine the Adam Smith theory of economic development.
2. Critically examine Rostow's stages of economic growth.
3. Critically examine the Myrdal backwash and spread effects.
4. Discuss the impact of infrastructure on human resource development.
5. Critically examine the Ricardian theory.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 04: Approaches to Development

CONTENTS

Objectives

After studying this unit the students will be able to

- Learn about the vicious circle of poverty
- Describe how to unbalance an economy
- Describe that how much critical effort is required for development of the economy

Introduction

Broadly, thereare two approaches to economic development, namely balanced growth and unbalancedgrowth. Most of theories of balanced and unbalanced growth were developed during 1940sand 1950s. During those periods many newly independent countries were struggling topromote their economic development. The development missions were aimed to guide thosecountries to adopt the best strategy to achieve faster rate of development.

4.1 Partial Theories

Partial theories of economic development includes linear growth theories, structural theories and dependency theory. Linear growth theories i.e., the theories of Rostow, Harrod and Domar, consider savings to be a sufficient condition for growth and development. In other words, if an economy saves, it will grow, and if it grows, it must develop. Aggregate savings are largely determined by national income, so if income is low, savings will not be accumulated. Structural change theories have discussed about the low productivity of the labour in the agriculture sector.The dominant view of dependency theorists is that there is a dominant world capitalist system that relies on a division of labour between the rich 'core' countries and poor 'peripheral' countries. Over time, the core countries will exploit their dominance over an increasingly marginalised periphery.Dependency theory advocated an inward looking approach to

development and an increased role for the state in terms of imposing barriers to trade, making inward investment difficult and promoting nationalisation of key industries.

4.2 Vicious Circle of Poverty Nurkse

There are circular relationships known as the vicious circles of poverty that tend to perpetuate the low level of development in LDCs. Nurkse explains the idea in these words: "It implies a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty.

Example:A poor person may not have sufficient food to eat; being underfed, his health may be weak; being physically weak, his capacity to work is low, his income is low and he is poor, being poor he will not have sufficient to eat and so on.

Productivity is low due to a deficiency of capital in less developed countries. The vicious circles operate on the demand side as well as the supply side. The demand-side of the vicious circle is that the low level of real income leads to a less demand which further leads to a low rate of investment and hence back to deficiency of capital, low productivity and low income. This is shown in figure 1.

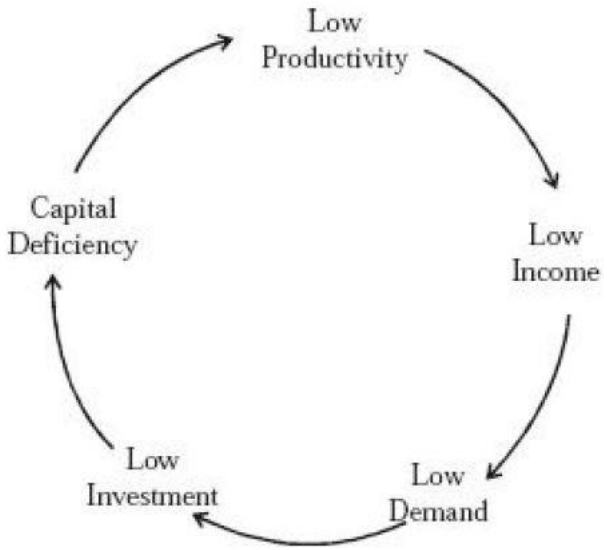


Figure 1

Low productivity lead to low income, which in turn lead to low level of savings. Low level to saving leads to low investment and to deficiency of capital. The deficiency of capital, in turn, leads to low level of productivity and back to low income. Thus the vicious circle is complete from the supply side. It is depicted in figure 2.

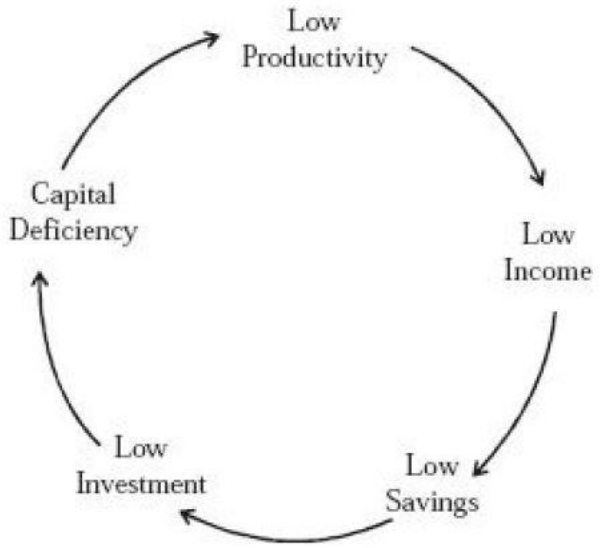


Figure 2

Did you know

What is productivity?

Productivity is production per unit or per hectare.

The natural resources of the country will remain unutilized if the people of the country are illiterate, conservative and unskilled. If natural resources will not utilized then people of the country will be economically backward. The country is poor because it is underdeveloped. A country is underdeveloped because it is poor and remains underdeveloped as it has not the necessary resources for promoting development. Poverty is a curse, but a greater curse is that it is self-perpetuating.

4.3 Lewis Approach to Unlimited Supply of Labour

Lewis believes that there is unlimited supply of labour in underdeveloped countries and these labourers are available at minimum subsistence wages. Economic development takes place when capital accumulates as a result of the withdrawal of surplus labour from the "subsistence" sector to the "capitalist" sector. The capitalist sector uses capital, labour in mines, factories in order to earn profits. The subsistence sector does not use reproducible capital and produces less output as compare to capitalist sector.

Underdeveloped countries are overpopulated. Supply of labour is perfectly elastic at subsistence wage rate. Marginal productivity of labour is zero. Subsistence wages are given to the labour in the subsistence sector. New industries can be established as there is unlimited supply of labour available at minimum subsistence wages. In practice wages of the capitalist sector are 30 percent more than the subsistence sector. Capitalist sector needs skilled workers but unskilled labourers are available in subsistence sector. Lewis said that skilled labour is temporary bottleneck which can be removed by providing training to the workers.

Did you know

What is marginal productivity?

Marginal productivity is addition to output by employing one more unit of input.

The main motive of the capitalists is to maximise their profits. They save and invest what they have with them. In the capitalist sector, marginal productivity of labour is more than capitalist wage which result in capitalist surplus. Capitalist reinvest this surplus. Capital formation, takes place and

more people are employed from the subsistence sector. This process continues till the capital-labour ratio rises and the supply of labour becomes inelastic and the surplus labour disappears.

The Lewis theory can be explained with the help of Fig. 3. Quantity of labour employed is shown on X-axis and wages and marginal productivity of labour on Y-axis. OS represents average subsistence wage in the subsistence sector, and OW the capitalist wage. At OW wage in the capitalist sector, the supply of labour is unlimited, as shown by the horizontal supply curve of labour WW. In the beginning, when ON1 labour is employed in the capitalist sector, its marginal productivity curve is P1L1 and the total output of this sector is OP1O1N1. Out of these workers are paid wages equal to the area OWQ 1N1. The remaining area WP 1Q 1shows surplus output. This is the capitalist surplus or total profit earned by the capitalist sector. When this surplus is reinvested, the curve of marginal productivity shifts upwards to P 2L 2- The capitalist surplus and employment are now larger than before being WP 2Q2 and ON 2respectively. Further reinvestments raise the marginal productivity curve and the level of employment to P 3L 3and ON 3and so on, till the entire surplus labour is absorbed in the capitalist sector. After this, the supply curve WW will slope from left to right upwards like an ordinary supply curve, and wages and employment will continue to rise with development. Thus, capital is formed out of profits earned by the capitalists.

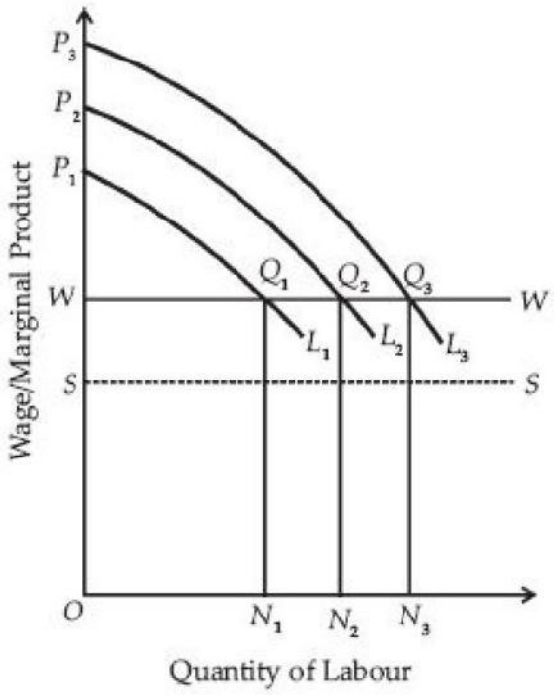


Figure 3

Role of the State and Private Capitalists: The dominant classes consisting of landlords, traders, moneylenders, priestsare engaged in prodigal consumption rather than in productive investments. It is, therefore, the state capitalist and indigenous private capitalists who create capital out of profits earned. The state capitalist can accumulate capital faster than the private capitalist, since he can use for this purpose not only the profits of the capitalist sector, but also what he can force or tax out of the subsistence sector. Capital can also be created out of bank credit.

End of the Growth Process: In underdeveloped economies unlimited supply of labour is available at constant wages, capitalist class is earning profits and they are reinvesting their profits but this process of growth cannot go on indefinitely, if as a result of capital accumulation no surplus labour is left. It may also stop if despite the existence of surplus labour, real wages rise so high as to reduce the capitalist profit to the level where they are all consumed and nothing is left, for net investment. This may happen in any one of the four ways:

i. If the capitalist sector expands so rapidly that it reduces absolutely the population in the subsistence sector, the average productivity of labour rises in

the latter sector because there are very few people to share the product and so the capitalist wage rises in the former sector.

ii. If as a result of the expansion of the capitalist sector relatively to the subsistence sector, the terms of trade turn against the former with rising prices of raw materials and food, the capitalists will have to pay higher wages to the workers;

iii. If the subsistence sector adopts new techniques of production, real wages would rise in the capitalist sector and so reduce the capitalist surplus; and

iv. If the workers in the capitalist sector imitate the capitalist way of life; and agitate for higher wages and if successful in raising their wages, the capitalist surplus and the rate of capital formation will be reduced.

When capital accumulation is adversely affected by any of these factors, it can continue by encouraging mass immigration or by exporting capital to such countries as possess abundant labour at subsistence wage. Both these possibilities are, however, ruled out by Lewis himself.First , mass immigration of unskilled labour is not possible because trade unions in the high-wage countries oppose it. They fear that labour imports would bring down wages to the subsistence level of the poorest country. Second, the effect of capital exports is to reduce the creation of fixed capital at home and hence to reduce the demand for labour and wages in the capital exporting country. But the reduction in wages is offset if capital exports cheapen the things which workers import because their real wages will rise. On the other hand, the reduction in wages is further encouraged if capital exports raise the cost of imported things as the real wages of workers will fall. So the effect of capital exports cannot be assessed with definiteness.

Criticism

The Lewis theory is applicable to overpopulated underdeveloped countries under certain set conditions. Its applicability is, therefore, circumscribed by its assumptions which are the basis of criticisms discussed below:

1. The theory assumes a constant wage rate in the capitalist sector until the supply of labour is exhausted from, the subsistence sector. This is unrealistic because the wage rate continues to rise over time in the industrial sector of an under developed economy.
2. Lewis assumed that skilled labour is temporary bottleneck which can be removed by providing training facilities to unskilled labour but it takes a very long time to educate and train the multitudes in such countries.
3. The Lewis theory is based on the assumption that a capitalist class exists in underdeveloped countries. In fact, the entire process of growth depends on the existence of such a class which has the necessary skill to accumulate capital. In reality, such countries lack capitalists with necessary enterprise and initiative.

4.4 Balanced Growth Approach

The doctrine of balanced growth has several authors who interpret it in their own way. To some it means investing in a laggard sector or industry so as to bring it abreast of others. To others, it implies that investment takes place simultaneously in all sectors or industries at once. Still to others, it means balanced development of manufacturing industries and agriculture. Balanced growth, therefore, requires balance between different consumer goods industries, and between consumer goods and capital goods industries. It also implies balance between industry and agriculture, and between the domestic and export sector.

Explanation of the Theory

According to Nurkse, vicious circles of poverty are at work in underdeveloped countries which retard economic development. If, however, they are broken, economic development will follow. The vicious circles operate both on the supply side and the demand side.On the supply side , there is the small capacity to save resulting from low real income. The low real income is due to low

productivity which in turn is due to deficiency of capital. The deficiency of capital is the result of low capacity to save. On the demand side , inducement to invest is low because of low demand which is due to low level of real income of the people. The inducement to invest is, therefore, limited by the size of the market which in turn depends upon productivity because 'the capacity to buy is in fact the capacity to produce.' And productivity depends on the amount of capital used in production. But for an individual entrepreneur, the use of capital is inhibited by the small size of the market which in turn is limited by low productivity. Thus the vicious circle is complete.

How to Break these Circles? Individual investment decisions cannot solve the problem. Nurkse cites Rosenstein-Rodan's famous example of the shoe factory to substantiate his argument. Suppose, a shoe industry is set up. If in the rest of the economy nothing is done to increase productivity and purchasing power, the market for the additional shoe output is likely to be deficient. People engaged in the industry will not like to spend all their income on shoes, human wants being diverse. Nor will the people outside the new industry buy a pair of shoes every year when they do not have enough to meet their bare necessities. Thus, the new industry is likely to fail for want of the adequate market.

Notes: How Can the Market be Enlarged?

The size of the market can be enlarged by monetary expansion, by salesmanship and advertising, by abolishing trade restrictions and by expanding the economic infrastructure. It can also be widened either by a reduction in prices, or by an increase in money incomes while keeping prices constant. This implies increase in productive efficiency and in real income. But in underdeveloped countries market is not large enough to permit production on a scale that may lead to reduction in costs. Moreover, inelastic consumer demand, technical discontinuities and lack of enterprise keep down the demand for capital.Therefore, the only way out of this impasse is more or less synchronized application of capital to a wide range of different industries People working with more and better tools in a number of complementary projects become each other's customers.

The doctrine of balanced growth requires a balance between different sectors of the economy during the process of economic growth. There should be proper balance between investment in agriculture and industry. A balance is also required between the domestic sector and the foreign sector.

Criticism

1. Simultaneous establishment of a number of industries is likely to raise money and real costs of production and so make them economically unprofitable to operate in the absence of sufficient capital equipment, skills, cheap power, finance and other necessary raw materials.
2. Kindleberger observes that instead of starting with new industries, Nurkse's theory does not consider the possibility of cost reduction in existing industries.
3. Simultaneous investment in different sector is beyond the Capabilities of Underdeveloped Countries.

4.5 Big Push Approach

The theory of the "big push" is associated with the name of Professor Paul N. Rosenstein-Rodan. The thesis is that a "big push" or a large comprehensive programme is needed in the form of a high minimum amount of investment to overcome the obstacles to development in an underdeveloped economy and to launch it on the path to progress. The theory states that proceeding "bit by bit" will not launch the economy successfully on the development path, rather a minimum amount of investment is a necessary condition for this. It necessitates the obtaining of external economies that arise from the simultaneous establishment of technically interdependent industries. Thus indivisibilities and external economies flowing from a minimum quantum of investment are a prerequisite for launching economic development successfully.Rosenstein-Rodan distinguishes between three different kinds of indivisibilities and external economies. One, indivisibilities in the

production function, especially the indivisibility of the supply of social overhead capital; two, indivisibility of demand; and three, indivisibility in the supply of savings.

Indivisibilities in the Production Function

According to Rosenstein-Rodan, indivisibilities of inputs, outputs or processes lead to increasing returns. He regards social overhead capital as the most important instance of indivisibility and hence of external economies on the supply side. The services of social overhead capital comprising basic industries like power, transport, and communications are indirectly productive and have a long gestation period. They cannot be imported. Their installations require a "sizeable initial lump" of investment. So excess capacity is likely to remain in them for some time. Social overhead capital is characterised by four indivisibilities:

- It is irreversible in time and, therefore, must precede other directly productive investments.
- It has a minimum durability, thus making it very lumpy.
- It has a long gestation period.
- It has an irreducible minimum industry mix of different kinds of public utilities.

Notes: Indivisibilities of supply of social overhead capital are one of the principal obstacles to development in underdeveloped countries. Therefore, a high initial investment in social overhead capital is necessary to pave the way for quick-yielding directly productive investments.

Indivisibility of Demand

The indivisibility or complementarity of demand requires simultaneous setting up of interdependent industries in underdeveloped countries. This is because individual investment projects have high risks because low incomes limit the demand for their products. To illustrate, Rosenstein-Rodan takes first a closed economy where a hundred disguised unemployed workers are employed in a shoe factory whose wages constitute an additional income. If these workers spend all their income on shoes they manufacture, the shoe market will have a regular demand and thus succeed. But the fact is that they would not like to spend all their additional income on shoes, human wants being diverse. Nor will the people outside the factory buy additional shoes when they are poor. Thus, the new factory will be abandoned for want of an adequate market.

Rosenstein's example of the shoe factory is explained in Fig.4. The curves ATC and MC represent the costs of a plant which is a little smaller than the optimum-size plant. D1 and MR1 are the demand and marginal revenue curves of the shoe factory when investment is made only in it. It produces OQ1 (10,000) shoes and sells at OP1 price which does not cover the ATC. So the factory is incurring CABP1 losses. But when simultaneous investment is made in a number of different industries, the market for shoes expands. The demand for shoes rises to D4 (four times) so that the quantity of shoes becomes OQ (40,000). Now the shoe factory earns profits equal to P4RST. Similarly, other industries earn profits.

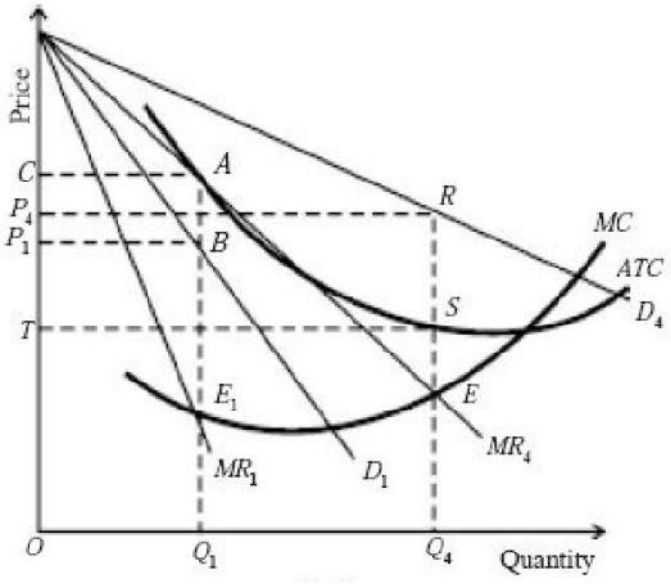


Figure 4

Indivisibility in the Supply of Savings

A high income elasticity of saving is the third indivisibility in Rosenstein's theory. A high minimum size of investment requires a high volume of savings. This is not easy to achieve in underdeveloped countries because of low incomes. To overcome this, it is essential that when incomes increase due to an increase in investment, the marginal rate of saving should be very much higher than the average rate of saving. Given these three indivisibilities and the external economies to which they give rise, a "big push" or a minimum quantum of investment is required to overcome the obstacles to development in underdeveloped countries.

Criticism

1. One of the principal defects of the big push theory is that it emphasizes the importance of a high level of investment in capital goods and consumer goods industries and social overhead capital, except agricultural and other primary industries. The neglect of the agricultural sector in such economies will retard rather than accelerate their development.
2. High minimum amount of investment on social overheads is highly expensive. Moreover, overhead capital has a high capital-output ratio and a very long gestation period. This makes the task of developing UDCs more difficult and longer.
3. Rodan's thesis is a sort of prescription for launching underdeveloped countries on the path to progress rapidly in the present. It is not an historical explanation of how development takes place. Historically, the presence or absence of a big push has not been a distinguishing feature of growth anywhere, according to Professor Hagen.

4.6 Unbalanced Growth Theory

Economists like Singer, Kindleberger, Streeten, etc. have expressed their views in favour of the unbalanced growth It is, however, Hirschman who has propounded the doctrine of unbalanced growth in a systematic manner.

According to Hirschman, investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development. He maintains that "development has of course proceeded in this way, with growth being communicated from the leading sectors of the economy to the followers, from one industry to another, from one firm to another." He regards development as a "chain of disequilibria" that must

keep alive rather than eliminate the disequilibria, of which profits and losses are symptoms in a competitive economy.

According to Hirschman, when new projects are started they appropriate external economies created by previous projects and create new external economies that can be exploited by subsequent ones. There are some projects that appropriate more external economies that they create which he calls convergent series of investments. There are other projects too that create more external economies than they appropriate which he characterizes as divergent series of investments. 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. In SOC are included investments on 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.

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 theircosts. 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.

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. 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." This is explained in Fig. 5.

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."

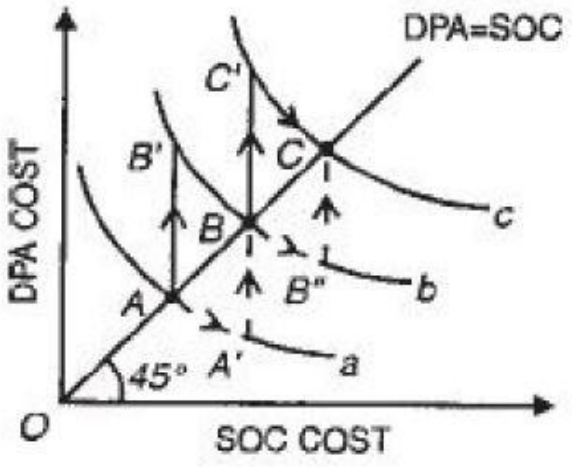


Figure 5

Linkages: 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.

Limitations

1. 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.
2. 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.
3. 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.

4.7 Critical Minimum Effort Theory

Harvey Leibenstein has developed the thesis that underdeveloped countries are characterized by the vicious circle of poverty that keeps them around a low per capita income equilibrium state. The way out of this impasse is a certain "critical minimum effort" which would raise the per capita income to a level at which sustained development could be maintained.According to Leibenstein, every economy is subject to "shocks" and "stimulants". A shock has the impact of reducing per capita income initially; while a stimulant tends to increase it. Certain countries are underdeveloped because the magnitude of the stimulants has been small and that of shocks large therein. It is only when the income-raising factors are stimulated much beyond the income-depressing factors that the critical minimum is reached and the economy would be on the path to development.

Growth Agents: The rationale of the critical minimum effort thesis rests on the existence of certain favourable economic conditions so that the income increasing forces expand at a rate higher than the income-depressing forces In the development process such conditions are created by the expansion of the "growth agents". They are the quantum of capacities residing in the members of the population to carry out growth contributing activities. The typical growth agents are the entrepreneur, the investor, the saver, and the innovator.

The incentives are of two types: positive sum incentive and zero sum incentives.The 'positive-sum, incentives that lead to expansion of national income. It is apparent that only the positive-sum type of activities lead to economic development. But conditions in underdeveloped countries are such that entrepreneurs are engaged in zero-sum activities. In underdeveloped economies there are certain influences averse to change that tend to depress per capita incomes. They are: the zero-sum entrepreneurial activities directed towards the maintenance of existing economic privileges through the inhibition and curtailment of potentially expanding economic opportunities; the conservative activities of both organized and unorganized labour directed against change.

To overcome these influences which keep the economy in a state of economic backwardness, a sufficiently large critical minimum effort is required to sustain a rapid rate of economic growth which should stimulate the positive sum incentives and create forces for counteracting zero-sum activities. As a result of the critical minimum effort, the per capita income would rise and tend to increase the level of saving and investment, which in turn, would lead toan expansion of the growth agents, increase in their contribution to per unit of capital as the capital-output ratio declines, decrease in the effectiveness of factors inhibiting growth, the creation of social and environmental conditions that promote social and economic mobility, increased specialization and expansion of secondary and tertiary sectors andthe development of an atmosphere that leads to changes is more conducive to economic and social changes, and especially an environment that leads to eventual fertility decline and an eventual decline in the rate of population growth."

Leibenstein's critical minimum efforts thesis is explained in Fig. 6 where the 45° line measures induced increases and decreases in per capita income which are equal on any point on this line. The curve x t x t represents the per capita income rising forces and the curve z t z t the per capita income-depressing forces. E is the equilibrium point where the two forces are in balance. If the stimulants raise per capita income from the equilibrium level Oe to Om, the income-raising forces, generated will raise the per capita income level by na. But at this level, the income-depressing forces ,fb generated by z t are greater than the income-raising forces generated by xt . These will, therefore, generate the downward path abcd, until it reaches the equilibrium position E. It is only when the investment programme raises the per capita income to Ok level that the path of sustained growth starts. The income raising forces generated at Ok will raise the income level to sG which will, in turn, generate the path of endless expansion of per capita income, as shown by the arrows rising above G. Raising per capita income to Ok level and beyond point G is the critical minimum effort case.

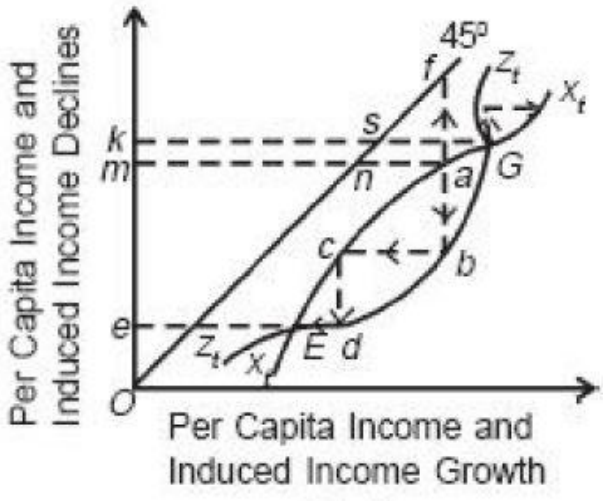


Figure 6

For sustained development, it is imperative that the initial investment effort must be above a certain minimum level so as to generate a sufficiently large per capita income level in order to

overcome autonomous or induced income depressing forces. But the critical minimum effort need not be made all at once. It would be more effective, if it is broken up into a series of smaller efforts of which the applications to the economy are optimally timed. This is illustrated in Fig. 7 where the line ee represents the low per capita income level and mm the critical minimum per capita income level. The gap between the two is divided into Area I and Area II. The Area III above mm is of self sustained growth. If Oa is the per capita income to start with, the initial injection of investment would raise per capita income to Ob level. Then at time t the second injection of investment would raise per capita income by cd so that the critical minimum level mm is reached. If investment is not optimally timed, the per capita income would follow the cy path of the curve bcy toward the low equilibrium level ee.

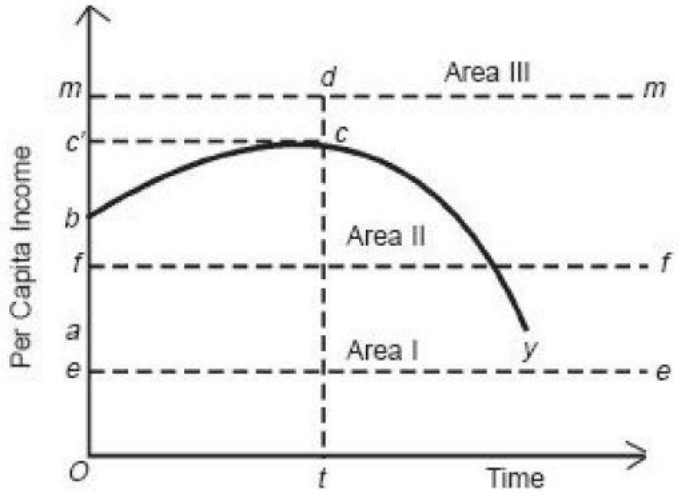


Figure 7

Population Growth a Function of Per Capita Income: Leibenstein's thesis is, however, based on the empirical evidence that the rate of population growth is a function of. If the per capita income is raised above the subsistence equilibrium position, the mortality rate falls without any drop in the fertility rate. The result is an increase in the growth rate of population, Thus, an increase in per capita income tends to raise the growth rate of population. It is only upto a point. Beyond that the increase in per capita income lowers the fertility rate and as development gains. This is discussed with the help of Fig. 8 where the rate of population growth or national income growth is measured along the horizontal axis and level of per capita income on the vertical axis. The curve N measures the level of per capita income which generates a level of national income growth equal to the growth rate of population. The curve P indicates the rate of population growth at each level of per capita income. Starting from point a which represents the subsistence equilibrium point where there is absence of population and income growth, if the per capita income is raised to Oy b ,the population growth rate is 1 per cent while the income growth rate is less than 1 per cent. At the Oy c level of per capita income, the rate of population growth is higher than the rate of national income growth, i.e., y c g >y c c, the former is 2 per cent while the latter is 1 per cent. Therefore, the per capita income level should be so raised as to increase the national income by more than the rate of population growth. This is only possible after Oy c level of per capita income whence the rate of population growth starts declining. Point e is the 3 per cent maximum biologically determined growth rate of population assumed by Leibenstein. Oy e is thus the critical minimum per capita income level which can sustain itself and generate the process of sustained economic development.

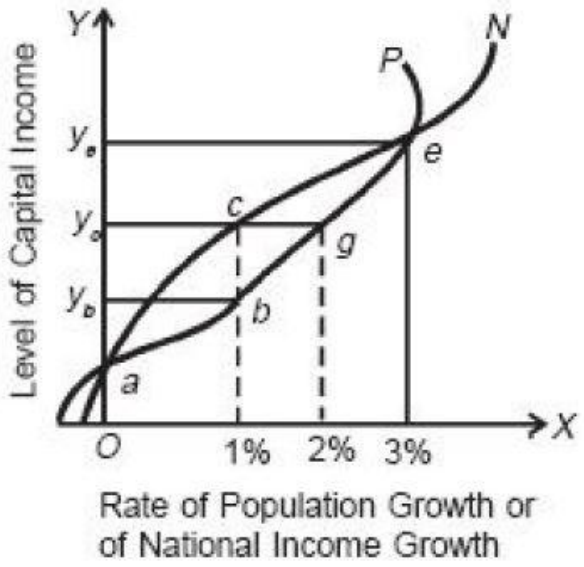


Figure 8

Criticism

1. Leibenstein ignores the state action in bringing down the fertility rate. As the experience of Japan has shown, no underdeveloped country can afford to wait for per capita income to rise above the critical minimum level so that the birth rate may start declining automatically.
2. The theory fails to take into account the time element which is required for sustained efforts during which fundamental changes in the institutional and productive structure should be taking place for ensuring a successful take-off.
3. According to Prof. Myint, the functional relationship between the level of per capita income and the rate of growth in total income is more complex and not so simple, as has been shown by Leibenstein.

4.8 Nelson's Low Level Equilibrium Trap

Nelson's theory is also based on the Malthusian hypothesis that with the increase in per capita income of a country above the 'minimum subsistence level,' population tends to increase. Initially, population grows rapidly with an increase in per capita income. But when the growth rate of population reaches "an upper physical limit," it starts declining with further increase in per capita income.According to Nelson, "The malady of underdeveloped economies can be diagnosed as a stable equilibrium level of per capita income." At a stable equilibrium level of per capita income, the rate of saving and consequently the rate of net investment are at a low level. Efforts made to raise the rate of savings and investment through an increase in the rate of growth of total national income are accompanied by a high rate of population growth which pushes back the per capita income to its stable equilibrium level. Thus underdeveloped economies are caught in a low-level equilibrium trap.Nelson mentions four social and technological conditions which are conducive to trapping. They are: a high correlation between the level of per capita income and the rate of population growth, a low propensity to direct additional per capita incometo increasing per capita investment, scarcity of uncultivable arable land and inefficient methods of production.A study of the economic development of underdeveloped countries reveals that most of them are caught in the low-level equilibrium trap due to presence of the above noted conditions.

Sets of Relations

Nelson uses three sets of relationships to show the trapping of an economy at a low level of income that are Income is a function of the capital stock, the level of technology, and the size of the population, Second, net investment consists of capital created out of savings in the form of addition to the stock of tools and equipment in the industrial sector plus addition of new land to the amount of land under cultivation, Third, "with low per capita incomes, short-run changes in the rate of population growth are caused by changes in the death rate, and changes in the death rate are caused by changes in the level of per capita income. Yet once per capita income reaches a level well above subsistence requirements, further increase in per capita income have a negligible effect on the death rate." Given these sets of relationships, the Nelson thesis is explained in Fig. 9 Panels (A), (B), (C). In Panel (A), y/p relates to the level of per capita income which is measured on the horizontal axis, and dp/p is the percentage rate of growth of population measured on the vertical axis. The point S′ on the horizontal axis where the growth curve of population (dp/p) equals the level of per capita income, is the minimum subsistence level of per capita income. At this level, population is stationary. But to the left of S′, population is decreasing. If we move above S′, along the growth curve of population, the growth rate of population increases up to the "upper physical limit" U, with increase in the per capita income above the minimum subsistence level. For some time, the population will grow at this level with rise in per capita income and then it starts declining from point M.

In Panel (B), dk/p is the per capita rate of investment out of savings measured on the vertical axis. The curve (dk/p) is the growth curve of investment which relates the per capita rate of investment to different levels of per capita income. This curve intersects the horizontal axis at point X which is the level of zero saving. To the left of this point, there is negative investment. On the other hand, if we move above point X along the growth curve of investment, the per capita rate of investment will rise even beyond the upper physical limit of growth rate of population as denoted by point U in Panel (A).

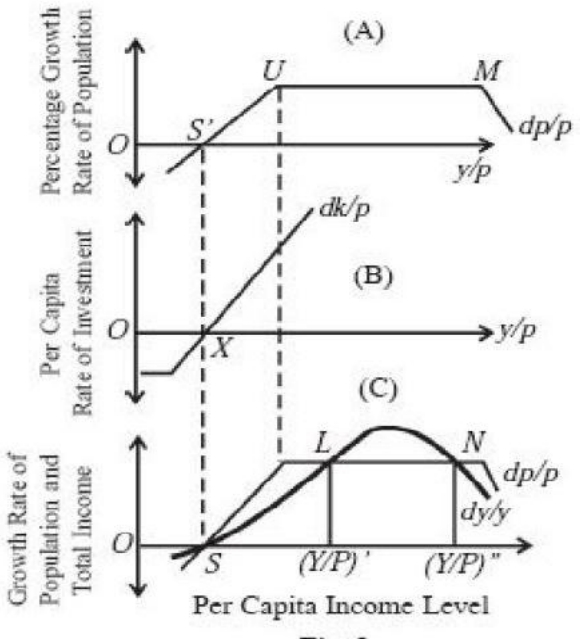


Figure 9

In Panel (C), as usual, the horizontal axis measures the level of per capita income. On the vertical axis are measured the rate of population growth and the rate of growth in total income, is the growth curve of income, and is the growth curve of population at the various levels of per capita income. The point S is so drawn that it equals the zero saving level of income X and the minimum subsistence level of per capita income S′ so that S=X=S′. S is the point of the low-level equilibrium trap, of the zero growth rate where the growth rate of income (dy/y) equals the growth rate of population (dp/p) on the horizontal axis. For any increase in per capita income beyond S, the growth rate of population is higher than the growth rate of income, so that the economy is pushed back to S, the point of stable equilibrium. Thus, the economy is caught in the low-level equilibrium trap. "This low-level equilibrium trap will be stronger the more quickly the rate of population growth responds to a given rise in per capita income and the more slowly the rate of growth in total income responds to an increase in investment." To get out of this "trap" the economy requires "a

discontinuous jump" beyond the per capita income level (y/p)' so as to reach the new point of unstable equilibrium L. Beyond this point, income grows at a higher rate than the growth rate of population which is stable at the upper physical limit. Thus the rise in per capita income is cumulative beyond level till the economy reaches level, where the growth rate of income equals the growth rate of population at a new stable equilibrium point N. Again, beyond point N, further government action is required to raise the growth rate of income above the growth rate of population.

Summary

- The demand-side of the vicious circle is that the low level of real income leads to a less demand which further leads to a low rate of investment and hence back to deficiency of capital, low productivity and low income.
- Economic development takes place when capital accumulates as a result of the withdrawal of surplus labour from the "subsistence" sector to the "capitalist" sector.
- Balanced growth, therefore, requires balance between different consumer goods industries, and between consumer goods and capital goods industries. It also implies balance between industry and agriculture, and between the domestic and export sector.
- 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.
- The malady of underdeveloped economies can be diagnosed as a stable equilibrium level of per capita income." At a stable equilibrium level of per capita income, the rate of saving and consequently the rate of net investment are at a low level.

Keywords

- Balanced Growth
- Unbalanced Growth
- Critical Minimum Efforts
- Big Push
- Unlimited supply of labour

Self Assessment

1. According to Lewis, marginal productivity of the workers is_____ in the subsistence sector.

2. Balanced growth means investment in agriculture sector only.

A. True

B. False

3. Simultaneous investment in all sectors of the economy is required for

A. Balanced growth

B. Reduction of demand

C. Reduction of supply

D. Reduction of employment opportunities

4. If we are investing in directly productive activities at first then there will be

A. Stress

B. Pressure

C. Increase in cost of production

D. Both a and b

5. How big push theory is different from balanced growth theory?

A. In big push theory lump sum investment is required to develop the economy whereas in balanced growth theory we can go for bit-by-bit investment

B. There is no difference between big push and balanced growth theory

C. Balanced growth theory has suggested to investment in the leading sector first whereas the big push theory suggested the simultaneous investment in all sectors of the economy

D. None of the above

6. Which of the following way was suggested by RagnerNurkse to break the vicious circle of poverty?

A. Investment in leading sector

B. Simultaneous investment in different sectors of the economy

C. Investment in agriculture sector

D. Investment in industrial sector

7. According to critical minimum effort theory, the population will start declining when the per capita income will be more than 3 percent because

A. Cost of living will increase

B. Cost of living will decrease

C. Demand for product will fall

D. Prices will fall

8. Why shocks are comparatively stronger than stimulants in developing economies?

A. Because of lack of entrepreneurs

B. Paucity of capital

C. Investment opportunities are limited

D. All of the above

9. Which of the following appropriate more economies than create?

A. DPA

B. SOC

C. Both a and b

D. None of the above

10. Social overhead capital comprises

A. Power

B. Communication

C. Transport

D. All of the above

11. According to supply side of vicious circle of poverty, low income led to

A. Low demand

B. Low saving

C. Low productivity

D. Low marginal propensity to consume

12. Positive sum incentive led to

A. Increase in national income

B. Decrease in national

C. Reduction in production

D. Reduction in national product

13. Which of the following three indivisibilities are discussed by RosensteinRodan?

A. Indivisibility of production function

B. Indivisibility of demand

C. Indivisibility of saving

D. All of the above

14. Convergent series of investment _____ and divergent series of investment _____

A. Appropriate more economies than create, Create more economies than appropriate

B. Appropriate more economies than create, Appropriate more economies than create

C. Create more economies than appropriate, Create more economies than appropriate

D. Create more economies than appropriate, Appropriate more economies than create

15. According to Lewis, the main motive of the capitalists is

A. To maximise profits

B. Create employment opportunities

C. Both a and b

D. None of the above

Answers forSelf Assessment

1.	zero	2.	B	3.	A	4.	A	5.	A
6.	B	7.	A	8.	D	9.	A	10.	D
11.	B	12.	A	13.	D	14.	A	15.	A

Review Questions

1. Critically examine the balanced growth theory of economic development.
2. Make an assessment on unbalanced growth theory of economic development.
3. Critically examine big push theory of economic development.
4. Critically examine critical minimum effort theory of economic development.
5. Critically examine the Nelson's low level of equilibrium trap.

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Unit 05: Growth Models

CONTENTS

Objectives

After studying this unit the students will be able to

- Impact of technical progress on economic growth
- Describe the different reasons of instability in equilibrium
- Describe the importance of different factors in economic development of the country.

Introduction

In this unit we will discuss the different models of economic growth. Both Harrod and Domar are interested in discovering the rate of income growth necessary for a smooth and uninterrupted working of the economy. Though their models differ in details, yet they arrive at similar conclusions.

5.1 Harrod Domar Instability of Equilibrium

Harrod and Domar assign a key role to investment in the process of economic growth. But they lay emphasis on the dual character of investment. Firstly, it creates income, and secondly, it augments the productive capacity of the economy by increasing its capital stock. The former may be regarded as thedemand effect' and the latter the 'supply effect' of investment. Hence so long as net investment is taking place, real income and output will continue to expand. However, for maintaining a full employment equilibrium level of income from year to year, it is necessary that both real income and output should expand at the same rate at which the productive capacity of the capital stock is expanding. Otherwise, any divergence between the two will lead to excess or idle capacity, thus forcing entrepreneurs to curtail their investment expenditures. Ultimately, it will adversely affect the economy by lowering incomes and employment in the subsequent periods and moving the economy off the equilibrium path of steady growth.The models constructed by Harrod and Domar are based on the following assumptions:

i. There is an initial full employment equilibrium level of income.

ii. There is the absence of government interference.
iii. These models operate in a closed economy.
iv. There are no lags in adjustments between investment and creation of productive capacity.
v. The average propensity to save is equal to the marginal propensity to save.
vi. The marginal propensity to save remains constant.
vii. The capital coefficient, i.e., the ratio of capital stock to income is assumed to be fixed.
viii. There is no depreciation of capital goods which are assumed to possess infinite life.
ix. Saving and investment relate to the income of the same year.
x. The general price level is constant, i.e., the money income and real income are the same.
xi. There is a fixed proportion of capital and labour in the productive process.
xii. Fixed and circulating capital are lumped together under capital.

 Did you know

What is closed economy?

Closed economy is that economy which has no trade with other countries.

Domar Model

Domar builds his model around the following question: since investment generates income on the one hand and increases productive capacity on the other at what rate investment should increase in order to make the increase in income equal to the increase in productive capacity, so that full employment is maintained?He answers this question by forging a link between aggregate supply and aggregate demand through investment.

Increase in Productive Capacity: Domar explains the supply side like this. Let the annual rate of investment be I, and the annual productive capacity per dollar of newly created capital be equal on the average to s (which represents the ratio of increase in real income or output to an increase in capital or the reciprocal of the accelerator or the marginal capital-output ratio). Thus the productive capacity of I dollar invested will be I. s dollars per year. But some new investment will be at the expense of the old. It will, therefore, compete with the latter for labour markets and other factors of production. As a result, the output of old plants will be curtailed and the increase in the annual output (productive capacity) of the economy will be somewhat less than I.s. This can be indicated as I σ, where σ (sigma) represents the net potential social average productivity of investment (= Δ Y/I). AccordinglyIσ is less than I.s. Iσ is the total net potential increase in output of the economy and is known as the sigma effect. In Domar's words, this "is the increase in output which the economy can produce," it is the "supply side of our system."

Required Increase in Aggregate Demand: The demand side is explained by the Keynesian multiplier. Let the annual increase in income be denoted by ΔY and the increase in investment by ΔI and the propensity to save by α(alpha) (= ΔS/ΔY). Then the increase in income will be equal to the multiplier (1/ α) times the increase in investment:

$$\Delta Y = \Delta I \frac{1}{\alpha}$$

Equilibrium: To maintain full employment equilibrium level of income, aggregate demand should be equal to aggregate supply. Thus we arrive at the fundamental equation of the model:

$$\Delta I \frac{1}{\alpha} = I\alpha$$

Solving this equation by dividing both sides by I and multiplying by α we get:

$$\frac{\Delta I}{I} = \alpha\sigma$$

This equation shows that to maintain full employment, the growth rate of net autonomous investment (ΔI/I) must be equal to ασ (the MPS times the productivity of capital). This is the rate at which investment must grow to assure the use of potential capacity in order to maintain a steady growth rate of the economy at full employment. When ΔI/I is greater than ασ, the economy would experience boom and when Δ I/I is less than ασ, it would suffer from depression.

Harrod Model

R.F. Harrod tries to show in his model how steady (i.e., equilibrium) growth may occur in the economy. Once the steady growth rate is interrupted and the economy falls into disequilibrium, cumulative forces tend to perpetuate this divergence, thereby leading to either secular deflation or secular inflation. The Harrod model is based upon three distinct rates of growth. First, there is the actual growth rate represented by G which is determined by the saving ratio and the capital-output ratio. It shows short-run cyclical variations in the rate of growth. Second, there is the warranted growth rate represented by Gw which is the full capacity growth rate of income of an economy. Third, there is the natural growth rate represented by Gn which is regarded as 'the welfare optimum' by Harrod. It may also be called the potential or the full employment rate of growth.

The Actual Growth Rate: In the Harrodian model the first fundamental equation is:

GC= s ....(1)

where G is the rate of growth of output in a given period of time and can be expressed as Δ Y/Y ; C is the net addition to capital and is defined as the ratio of investment to the increase in income, i.e., I / Δ Y and s is the average propensity to save, i.e., S/Y. Substituting these ratios in the above equation we get:

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

The equation is simply a re-statement of the truism that ex-post (actual, realized) savings equal ex-post investment. The above relationship is disclosed by the behaviour of income. Whereas S depends on Y, I depends on the increment in income (ΔY), the latter is nothing but the acceleration principle.

The Warranted Rate of Growth: The warranted rate of growth is, according to Harrod, the rate "at which producers will be content with what they are doing." It is the "entrepreneurial equilibrium; it is the line of advance which, if achieved, will satisfy profit takers that they have done the right thing." Thus this growth rate is primarily related to the behaviour of businessmen. The equation for the warranted rate is

$$\dot{G}wCr = s \qquad ...(2)$$

where Gw is the warranted rate of growth or the full capacity rate of growth of income which will fully utilize a growing stock of capital that will satisfy the entrepreneurs with the amount of investment actually made. It is the value of ΔY/Y. Cr, the capital requirements, denotes the amount of capital needed to maintain the warranted rate of growth, i.e., required capital-output ratio. It is the value of I/Δ Y, or C and s is the same as in the first equation, i.e., S/Y. The equation, therefore, states that if the economy is to advance at the steady rate of Gw that will fully utilize its capacity, income must grow at the rate of s/Cr per year, i.e., Gw=s/Cr.

If income grows at the warranted rate, the capital stock of the economy will be fully utilised and entrepreneurs will be willing to continue to invest the amountof saving generated at full potential income. Gw is therefore a self-sustaining rate of growth and if the economy continues to grow at this rate, it will follow the equilibrium path.For full employment growth, the actual growth rate G must equal Gw, the warranted rate of growth that would give steady advance to the economy, and C (the actual capital goods) must equal Cr (the required capital goods for steady growth).If G and Gw are not equal, the economy will be in disequilibrium. For instance, if G exceeds Gw, then C will be less than Cr. When G>Gw, shortages result. There will be insufficient goods in the pipeline and/or insufficient equipment.Such a situation leads to secular inflation because actual income grows at a faster rate than that allowed by the growth in the productive capacity of the economy. It will further lead to a deficiency of capital goods, the actual amount of capital goods being less than the required capital goods (C<Cr). Under the circumstances, desired (ex-ante) investment would be

greater than saving and aggregate production would fall short of aggregate demand. There would thus be chronic inflation. The equilibrium between G and Gw is a knife-edge equilibrium.

Did you know

What is inflation?

Inflation is the persistent increase in prices of goods over the period of time.

The Natural Rate of Growth: The natural rate of growth is the rate of advance which the increase of population and technological improvements allow. It depends on the macro variables like population, technology, natural resources and capital equipment. In other words, it is the rate of increase in output at full employment as determined by a growing population and the rate of technological progress. The equation for the natural rate of growth is Gn. Cr= or # s

Here Gn is the natural or full employment rate of growth. Divergence of G, Gw and Gn. Now for full employment equilibrium growth Gn=Gw = G. But this is a knife-edge balance. For once there is any divergence between natural, warranted and actual rates of growth conditions of secular stagnation or inflation would be generated in the economy. If G>Gw, investment increases faster than saving and income rises faster than Gw. If G<Gw, saving increases faster than investment and rise of income is less than Gw. Thus Harrod points out that if Gw>Gn, secular stagnation will develop. In such a situation, Gw is also greater than G because the upper limit to the actual rate is set by the natural rate. When Gw exceeds Gn, C > Cr and there is an excess of capital goods due to a shortage of labour. The shortage of labour keeps the rate of increase in output to a level less than Gw. Machines become idle and there is excess capacity. This further dampens investment, output, employment and income. Thus the economy will be in the grip of chronic depression. If Gw<Gn, Gw is also less than G,the tendency is for secular inflation to develop in the economy.

Limitations

Some of the conclusions depend on the crucial assumptions made by Harrod and Domar which make these models unrealistic:

i. The propensity to save (α or s) and the capital-output ratio (σ) are assumed to be constant. In actuality, they are likely to change in the long run and thus modify the requirements for steady growth.

ii. The assumption that labour and capital are used in fixed proportions is untenable. Generally, labour can be substituted for capital and the economy can move more smoothly towards a path of steady growth.

iii. The Harrod-Domar models ignore the effect of government programmes on economic growth. If, for instance, the government undertakes a programmes of development, the Harrod-Domar analysis does not provide us with causal (functional) relationship.

Task: What is knife-edge equilibrium?

5.2 Technical Progress and Economic Growth

Recall that in the Solow model, all long- run per capita growth is driven by technicalprogress—the rate at which the productivity of factors of production increases. In the endogenousgrowth model with human capital, or indeed in the Harrod–Domar model, there are other sources ofgrowth as well, such as savings and human capital accumulation.Note, however, that as soon as we postulate the existence of some fixed factor of production, suchas unskilled labor or land, and if we postulate that production is constant returns to scale in all factorstaken together, sustained growth becomes difficult to explain without the existence of continuedincreases in the body of knowledge; that is, in the way of putting together inputs to make outputs. Thisobservation is actually more subtle than it appears at first glance, so let us dwell on it some more.Recall that in both models that permit endogenous growth (the Harrod–Domar and the humancapital theories), we assumed that production exhibits constant returns in all inputs that can bedeliberately accumulated per capita.10 Without this assumption, growth ultimately dies out. Thereason is simple. In the presence of a fixed factor (say population as a source of unskilled labor),diminishing returns set in if the per capita

magnitude of the accumulated factors becomes too highrelative to the fixed factor. A special case of this is the Solow model, where capital is the onlyaccumulable factor, but the ideas apply more generally.Thus constant returns permit "endogenous" growth, whereas theories that postulate diminishingreturns must ultimately rely on.We can classify technical progress roughly into two categories.

First, there are those gains in knowledge that are created by the deliberate diversion ofresources from current productive activity, in the hope that they will result in profitable production inthe future. These innovations may take the form of the introduction of new products for production orconsumption (product innovation) or the introduction of new methods to carry out the production ordistribution of an existing product (process innovation).

Second, there is the transfer of technical knowledge that occurs from the innovating firm, or acore of innovating firms, to the rest of the world. This diffusion, in turn, can be of two types. The newtechnology can become known to "outsiders," who can then profit from it directly, or the newtechnology may lay the groundwork for other innovative activity, not necessarily by the individual ororganization that carried out the original innovation.These two notions of technological advancement have very different implications for behavior.We can think of the first notion as capturing those aspects of technical progress that can beinternalized by the innovator for profit. Without this component, we might still have our Edisons andEinsteins, but innovation, in the sense of applying scientific knowledge to the creation of moreproductive technologies for the sake of economic profit, would largely disappear from the face of theearth.

Externalities, technical progress, and growth

The second model of technical progress concentrates on the "externalities" that are generated throughactions of individual capital accumulation or R&D. Firstly look at externalities,but it won't by any means be the last, so let us pause to understand what the term means. Suppose thatan industrialist invests an enormous amount of money in building a railway line from a mining centerto a large port city. The line is built to transport ore from the mines (which are presumably owned bythe industrialist). There is a sleepy town near these mines, and the railway line passes through thetown. Consider the following scenario.

Given that the line is present, the town is now galvanized to life, because transport to the citybecomes easier, and soon the line is used to transport people and other forms of business as well asiron ore.

Notes: Under some situations the industrialist could siphon off all the benefits by charging anappropriate price for travel on the line, but there are situations where this might be impossible (e.g.,the government steps in and decrees that the line should be used for travel at a regulated price). In thelatter case, the investment by the industrialist has generated positive externalities for otherindividuals and businesses.

There are direct externalities, then, for those who can profitably use the railway line for their owntravel and business, but there are externalities for others as well. The town now becomes a viableresidential area for those who do not wish to live in the big city. People wish to commute, so theymove to the town. Real estate values go up. The owners of such real estate also benefit, even thoughthey might never use the railway. These are positive externalities as well.Now consider another sleepy town that also lies on the line, but has no railway station so thetrains thunder right by. Far from being able to enjoy the better transportation facilities, the residents ofthis town suffer from increased noise and air pollution because of the presence of the railway. Theseare negative externalities. Again, they are externalities because there is no market through which theindustrialist can compensate these unhappy residents for their pain.

5.3 Neo-Classical Growth Models

Prof. J.E. Meade has constructed a neo-classical model of economic growth which "is designed to show the way in which the simplest form of economic system would behave during a process of equilibrium growth."Meade constructs his model around the following assumptions:

- There is a laissez-faire closed economy where there is perfectcompetition.
- There are constant returns to scale.

- Two commodities—consumption goods and capital goods—areproduced in the economy.
- Machines are the only form of capital in the economy.
- All machines are assumed to be alike.
- It is assumed that there is a constant money price of consumption goods.
- There is full use of land and labour.
- The ratio of labour to machinery can be changed both in the short and the long run. Meade callsthis the assumption of perfect malleability of machinery.
- It is further assumed that there is perfect substitutability in production between capital goods and consumption goods.

In the economy visualised above, the net output produced depends upon four factors:

- The net stock of capital available in the form of machines;
- The amount of available labour force;
- The availability of land and natural resources; and
- The state of technical knowledge which continues to improve through time. This relationship is expressed in the form of the production function as,

Y = F(K,L,N,t)

where, Y is net output or net national income, K the existing stock of capital (machines), L the labour force, N land and natural resources and t is time, signifying technical progress.

Assuming the amount of land or natural resources to be fixed, net output can increase in any one year with the growth in K, L, and t. This relationship is shown as

Δ Y = V Δ K + W Δ L + Δ Y′

where, Δ in each case represents an increase, V is the marginal product of capital, W the marginal product of labour and Y′ is used in place of t. Thus "the increase over the year in the rate of annual net output (Δ Y) is equal to the increase in the stock of machinery (Δ K) multiplied by its marginal products (V) plus the increase in the amount of labour (Δ L) ,multiplied by its marginal product (W) plus the increase in the rate of annual output due simply to technical progress (Δ Y')." The annual proportionate growth rate of output is

$$\frac{\Delta Y}{Y} = \frac{VK}{Y} \cdot \frac{\Delta K}{K} + \frac{WL}{Y} \cdot \frac{\Delta L}{L} + \frac{\Delta Y'}{Y}$$

where, ΔY/Y is the proportionate growth rate of output, ΔK/K the proportionate growth rate of the stock of capital, ΔL/L the proportionate growth rate of labour force and ΔY′/Y the proportionate growth rate of technical progress during a year. Let these proportionate growth rates be expressed as y, k, l and r respectively, the proportionate marginal product of capital VK/Y as U and the proportional marginal product of labour WL /Y as Q *. Now the basic relationship is

y = Uk + Ql + r

This shows that the growth rate of output (y) is the weighted sum of three other growth rates, first, the sum of the growth rate in the stock of capital (k) weighted by the proportional marginal product of capital (U) plus the growth rate of population (I) weighted by the marginal product of labour (Q) plus the growth rate of technology (r). But the real index of the growth of the economy is the growth rate of real income per head rather than the growth rate of income (y).

Total income (y) rises by 10 per cent per annum and population (l) by 8 per cent, income per head (y-l) will rise by about 2 per cent per annum. The growth rate of real income per head is

$$y-l = Uk + Ql + r-l$$
$$= Uk-l + Ql + r$$
$$= Uk - (1-Q)l + r$$

The equation reveals that the growth rate of real income per head is raised in two ways: first, by an increase in the rate of real capital (k) weighted by its proportional marginal product (U); and second , by an increase in the rate of technical progress (r). On the other hand, it is depressed by the growth rate of population (l) weighted by one minus the proportional marginal product of labour (1– Q). This part of the equation, i.e., [— ((1-Q)/] shows the tendency for diminishing returns as the quantity of labour is increased on a given amount of land and capital.

One of the important factors contributing to the growth rate of output is the annual rate of capital accumulation in the economy. This fact is implied in the element Uk. U = VK/Y, and k = Δ K/K, but Δ K, the addition to the stock of capital is equal to the savings out of the net national income. Therefore Δ K = SY, and k = Δ K/K = SY/Kwhere, SY represents the amount annually added to the stock of capital through savings.Hence, Uk = VK/Y X SY/K=VS, and the basic growth relationship can be expressed as

y-l = VS – (1-Q) l + r

Having examined the main factors determining the growth rate of real income per head, Prof. Meade discusses the conditions which may lead to changes in the rate of economic growth over time.

Assuming l and r to be given and constant, changes in growth rate would be determined by the behaviour of V, S, and Q over time. If there is no change in population (l) and technical progress (r), an increase in the rate of savings (S) would raise capital per head and bring a decline in the marginal product of capital (V). This decline in V will, however, be less if it is possible to substitute capital for land and labour. And if technical progress takes place, V will tend to rise instead of declining. But the amount of land and labour being fixed in the economy, more capital per head will be used and at the same time technical progress will tend to raise V . Under these conditions, the rate of growth of income per head over time would rise which in turn would tend to raise S. There will be a tendency for S to rise still further due to a change in income distribution towards larger profits caused by the above-mentioned factors. We may conclude that with a constant population (l =0), real income per head depends upon the rate of capital accumulation (VS) and technical progress (r). The equation is

$$y-l = VS-(1-Q)\,l + r$$

Since $l = 0$

$$y = VS + r$$

If the rate of technical progress alongwith population growth is assumed to be constant, the growth rate in income per head will vary directly with VS .

The State of Steady Growth. Further: Prof. Meade examines the conditions of the state of steady economic growth. It is a state in which the growth rate in total output (income) is constant and so is the growth rate in income per head. It is assumed that population is growing at a constant proportionate rate (l) and the rate of technical progress does not change. The state of steady economic growth requires the existence of the following three conditions to ensure a constant growth rate in total income:

i. All elasticities of substitution between the various factors are equal tounity.
ii. Technical progress is neutral towards all factors.
iii. The proportions of profits saved, of wages saved, and of rent saved are allconstant.

The growth rate of income is represented by the basic relationship y = U + Ql+ r wherein U, Q, I, and r are assumed to be constant Therefore, for y to be constant (as required by the state of steady economic growth), k should be constant. We know that k=SY/K but S is constant as seen in the preceding para. So k will be constant if Y/K is constant. Y/K will be constant if the rate of growth of Y and K is the same which implies the equality of y and k itself, i.e., y=k. The obvious conclusion

follows that the growth rate of income will be constant if the growth rate of capital stock (k) is equal to the growth rate of national income (y).

Did you know

What is elasticity of substitution?

It is the ratio of percentage change in capital-labour ratio with percentage change in marginal rate of technical substitution.

Critical Growth Rate: The equilibrium position ultimately depends upon the rate of accumulation of the capital stock. According to Meade, there is a critical growth rate of the capital stock which makes the growth rate of income equal to the growth rate of capital stock. A more or less growth rate in the capital stock than this "critical growth rate" will not bring about the equality of y and k. If we put a for the 'critical growth rate' then the basic relationship will be

$$a = Ua + Ql + r$$

or

$$a = \frac{Q_l + r^*}{1 - U}$$

It is this critical rate which will make y=k, and keep the growth rate of national income constant at the steady growth level. If at any time there is any deviation from this level of steady growth, forces will set in to bring the growth rate of the capital stock at the equilibrium level of Suppose k or In this situation income will be growing at a lower rate than the capital, stock, as a result savings will decline, so will the growth rate of capital, thereby bringing towards the critical level. Conversely, if then income would increase more rapidly than the capital stock, savings would increase, and so would the capital stock, as a result would rise towards the critical level.

Criticism

- This model is steeped in the classical tradition of a perfectly competitive economy where all production units are assumed independent of each other. But these are unrealistic assumptions for neither is there perfect competition nor are the production units independent of each other.
- The assumption of the neo-classical theory that there are only constant returns to scale is also defective. The fact is that there are increasing returns to scale rather than constant returns in the growth process.
- Mrs. Robinson calls Meade's model pseudo-causal because it merely states that monetary policy keeps the prices of consumption goods constant, while money wage rates ensure full employment.
- Like the Harrod-Domar and Joan Robinson models, Meade's model is based on the assumption of a closed laissez-faire economy. But this is an unrealistic assumption which neglects the importance of foreign trade in economic development.

5.4 Solow Growth Model

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

- One composite commodity is produced.
- Output is regarded as net output after making allowance for the depreciation of capital.

- There are constant returns to scale. In other words, the production function is homogeneous of the first degree.
- The two factors of production, labour and capital, are paid according to their marginal physical productivities.
- Prices and wages are flexible.
- There is perpetual full employment of labour.
- There is also full employment of the available stock of capital.
- Labour and capital are substitutable for each other.
- There is neutral technical progress.
- The saving ratio is constant.

The Model

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

Its annual rate of production is designated as Y(t) which represents the real income of the community, part of it is consumed and the rest is saved and invested. That which is saved is a constant s , and the rate of saving is sY(t). K(t) is the stock of capital. Thus net investment is the rate of increase of this stock of capital, i.e., dk/dt or .So the basic identity is

$$\dot{K} = sY \qquad ...(1)$$

Since output is produced with capital and labour, technological possibilities are represented by the production function

$$Y = F(K, L) \qquad ...(2)$$

that shows constant returns to scale.

Inserting equation (2) in (1), we have

$$\dot{K} = sF(K, L) \qquad ...(3)$$

In equation (3), L represents total employment.

Since population is growing exogenously, the labour force increases at a constant relative rate n.

$$L(t) = L_{oe}^{nt} \qquad ...(4)$$

Thus Solow regards n as Harrod's natural rate of growth in the absence of technological change; and L(t) as the available supply of labour at time (t) .

The right hand side of equation (4) shows the compound rate of the growth of labour force from period 0 to period t . Alternatively, equation (4) can be regarded as a supply curve of labour. "It says that the exponentially growing labour force is offered for employment completely inelastically. The labour supply curve is a vertical line, which shifts to the right in time as the labour force grows according to (4). Then the real wage rate adusts so that all available labour is employed, and the marginal productivity equation determines the wage rate which will actually rule."

By inserting equation (4) in (3), Solow gives basic equation

$$\dot{K} = sF(K, L_{os}^{\pi}) \qquad ...(5)$$

He regards this basic equation as determining the time path of capital accumulation, , that must be followed if all available labour is to be fully employed. It provides the time profile of the community's capital stock which will fully employ the available labour. Once the time paths of capital stock and of the labour force are known, the corresponding time path of real output can be computed from the production function.In order to find out if there is always a capital accumulation path consistent with any rate of growth of the labour force towards steady state, Professor Solow introduces his fundamental equation

$$\dot{r} = sF(r,1) - nr \qquad ...(6)$$

In this equation r is the ratio of capital to labour (K/L), n is the relative rate of change of the labour force (/L). The function sF (r ,1) represents output per worker as a function of capital per worker. In other words,it is the total product curve as varying amounts r of capital are employed with one unit of labour.

The equation (6) itself states that the rate of change of capital-labour ratio is the difference of two terms, one representing the increment of capital [sF (r,1)] and the other increment of labour (nr). Solow illustrates possible growth patterns

based on his fundamental equation (6) in Fig. 1, where the ray through the origin is the function nr . The other curve represents the function sF(r ,1). It is so drawn as to show diminishing marginal productivity of capital. At the point of intersection of the two curves nr=sF(r, 1) , and =O . Then r=r'. When r=O , the capital-labour ratio is a constant and the capital stock must expand at the same rate as the labour force, i.e. , n . Once the capital-labour ratio r' is established, it will be maintained, and capital and labour will grow in proportion. Assuming constant returns to scale, real output will also grow at the same relative rate n and output per head of labour force will be constant. At r' there will be the balanced growth equilibrium.

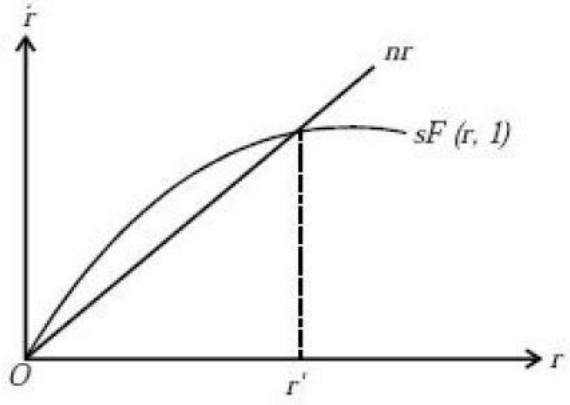


Figure 1

This tells us how capital is growing assuming that labour is fully employed and a fraction, s , of fullemployment output is saved in each period.Assuming constant returns to scale which means that the production function is homogeneous of degree 1 we divide the above relation by to get. What will be the behaviour of the capital-labour ratio if there is a divergence between r' and r . If r lies to the right of r' or r >r' then nr>sF(r,1) , and r will decrease toward r' . On the contrary, if r lies to the left of r' or r <r', nr <sF(r,1) , and r will increase toward r' . Thus the equilibrium value r' is stable.

"Whatever the initial value of the capital-labour ratio, the system will develop toward a state of balanced growth at the natural rate... If the initial capital stock is below the equilibrium ratio, capital and output will grow at a faster pace than the labour force until the equilibrium ratio is approached. If the initial ratio is above the equilibrium value, capital and output will grow more

slowly than the labour force. The growth of output is always intermediate between those of labour and capital."

Professor Solow concludes his model thus: "When production takes place under the usual neo-classical conditions of variable proportions and constant returns to scale, no simple opposition between natural and warranted rates of growth is possible. There may not be...any knife-edge. The system can adjust to any given rate of growth of the labour force, and eventually approach a state of steady proportional expansion," i.e .,

$$\frac{\Delta K}{K} = \frac{\Delta L}{L} = \frac{\Delta Y}{Y}$$

Criticism

- The Solow model takes up only the problem of balance between Harrod's Gw and Gn and leaves out the problem of balance between G and Gw .
- There is the absence of an investment function in Solow's model and once it is introduced, the Harrodian problem of instability quickly reappears by the Solow model.
- The Solow model is based on the assumption of labour-augmenting technical progress. It is, however, a special case of Harrod-neutral technical progress of the Cobb-Douglas production function type which does not possess any empirical justification.

5.5 Corrected Model of Passineti

The Pasinetti model1 is an extension of the Kaldor model of distribution by incorporating workers' profits as returns on their savings. It shows that there exists a distribution of income between profits and wages which keeps the system in a long-run equilibrium.The Pasinetti model is based on the following assumptions:

i. There is full employment.
ii. National income (Y) consists of wages (W) and profits (P).
iii. Wages are distributed to workers in proportion to the amount of labourthey contribute and profits are distributed to capitalists in proportion to theamount of capital they own.
iv. Each class saves a fixed proportion of its income and the capitalists'propensity to save (sc) is greater than that of workers (sw).

Did you know

What is full employment?

Full employment refer to the situation when all those persons who are wiling to work at the prevailing wage rate get work.

Given these assumptions, the national income identity is

$$Y \equiv W + P$$

and

$$P \equiv P_C + P_W$$

$$Y = W + P_W + P_C$$

where, PC and PW relate to profits accruing to the capitalists and the workers respectively.

The savings function of the workers and the capitalists are defined as

$S_W = sw\,(\bar{W}+P_W)$ and $S_C = scP_C$, so that $S = sw(\bar{W}+P_W) + scP_C$.

We know that $I = S$

or $I = sw(W + P_W) + scP_C$

But $Y = W + P_W + P_C$

or $W + P_W = Y - P_C$

and $I = sw(Y - P_C) + scP_C$

$(\because\ W+P_W = Y - P_C)$

$= swY - swPc + scPc$

$= swY + (sc-sw)P_C$

Hence the ratio of investment to national income

$$\frac{I}{Y} = \frac{swY + (sc - sw)P_c}{Y}$$

or $$\frac{I}{Y} = sw + \frac{P_c}{Y}(sc - sw)$$

or $$\frac{P_c}{Y}(sc - sw) = \frac{I}{Y} - sw$$

or $$\frac{P_c}{Y} = \frac{1}{sc - sw} \times \frac{I}{Y} - \frac{sw}{sc - sw} \quad \ldots(2)$$

This expression explains the distribution of income between capitalists and workers.

Similarly, the ratio of investment to total capital can be,derived from (1).

$$\frac{I}{K} = \frac{swY + (sc - sw)P_c}{K}$$

or $$\frac{I}{K} = sw\frac{Y}{K} + \frac{P_c}{Y}(sc - sw)$$

or $$\frac{P_c}{K}(sc - sw) = \frac{I}{K} - sw\frac{Y}{K}$$

or $$\frac{P_c}{K} = \frac{1}{sc - sw} \times \frac{I}{K} - \frac{sw}{sc - sw} \times \frac{Y}{K} \quad \ldots(3)$$

The expressions (2) and (3) refer to that part of profits which accrue to the capitalists alone.

To show the distribution of income between profits and wages, we must add the share of workers' profits into income P W /Y to both sides of equation (2) as this equation simply represents the share of capitalists' profits in national income. Thus the distribution of income between profits and wages can be expressed as

$$\frac{P}{Y} = \frac{P_c}{Y} + \frac{P_w}{Y} \quad \ldots(4)$$

Similarly, equation (3) simply represents the ratio of capitalists' profits to total capital and not the ratio of total profits to total capital (rate of profit). So to find out the rate of profit, we must add the share of workers' profit into capital PW /K to both sides of equation (3), so that

$$\frac{P}{K} = \frac{P_c}{K} + \frac{P_w}{K} \quad \ldots(5)$$

Pasinetti shows that there is a fundamental relation between profits and savings. In the long run, profits are distributed in proportion to the savings contributed by each category. In other words, profits are proportional to savings, and they are the same for both the workers and the capitalists. Thus

$$\frac{P_w}{S_w} = \frac{P_c}{S_c} \qquad \ldots(6)$$

This is based on institutional principle that profits are distributed in proportion to ownership of capital. To determine the actual value of the ratio of profits to savings for the whole system, substitute the saving functions into equation (6) so that

$$\frac{P_w}{sw(W+P_w)} = \frac{P_c}{scP_c} \qquad (S = sw(W+P_w) \text{ and } S_c = scP_c$$

or $$sw(W+P_W) = scP_C \qquad \ldots(7)$$

This equation can be interpreted by saying that, in the long run, when workers save, they receive an amount of profits (PW) which makes their total savings exactly equal to the amount that the capitalists would have saved out of workers' profits (PW) if these profits remained to them. In other words, the workers will always receive an amount of profits proportional to their savings, whatever the rate of profit may be. Thus the rate of profit is indeterminate on the part of workers. On the other hand, there is a straight relation between savings and profits in the case of capitalists because their savings come out of profits. Thus for any given sc , there is only one proportionality relation between profits and savings which makes the ratio PC /scP C equal to PC /Sc . "This proportionality relation can be nothing but sc , which will therefore determine the ratio of profits to savings for all the saving groups, and consequently also the income distribution between profits and wages for the whole system." To maintain full employment overtime, that amount of investment must be undertaken which is uniquely exogenously determined by technical progress and population growth. In this case, there is only one equilibrium rate of profit which is determined by the natural rate of growth divided by the capitalists' propensity to save, independently of anything else in the model. This is expressed as

$$\frac{P}{K} = \frac{n}{sc}$$

It is only this rate of profit (P /K) that keeps the system on the dynamic path of full employment.The only condition for stability in such a system, where employment investments are carried out and prices are flexible with respect to wages, is sc>O.

Pasinetti has given two implications of the model

First , in the long run, the workers' propensity to save (sw) does not influence the rate of profit such that P/K=1/sc.I/K. Further, sw does not influence the distribution of income between profits and wages such that P/Y = 1/sc.I/Y. All this implies that the rate of profit and income distribution between profits and wages are determined independently of sw.

Second , the proportion that profits bear to savings in the whole system is given by the capitalists' propensity to save sc, and the decisions to save of workers do not count in this respect. The share of workers in total profits is predetermined and that cannot influence it at all.

5.6 Human Capital and Economic Growth

So far we have considered labor to be a single input of production, augmented, perhaps, by the paceof technical progress. A number of recent theories go beyond this simple postulate. Rich countries notonly have access to a large stock of physical capital, but by investing time and money in education, itis also possible for these countries to produce a large stock of human capital: labor that is skilled inproduction, labor that can operate sophisticated machinery, labor that can create new ideas and newmethods in economic activity. It is important to contrast this form of labor with unskilled labor.

Developing countries are likely to have a shortage of the former and a surplus of the latter. Theimplications for the rate of return to physical capital may be more in line with the data, as we willsee. Likewise, observed income differences across countries may become more explicable.The basic idea is simple. Augment the Solow model by permitting individuals to "save" in twodistinct forms. So far all savings were translated into holdings of physical capital (or rights to theproceeds from such capital), but households can also "save" by investing in education, which raisesthe market value of labor that they supply in the future. Such savings may benefit the individual orhousehold directly or we can adopt a more dynastic view in which altruistic parents invest in theeducation of their children. Although there are important differences in the various theories, we canneglect them for the purpose of the current exposition.In the starkest version of this theory, we consider just two inputs of production: physical capitaland human capital. However, this is not the same as the capital-labor model. The difference is thathuman capital is deliberately accumulated and is not just the outcome of population growth or exogenouslyspecified technical progress. Thus suppose that

$$y = k^{\alpha} h^{1-\alpha},$$

where h this time stands for human capital and unskilled labor has been omitted for now. Moreover,you can think of y, k, and h as aggregate or per capita magnitudes, because I am going to simplify myexposition (without losing anything of importance) by assuming that the overall population is constant.Finally, we will neglect depreciation. All of this is icing on our conceptual cake; the omissions canbe put back later without changing our understanding in any fundamental way.Now part of the output is consumed, just as before, but the remaining part of the output can be usedin two ways. First, a fraction s of it is saved, permitting the accumulation of capital:

$$k(t+1) - k(t) = sy(t).$$

Another fraction q is saved in a different way: it is used to augment the quality of human capital,4 sothat

$$h(t+1) - h(t) = qy(t).$$

It can be shown (see the Appendix to this chapter for a demonstration) that starting from any initialconfiguration at date 0, call it {h(0), k(0)}, the equations (4.1), (4.2), and (4.3) cause the economy toultimately have all its variables—y, k, and h—growing at some common rate, and this rate isdetermined by the savings rate s as well as the propensity to invest in human capital, as measured byq.It is very easy to figure out what this rate is. Let r denote the ratio of human to physical capital inthe long run. Divide both sides of (4.2) by k(t) and use (4.1) to note that

$$\frac{k(t+1) - k(t)}{k(t)} = sr^{1-\alpha},$$

which gives us the growth rate of physical capital. Likewise, divide both sides of (4.3) by h(t) anduse (4.1) once again to see that

$$\frac{h(t+1) - h(t)}{h(t)} = qr^{-\alpha},$$

which gives us the growth rate of human capital. Because these two growth rates are the same in thelong run (so that the ratio of human to physical capital also stays constant), we must have $sr^{1-\alpha} = qr^{-\alpha}$, or simply

$$r = q/s.$$

This equation makes perfect sense. The larger is the ratio of saving in human capital relative to that ofphysical capital, the larger is the long-run ratio of the former to the latter. We can now use this

valueof r to compute the long-run growth rate. Use any of the preceding growth-rate equations to do this,because all variables must grow at the same rate in the long run. For instance, the growth-rateequation for k tells us that

$$\frac{k(t+1)-k(t)}{k(t)} = sr^{1-\alpha} = s^{\alpha}q^{1-\alpha},$$

so that the long-run growth rate of all the variables, including per capita income, is given by theexpression sαq1−α.

Summary

- If G exceeds Gw, then C will be less than Cr. When G>Gw, shortages result. There will be insufficient goods in the pipeline and/or insufficient equipment. Such a situation leads to secular inflation.
- The state of steady economic growth requires that all elasticities of substitution between the various factors are equal to unity, technical progress is neutral towards all factors and the proportions of profits saved, of wages saved, and of rent saved are all constant.
- Solow's analysis is convergent to equilibrium path (steady state) to start with any capital-labour ratio. Solow takes output as a whole, the only commodity, in the economy.
- Rich countries not only have access to a large stock of physical capital, but by investing time and money in education, it is also possible for these countries to produce a large stock of human capital: labor that is skilled in production, labor that can operate sophisticated machinery, labor that can create new ideas and new methods in economic activity.
- Technical progress concentrates on the “externalities” that are generated through actions of individual capital accumulation or R&D.

Keywords

- Warranted growth rate
- Actual growth rate
- Neutral technical progress
- Elasticity of substitution
- Technical progress

Self assessment

1. According to Harrod, the substitution between the factors is

A. Zero
B. Infinity
C. Greater than one
D. Less than one

2. According to Harrod Domar model

A. Average propensity to save is more than marginal propensity to save

B. Average propensity to save is equal to marginal propensity to save
C. Average propensity to save is less than marginal propensity to save
D. None of the above

3. According to Harrod-Domar model economy will be state of stable growth when

A. Actual growth is equal to warranted growth rate
B. Actual growth is more than warranted growth rate
C. Actual growth is less than warranted growth rate
D. None of the above

4. Under which of the following models constant returns to scale prevails.

A. Harrod -Domar model
B. Solow model
C. Both a and b
D. None of the above

5. Under which of the following model, elasticity of substitution between the factors is unity ?

A. Meade model
B. Solow model
C. Harrod-Domar model
D. None of the above

6. Which of the following are assumptions of Meade model?

A. There is a laissez-faire closed economy where there is perfect competition.
B. There are constant returns to scale.
C. Machines are the only form of capital in the economy.
D. All of the above

7. Passineti model is extension of

A. Kaldor model
B. Harrod-DOmar model
C. Solow model
D. Meade model

8. If warranted growth rate is more than natural growth rate then then there will be

A. Inflation in the economy
B. Recession in the economy
C. Depression in the economy
D. None of the above

9. Who first discussed about the substitutability between the factors?

A. Solow
B. Harrod-Domar

C. Meade
D. None of the above

10. Which of the following denote the full capacity growth rate of income?

A. Warranted rate of growth
B. Actual rate of growth
C. Natural rate of growth
D. None of the above

11. Which of the following can produce the stock of human capital?

A. Investment in education
B. Investment in construction
C. Both a and b
D. None of the above

12. Availability of skilled labour has negative effect on economic growth

A. True
B. False

13. Technical progress can be

A. Labour saving
B. Capital saving
C. Neutral
D. All of the above

14. Which of the following are assumptions of Passineti model of economic growth?

A. There is full employment.
B. Wages are distributed to workers in proportion to the amount of labour they contribute
C. Profits are distributed to capitalists in proportion to the amount of capital they own
D. All of the above

15. Under which of the following models perfect competition is assumed?

A. Harrod-Domar
B. Solow
C. Meade
D. All of the above

Answers forSelf Assessment

1.	A	2.	B	3.	A	4.	C	5.	A
6.	D	7.	A	8.	A	9.	A	10.	D

11. A 12. B 13. D 14. D 15. A

Review Questions

1. Critically examine the Harrod-Domar model of economic growth.
2. Critically examine the Solow model of economic growth.
3. Critically examine the Meade model of economic growth.
4. Critically examine Passineti model of economic growth.
5. Examine the impact of technical progress on economic growth.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 06: Dualism-Social and Technological

CONTENTS

Objectives

After studying this unit the students will be able to

- Know about social dualism
- Know about technological dualism
- To describe Ranis Fei model
- To explain that how the surplus labour in the agriculture sector can be used in industrial sector.

Introduction

The term 'dualism'was originally coined to denote co-eternal binary opposition, a meaning that is preserved in Meta physical 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 theydiffer in organization, level of development, and goal structures. Usually, the concept of economicdualism differentiates between two sectors of economy.The traditional subsistence sector consists of small-scale agriculture, handicraft and petty trade, hasa high degree of labor intensity but low capital intensity and little division of labor; the modernsector of capital-intensive industry and plantation agriculture produces for the world market with acapital-intensive mode of production with a high division of labor.

6.1 Social Dualism

J.H Boeke, a Dutch economist, has been one of the pioneers who developed adistinctive theory applicable only to underdeveloped countries.Dr.Boeke maintains that there are three characteristics of a societyin the economic sense. They are the social spirit, the organizational forms andthe technique dominating it. Their interdependence and interrelation are calledthe social system or social style. A society may have two or more social systemssimultaneously. It is then a dual or plural society. Boeke reserves the term"dual society" for "societies showing a distinct cleavage of two synchronic andfull grown social styles which in the normal, historical evolution

ofhomogeneous societies are separated from each other by transitional forms,as, for instance, pre-capitalism and high capitalism by early capitalism." Sucha dual society is characterized by the existence of an advanced importedwestern system and an indigenous precapitalist agricultural system.The former is under western influence and supervision, which uses advancedtechniques and where the average standard of living is high. The latter is nativewith low levels of technique economic and social welfare. Boeke calls it"social dualism" and defines it as "the clashing of an imported social systemwith an indigenous social system of another style.

Did you know

What is homogeneous society?

A society is homogeneous where only one social system prevails.

Characteristics of Dualistic Society

The needs of an eastern societyare limited. People are satisfied when their immediate needs are met. "Whenthe price of coconut is high the chances are that less of the commodities will beoffered for sale; when wages are raised the manager of the estate risks that lessof the work will be done; if three acres are enough to supply the needs of thehousehold a cultivator will not till six. This isbecause people are influenced more by social rather than economic needs.Goods are evaluated according to their prestige value rather than value-in-use.

Native industry has practically no organization, is without capital, technicallyhelpless and ignorant of the market. People indulge more in speculativeactivities rather than in regular profit-giving enterprises. They do not believein capital investments attended by risks. They lack initiative and organizationalskill characteristic of the western sector of a dual society. They are fatalists andhesitate to use modern technology. Labor is "unorganized, passive, silent,casual" and unskilled. People are reluctant to leave the village community.Migration within the country and immigration take place through stateintervention.

Inapplicability of Western Economic Theory

These distinctive features of an eastern society make western economic theory totally inapplicable tounderdeveloped economies. According to Boeke, western economic theory ismeant to explain capitalistic society, whereas the eastern society is precapitalistic.The former is based on unlimited wants, a money economy, anddifferent types of cooperative organizations. Moreover, it is wrong to apply themarginal productivity theory of distribution to explain the allocation ofresources or the distribution of income in an underdeveloped economybecause of the immobility of resources in such a society.

Since eastern economies are dualistic in character, any effort to develop theirpre-capitalistic agriculture along western lines will prove not only abortive butmay also cause retrogression. Change in the mental attitudes of farmers isessential for the introduction of modern agricultural techniques, otherwiseincrease in wealth following them will result in further growth of population.If, however, western technology fails the result will be increased indebtedness.Therefore, their existing agricultural system should not be disturbed, for itcould hardly be improved upon.In the industrial field, the eastern producer cannot adapt himself to his westerncounterpart "technologically, economically or socially." If the former tries toimitate the latter, he will suffer in doing so. In support of his argument, Boekecites the Indonesian case where the adoption of western technology toindustrialize the Indonesian economy has moved the goal of self-sufficiencyfarther and ruined its small industry.

Boeke refers to five kinds of unemployment in underdeveloped countries:seasonal, casual, unemployment of regular workers, unemployment of thewhite collared, and unemployment of Eurasians. He believes that "it is notwithin the power of the government to remove them as it would entail afinancial burden far beyond the government's means."In underdeveloped countries, limited wants and limited purchasing powerhamper all economic development. Increase in food supply or industrial goodswill bring a glut of commodities in the markets with the consequent fall inprices and to depression. This does not mean that Boeke is averse to allindustrialization and agricultural improvements. Rather, he is in favor of aslow process of industrialization and agricultural development on a smallscale, adapted to the dualistic structure of eastern society. The urge fordevelopment should come from the people themselves. New leaders mustemerge who should work towards the goal of economic development withfaith, charity and patience.

Criticism

i. Wants not Limited: People do nothave limited needs, rather there is a great demand for both domestic andimported semi-luxuries.

ii. Casual Labour not Unorganised:Casual labour may not be fully organised in agriculture but in tea, coffee, andrubber plantations, the trade union movement is the strongest in sucheconomies.

iii. Eastern Labor not Immobile: It is not possible to accept Boeker's viewthat people in eastern economies are reluctant to leave their villagecommunities. In fact, city life, with all its attractions like cinemas, shops, cafes,and sports events, has always led to migrations from rural areas.

iv. Not Peculiar to Underdeveloped Economies:Boeke ascribes his dualistic theory only to eastern economies though he himself admits that social dualismalso exists in underdeveloped economies of Africa and Latin America. But it isnot peculiar to underdeveloped areas only. It exists in Italy, Canada and even inthe United States. Rather every economy "can be divided into distinct regions,

6.2 Technological Dualism

Prof. Higgins has developed thetheory of technological dualism. Technological dualism implies the use ofdifferent production functions in the advanced sector and the traditional sectorof an underdeveloped economy. The existence of such dualism has accentuatedthe problem of structural or technological unemployment in the industrialsector and disguised unemployment in the rural sector.

Notes: Higgin's theory of technological dualism incorporates the factor proportions problem as discussed by R.S. Eckaus and is related to limited productive employment opportunities found in the two sectors of an underdeveloped economy because of market imperfections, different factor endowments and production functions.

Higgins builds his theory around two goods, two factors of production andtwo sectors with their factor endowments and production functions. Of the twosectors, the industrial sector is engaged in plantations, mines, oil fields,refineries, or large scale industry. It is capital-intensive and is characterized byfixed technical coefficients. In other words, there is no technical substitutabilityof factors which are combined in fixed proportions. The rural sector isengaged in producing foodstuffs and handicrafts or very small industries. Ithas variable technical coefficients of production so that it can produce thesame output with a wide range of techniques and alternative combinations of labor and capital (including improved land).The production function in the industrial sector is represented in Fig. 1. Unitsof labor are measured on the horizontal axis, and units of capital on thevertical axis.

The curve Ql is an isoquant representingcombination of OK of capital and OL of labor producing a certain level of output. The curves Q2,Q3 and Q4 represent higher levels of output whichare only possible by increasing the units of capitaland labor in the same proportions. Thus points A, B,C and D show fixed combinations of capital and labor used to produce different levels of output Q1,O2, O3, and Q4. The line OE joining these points isthe expansion path of the industrial sector and itsslope represents constant proportions of the two factors. The line K1L1 showsthat the production process is capital-intensive, more capital is required toproduce a given output relatively to labor. To produce Q1 output, OK units ofcapital and OL units of labor are used. If however, the actual factorendowment is at S instead of at A, it means that more labor units (OL1) areavailable to produce the same Q1 output, the units of available capitalremaining the same (OK). Since there are fixed technical coefficients, theexcess labor supply will not affect production techniques at all, LL1 units of labor will remain unemployed. It is only when capital stock increases to SFthat it is possible to absorb this excess labor supply in this sector, otherwise itwill have to seek employment in the rural sector.

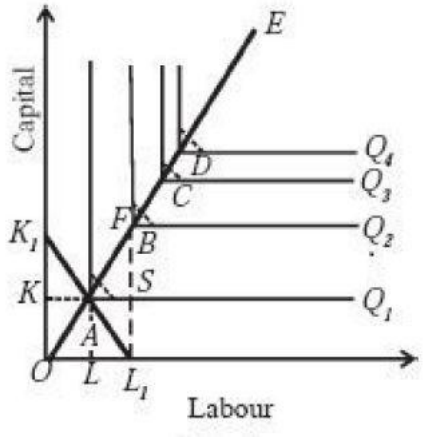


Figure 1

In reality, however, technical coefficients are not so rigidly fixed. Rather, theyare somewhat flexible. The dotted curvature of the isoquants indicates thepossibilities of some flexibility in factor proportions. It shows very smallchanges in factor endowments for which entrepreneurs would not like tomake drastic changes in techniques of production. Thus they would prefer tohave fixed technical coefficients.The production function for the rural sector isshown in Fig. 2. The isoquant curves Q1, Q2, Q3and Q4 show variable coefficients of production. Inorder to produce more output, more labor isemployed in relation to capital (improved land).Ultimately good land becomes scarce and allavailable land is cultivated by highly labor-intensivetechniques at point E where the maximumoutput level Qn is reached. Given the differentproduction functions in the two sectors, Professor. Higgins analysis theprocess whereby technological dualism has tended to increase unemploymentand disguised unemployment in the dual economies. Of the two sectors, theindustrial sector develops and expands with the aid of foreign capital. Thusindustrialization leads to the growth of population much in excess of the rateof capital accumulation in the industrial sector. Since this sector uses capitalintensivetechniques and fixed technical coefficients, it is not in a position tocreate employment opportunities at the same rate at which population grows.Rather industrialization may even bring, 'a relative decline in the proportionof total employment in that sector.' Thus the surplus labor has no otheralternative except to seek employment in the rural sector.Before the start of the expansion process, the rural sector has neither anabundance nor scarcity of factors of production. In the beginning, it may bepossible to absorb the additional labor force by bringing more land undercultivation. This leads to the optimal combination of labor and capital(improved land) as output increases. Eventually, good land becomes scarce.

The ratio of laborto capital available in that sector rises steadily and sincetechnical coefficients are available, techniques become increasingly variable inthis sector. For example, in many Asian countries, irrigated rice cultivation hasbeen substituted for shifting dry rice cultivation. Ultimately, all available landis cultivated by highly labor-intensive techniques and the marginalproductivity of labor declines to zero or even below zero. Thus withcontinuing growth of population, disguised unemployment begins to appear.Under these circumstances, farmers have no incentive either to invest morecapital or to introduce labor-saving technique. Besides, there is no availabletechniques to increase the output per man, and no incentive on the part of labor to raise production by themselves. As a result, techniques of production,man-hour productivity and socio-economic welfare remain at a low level inthe rural sector.

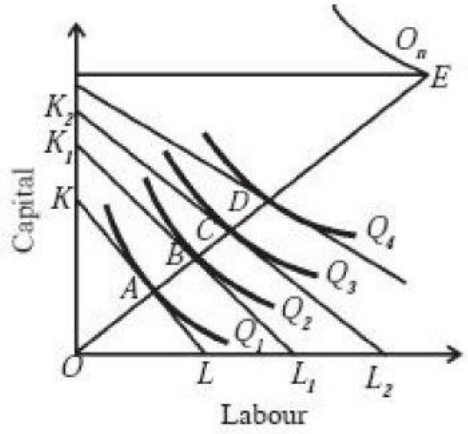


Figure 2

In the long run, technological progress does not help in removing disguisedunemployment. Rather, it tends to augment it. Prof., Higgins contends thatduring the last two centuries little or technological progress has occurred inthe rural sector while there has been rapid technological progress in theindustrial sector. This has tended to increase the number of the disguisedunemployed. The situation is further aggravated by keeping wage rates artificially high by trade union activities or by government policy. For, highindustrial wage rates relative to productivity provide an incentive toentrepreneurs for introducing labor-saving techniques and thereby diminishstill further the capacity of the industrial sector to absorb surplus labor.Accordingly, these factors perpetuate the tendency towards technologicaldualism in underdeveloped countries.

Criticism

i. Production has takenplace with variable technical coefficient in the rural sector, it is doubtful thatproduction in the industrial sector has been actually carried on with fixedcoefficients.

ii. This theoryindicates why factor endowments and different production functions have ledto rise of disguised unemployment in the rural sector. This is vitally connectedwith the pattern of factor prices. But factor prices do not solely depend onfactor, endowments.

iii. Higgins doesnot clarify the nature of disguised unemployment in the rural sector and excesslabor supply in the industrial sector. Nor does he refer to the actual extent ofthe disguised unemployed resulting from technological dualism.

6.3 Lewis Model

Lewis believes that there is unlimited supply of labor in underdeveloped countries and these laborers are available at minimum subsistence wages. Economic development takes place when capital accumulates as a result of the withdrawal of surplus labor from the "subsistence" sector to the "capitalist" sector.

Notes: The capitalist sector uses capital, labour in mines, factories in order to earn profits. The subsistence sector does not use reproducible capital and produces less output as compare to capitalist sector.

Underdeveloped countries are overpopulated. Supply of labor is perfectly elastic at subsistence wage rate. Marginal productivity of labor is zero. Subsistence wages are given to the labor in the subsistence sector. New industries can be established as there is unlimited supply of labor available at minimum subsistence wages. In practice wages of the capitalist sector are 30 percent more than the subsistence sector. Capitalist sector needs skilled workers but unskilled laborers are available in subsistence sector. Lewis said that skilled labor is temporary bottleneck which can be removed by providing training to the workers.

Did you know

What is marginal productivity?

Marginal productivity is addition to output by employing one more unit of input.

The main motive of the capitalists is to maximize their profits. They save and invest what they have with them. In the capitalist sector, marginal productivity of labor is more than capitalist wage which result in capitalist surplus. Capitalists reinvest this surplus. Capital formation takes place, and more people are employed from the subsistence sector. This process continues till the capital-labor ratio rises and the supply of labor becomes inelastic, and the surplus labor disappears.

The Lewis theory can be explained with the help of Fig. 3. Quantity of labor employed is shown on X-axis and wages and marginal productivity of labor on Y-axis. OS represents average subsistence wage in the subsistence sector, and OW the capitalist wage. At OW wage in the capitalist sector, the supply of labor is unlimited, as shown by the horizontal supply curve of labor WW. In the beginning, when ON1 labor is employed in the capitalist sector, its marginal productivity curve is P1L1 and the total output of this sector is OP1O1N1. Out of these workers are paid wages equal to the area OWQ 1N1. The remaining area WP 1Q 1shows surplus output. This is the capitalist surplus or total profit earned by the capitalist sector. When this surplus is reinvested, the curve of marginal productivity shifts upwards to P 2L 2- The capitalist surplus and employment are now larger than before being WP 2Q2 and ON 2respectively. Further reinvestments raise the marginal productivity curve and the level of employment to P 3L 3and ON 3and so on, till the entire surplus labor is absorbed in the capitalist sector. After this, the supply curve WW will slope from left to right upwards like an ordinary supply curve, and wages and employment will continue to rise with development. Thus, capital is formed out of profits earned by the capitalists.

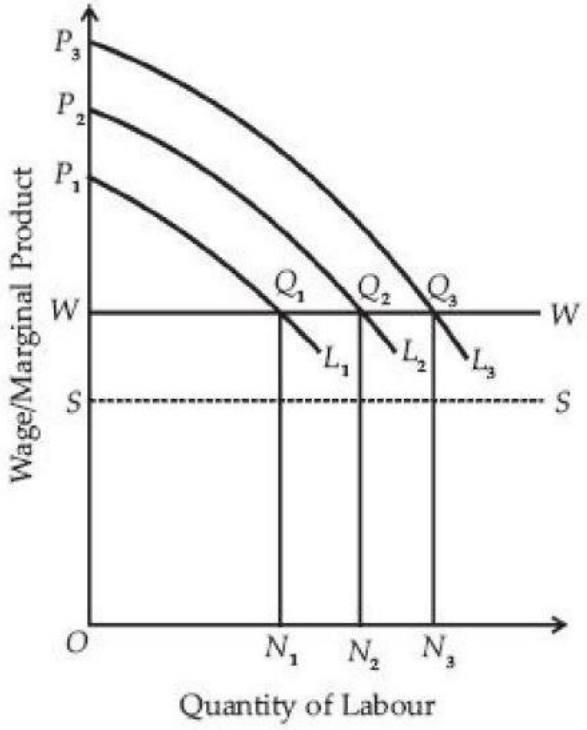


Figure 3

Role of the State and Private Capitalists: The dominant classes consisting of landlords, traders, moneylenders, priests are engaged in prodigal consumption rather than in productive investments. It is, therefore, the state capitalist and indigenous private capitalists who create capital out of profits earned. The state capitalist can accumulate capital faster than the private capitalist, since he can use for this purpose not only the profits of the capitalist sector, but also what he can force or tax out of the subsistence sector. Capital can also be created out of bank credit.

End of the Growth Process: In underdeveloped economies unlimited supply of labor is available at constant wages, capitalist class is earning profits and they are reinvesting their profits but this process of growth cannot go on indefinitely, if as a result of capital accumulation no surplus labor is left. It may also stop if despite the existence of surplus labor, real wages rise so high as to reduce the capitalist profit to the level where they are all consumed and nothing is left, for net investment. This may happen in any one of the four ways:

i. If the capitalist sector expands so rapidly that it reduces absolutely the population in the subsistence sector, the average productivity of labor rises in the latter sector because there are very few people to share the product and so the capitalist wage rises in the former sector.
ii. If as a result of the expansion of the capitalist sector relatively to the subsistence sector, the terms of trade turn against the former with rising prices of raw materials and food, the capitalists will have to pay higher wages to the workers;
iii. If the subsistence sector adopts new techniques of production, real wages would rise in the capitalist sector and so reduce the capitalist surplus; and
iv. If the workers in the capitalist sector imitate the capitalist way of life; and agitate for higher wages and if successful in raising their wages, the capitalist surplus and the rate of capital formation will be reduced.

When capital accumulation is adversely affected by any of these factors, it can continue by encouraging mass immigration or by exporting capital to such countries as possess abundant labor at subsistence wage. Both these possibilities are, however, ruled out by Lewis himself. First , mass immigration of unskilled labor is not possible because trade unions in the high-wage countries oppose it. They fear that labor imports would bring down wages to the subsistence level of the poorest country. Second, the effect of capital exports is to reduce the creation of fixed capital at home and hence to reduce the demand for labor and wages in the capital exporting country. But the reduction in wages is offset if capital exports cheapen the things which workers import because their real wages will rise. On the other hand, the reduction in wages is further encouraged if capital exports raise the cost of imported things as the real wages of workers will fall. So the effect of capital exports cannot be assessed with definiteness.

Criticism

The Lewis theory is applicable to overpopulated underdeveloped countries under certain set conditions. Its applicability is, therefore, circumscribed by its assumptions which are the basis of criticisms discussed below:

i. The theory assumes a constant wage rate in the capitalist sector until the supply of labor is exhausted from, the subsistence sector. This is unrealistic because the wage rate continues to rise over time in the industrial sector of an under developed economy.
ii. Lewis assumed that skilled labor is temporary bottleneck which can be removed by providing training facilities to unskilled labor but it takes a very long time to educate and train the multitudes in such countries.

6.4 Ranis and Fei Model

The Fei–Ranis model of economic growth is a dualism model in development economics or welfareeconomics that has been developed by John C.H Fei and Gustav Ranis and can be understood as anextension of the Lewis model. It is also known as the Surplus Labor model.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. Development can be brought aboutonly 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 theagricultural sector to the industrial one, showing that underdeveloped countries do not suffer fromconstraints of labor supply. Fei-Ranis economic model can be classified as a classicalmodel, as it uses the classical assumption of subsistence wages.

Basics of the model

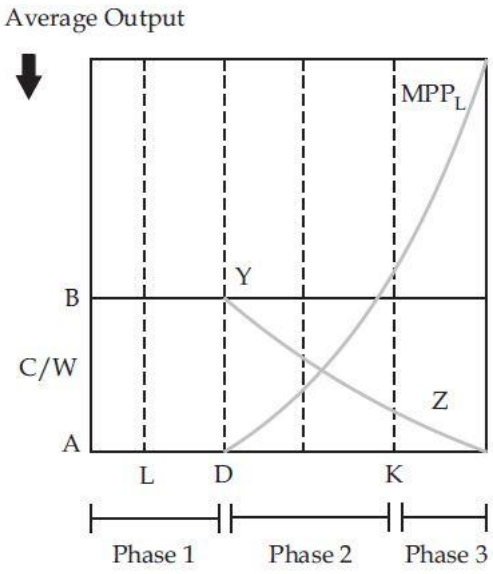


Figure 4

In Phase 1 of the Fei-Ranismodel, the elasticity of the agricultural labor work-force is infinite and as a result, suffers from disguisedunemployment. Also, the marginal product of labor is zero. This phase is similar to the Lewis model.InPhase 2 of the model, the agricultural sector sees a rise in productivity and this leads to increasedindustrial growth such that a base for the next phase is prepared. In Phase 2, agricultural surplusmay exist as the increasing average product (AP), higher than the marginal product (MP) and notequal to the subsistence level of wages.Using the help of the figure4 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 agriculturalsector 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 ofagricultural labor is shown by BYZ and we see that this curve falls downward after AD. This fall inAP can be attributed to the fact that as agricultural laborers shift to the industrial sector, the real wageof industrial laborers decreases due to shortage of food supply, since less laborers are now workingin the food sector. The decrease in the real wage level decreases the level of profits, and the size ofsurplus 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. Thisre-investment of surplus can be graphically visualized as the shifting of MP curve outwards. In Phase2.the level of disguised unemployment is given by AK. This allows the agricultural sector to give up apart 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 pointwhere 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

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 agriculturallaborers look for industrial employment, and industrialists employ more workers by use of largercapital good stock and labor-intensive technology, this connectivity can work between the industrialand agricultural sector. Also, if the surplus owner invests in that section of industrial

sector that isclose to soil and is in known surroundings, he will most probably choose that productivity out ofwhich future savings can be channelized. According tothem, economic progress is achieved in dualistic economies of underdeveloped countries throughthe work of a small number of entrepreneurs who have access to land and decision-making powersand use industrial capital and consumer goods for agricultural practices.

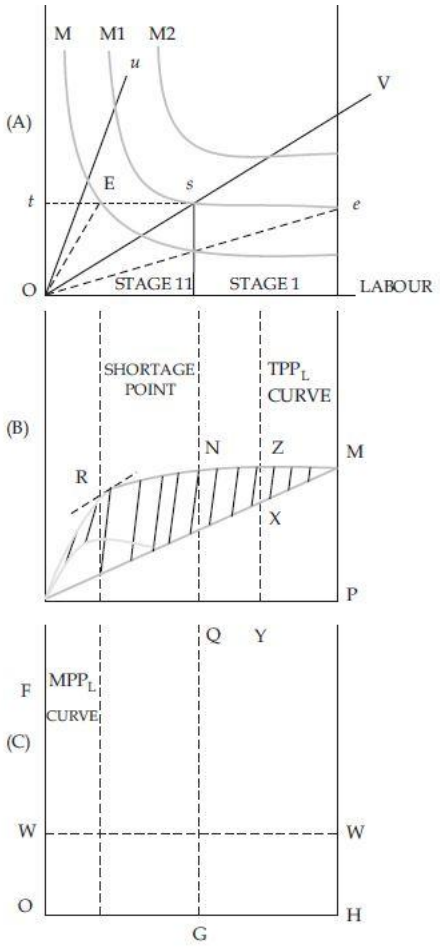


Figure 5

Figure 5 has depicted that in (A), land is measured on the vertical axis, and labor on the horizontal axis. Ou and Ov representtwo ridge lines, and the production contour lines are depicted by M, M1 and M2. The area enclosed bythe ridge lines defines the region of factor substitutability, or the region where factors can easily besubstituted. Let us understand the repercussions of this. If te amount of labor is the total labor in theagricultural sector, the intersection of the ridge line Ov with the production curve M1 at pointsrenders M1 perfectly horizontal below Ov. The horizontal behavior of the production line impliesthat outside the region of factor substitutability, output stops and labor becomes redundant onceland 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 becomingredundant, and es represents the redundant agricultural labor force.

(B) displays the total physical productivity of labor (TPPL) curve. The curve increases at a decreasingrate, as more units of labor are added to a fixed amount of land. At point N, the curve shapeshorizontally and this point N conforms to the point G in (C), which shows the marginal productivity of labor (MPPL) curve, and with point s on the ridge line Ov in (A).

Task: How agriculture and industrial sectors are interdependent?

Agricultural Surplus

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

Agricultural surplus in the dual economy of Fei and Ranis

To understand the formation of agricultural surplus,we must refer to graph (B) (i.e. of figure 5)of the agriculturalsector. We first derive the average physicalproductivity of the total agricultural labor force APPL. Fei and Ranis hypothesize that it is equal to thereal wage and this hypothesis is known as the constant institutional wage hypothesis. It is also equalin value to the ratio of total agricultural outputto the total agricultural population. Using this relation,we can obtain APPL = MP/OP. This is graphically equal to the slope of line OM, and is represented bythe line WW in (C) (figure 5).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 theindustrialsector, then the labor force remaining in the industrial sector is represented by the point Y. Now, theoutput 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 theeconomy. It is important to understand that this surplus is produced by the reallocation of labor suchthat it is absorbed by the industrial sector. This can be seen as deployment of hidden rural savings forthe expansion of the industrial sector. Hence, we can understand the contribution of the agriculturalsector to the expansion of industrial sector by this allocation of redundant labor force and theagricultural surplus that results from it.

Agricultural surplus as wage fund

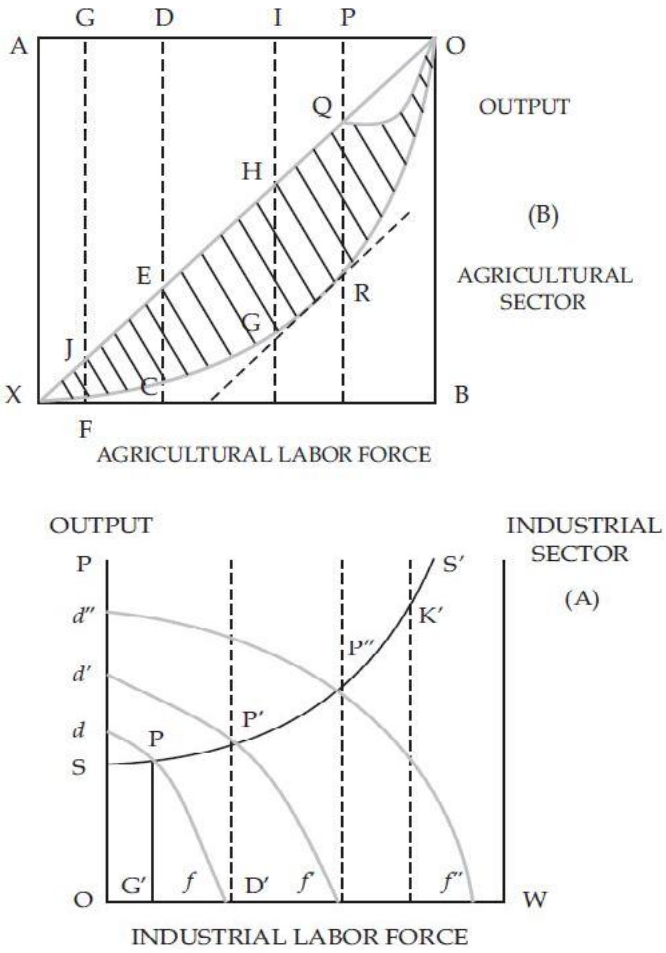


Figure 6

Integration of agricultural and industrial sectors to explain use of agricultural surplus as wage fundin a dual economy. Agricultural surplus plays a major role as a wage fund. Its importance can bebetter explained with the help of the graph on the right, which is an integration of the industrialsector graph with an inverted agricultural sector graph, such that the origin of the agricultural sectorfalls 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 downwardsfrom O. The sole reason for this inversion is for the sake of

convenience. The point of commercializationas explained before (See Section on Basics of the model) is observed at point R, where the tangent to theline 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 sectoras shown in figure 6. Once AG amount of labor force (say) is absorbed, it representedby OG' in the industrial sector, and the labor remaining in the agricultural sector is then OG. But howis the quantity of labor absorbed into the industrial sector determined ? (A) shows the supply curveof labor SS' and several demand curves for labor df, d'f and d"f. When the demand for labor is df, theintersection of the demand-supply curves gives the equilibrium employment point G.Hence OGrepresents the amount of labor absorbed into the industrial sector. In that case, the labor remaining inthe agricultural sector is OG. This OG amount of labor produces an output of GF, out of which GJamount of labor is consumed by the agricultural sector and JF is the agricultural surplus for that levelof employment. Simultaneously, the unproductive labor force from the agricultural sector turnsproductive once it is absorbed by the industrial sector, and produces an output of OG'Pd as shown inthe 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 theindustrial sector. Hence, agriculture successfully provides not only the manpower for productionactivities elsewhere, but also the wage fund required for the process.

Criticism

i. Supply of Land not Fixed. Fei and Ranis begin with the assumption that thesupply of land is fixed during the development process. In the long run, theamount of land is not fixed.

ii. Institutional Wage not above the MPP. The model is based on theassumption of a constantinstitutional wage which is above the MPP duringphases I and II of the development process. There is no empirical evidence tosupport this assumption.

6.5 Jorgenson Model

Prof. D. W. Jorgenson has presented a theory of development of a dualeconomy. He divides the economy into two sectors—the modern ormanufacturing (industrial) sector, and the traditional or agricultural sector.There is asymmetry in the production relations in the two sectors. Theagricultural sector is a function of land and labor alone; and themanufacturing sector of capital and labor alone. Population growth dependson the supply of food per capita only. If the food supply is more than sufficientfor the population, there exists an agricultural surplus and labor is free fromthe land for employment in the manufacturing sector. If there is no agriculturalsurplus, all labor remains on the land. On the other hand, if an agriculturalsurplus exists, the labor force migrates from the agricultural sector to themanufacturing sector for employment. But the labor force available foremployment in the manufacturing sector grows at a rate which is equal to thegrowth rate of the agricultural surplus. Due to a steady migration of labor from the backward agricultural sector to the modern sector, labor maydemand higher wages in the latter sector. Therefore, there may be some wagedifferential in the two sectors. This differential is proportional to themanufacturing wage rate and is stable in the long run. This differentialdetermines the terms of trade between manufacturing and agricultural sectors,and thereby the rate of investment in the manufacturing sector of a closedeconomy.

However, the decline of the economy to its trap level of output can also betraced with the diminution of the agricultural surplus. As the agriculturalsurplus begins to diminish, the agricultural labor force grows at a rate whichis more rapid than the growth rate of population. The labor force declinesabsolutely in the manufacturing sector and returns to the agricultural sector.The output in the manufacturing sector drops to zero and capital is dissimulated at the rate given by the rate of depreciation. Ultimately, theprocess of capital accumulation comes to a halt. Food output per capitadeclines to a stationary level and population growth is reduced from itsmaximum rate. This is a low level equilibrium trap situation.The Jorgenson model is based on the following assumptions:

i. The economy consists of two sectors — the agricultural sector and themanufacturing sector.

ii. The output of the agricultural sector is a function of land and labor.

iii. All land is fixed in supply.

iv. The output of the manufacturing sector is a function of capital and labor.

v. Agricultural activity is subject to the law of diminishing returns to scale.

vi. The manufacturing activity is subject to the law of constant returns to scale.

vii. Technical changes take place at some constant rate and all changes areneutral.

viii. It assumes a closed economy in which trade is in balance for goods of bothsectors.

Agricultural Sector. First we start with the agricultural sector characterized byconstant returns to scale with all factors variable as given by the Cobb-Douglasproduction function:

$$Y = e^{\alpha t} L^{\beta} P^{1-\beta} \qquad \ldots(1)$$

where, Y represents agricultural output; eαt is technical change which takesplace at a constant rate (α) in the time (t); L is fixed quantity of land available inthe economy; β is the share of landlords in the product which takes the form ofrent; P is total population in this sector; and 1-β is the share of labor in theproduct paid.

Since the supply of land (L) is fixed, equation (1) can be written as

$$Y = e^{\alpha t} P^{1-\beta} \qquad \ldots(2)$$

To obtain agricultural output per man, we divide both sides of the aboveequation (2) by P, and we have,

$$\frac{Y}{P} e^{\alpha t} P^{1-\beta}$$

or $$y = e^{\alpha t} P^{1-\beta} \qquad \left[\because \frac{Y}{P} = y\right]$$

Now differentiating with respect to time,

$$\dot{y} = \alpha e^{\alpha t} P^{-\beta} + e^{\alpha t}(-\beta) P^{-\beta-1} \dot{P}$$

$$= e^{\alpha t} P^{-\beta} \left[\alpha - \frac{\beta}{P} \dot{P}\right. \qquad \left[\because P^{-1} = \frac{1}{P}\right.$$

$$= y \left[\alpha - \beta \frac{\dot{P}}{P}\right. \qquad \left[\because y = e^{\alpha t} P^{-\beta}\right]$$

or $$\frac{\dot{y}}{y} = \alpha - \beta \varepsilon \qquad \ldots(3) \qquad \left[\because \varepsilon \frac{\dot{P}}{P}\right.$$

where, α is the rate of technical progress, β is the share of landlords in theproduct and ε is the net reproduction rate of population.According to Jorgenson, depending on the conditions of production and thenet reproduction rate, the agricultural sector is characterized either by a lowlevel equilibrium trap in which output of food per head is constant andpopulation and food supply are growing at the same positive rate (α-βε), or bya steady growth equilibrium in which output per head is rising and populationis growing at its physiological maximum rate. The necessary and sufficientcondition for a positive growth of output in the agricultural sector is $\alpha - \beta \varepsilon > 0$.

Its Policy Implications. The policy implications of the above analysis are thata backward agricultural economy can change its system by altering theparameters of its system. If the economy is in a low level equilibrium trap andβ remains constant, it can come out of the trap situation by increasing the rateof technical change (α) so that the sign of the expression $\alpha - \beta \varepsilon$ is changedfrom negative to positive, and there is a steady increase in the output of foodper head. Or the reproduction rate of population (ε) may be reduced by birthcontrol measures. So long as the rate of

technical progress (α) is greater thanthe reproduction rate (ε), the growth of food output per head will take place. Ifthey are equal (α = ε), the system will be in low level equilibrium trap.

Agricultural Surplus. It is only when food output per head is constantly rising,an agricultural surplus is generated. Jorgenson explains the agriculturalsurplus per member of the agricultural labour force as

$$y - y^{+} = s$$

where, y is the agricultural output per man, y+ is the level of output of food atwhich the net reproduction rate of population is the maximum, and s is theagricultural surplus.If total agricultural output exceeds this rate, part of the labor force may befreed from the land to the manufacturing sector to produce goods with nodecrease in the growth rate of the total labor force. If we denote theagricultural population by A and the manufacturing population by M, then thetotal population will be P=A+M. Where A=P, the whole labor force isengaged in agricultural production.

According to Jorgenson, in a dual economy, labor may be freed from theland at a rate which is just sufficient to absorb the agricultural surplus. But ifthe growth of manufacturing is not sufficiently rapid, some of the excess labor force will remain on the land and part or all of the surplus may beconsumed in the form of increased leisure by the agricultural workers andthere will be virtual destruction of the manufacturing activity. However, thisdual economy model assumes a balance between the expansion ofmanufacturing labor force and the production of food which is described as

$$\frac{y^{+}}{y} = \frac{A}{P}$$

This relationship holds only when an agricultural surplus exists. In other words, when there is a positive agricultural surplus rather than a shortage offood, and y > y+.

Manufacturing Sector. Now we take the conditions of production and capitalaccumulation in the manufacturing sector. The production function for themanufacturing sector is based on the assumption of constant returns to scaleand is in the form:

$$X = f(K, M, t) \qquad \text{.....(4)}$$

where, X is the manufacturing output, K is the capital stock, M is themanufacturing labor force, and t is time.If the relative share of labour in manufacturing output is constant and alltechnical change is neutral, then the production function becomes

$$X = A(t)\, K^{\sigma} M^{1-\sigma} \qquad \text{...(5)}$$

where, A(t) is some function of time and 1−σ is the relative share of labourforce (M).If the rate of growth is constant, then

$$\frac{\dot{A}}{A} = \lambda$$

or

$$\dot{A} = \lambda A$$

By solving this as a differential equation, we have

$$A(t) = e^{\lambda t} A(O)$$

Substituting the value of A(t) in equation (5), we have

$$X = e^{\lambda t} A [O] \; K^{\sigma} M^{1-\sigma} \qquad ...(6)$$

Dividing X and K by M, and representing output per man by x and krespectively, and changing the units of X so that A(O)—1, the productionfunction becomes

$$x = e^{\lambda t} k^{\sigma}$$

This is a technical progress function which expresses output per man as afunction of capital per man.

Rate of Capital Accumulation. Next Jorgenson studies the determination ofthe rate of capital accumulation. According to him, the first approach isthrough the fundamental ex post identity between the sum of investment and theconsumption of manufactured goods, on the one hand, and manufacturingoutput, on the other. He assumes with Kaldor that industrial workers do notsave and property owners do not consume out of their property income. Then,the consumption of manufactured goods, in both the manufacturing andagricultural sectors, is equal to the share of labor in the product of themanufacturing sector. The industrial wage rate is determined by the marginalproductivity condition:

$$\frac{\partial M}{\partial X} = (1-\sigma)x = w$$

where, x is output per man, 1—α is the relative share of labor in the totalproduct, and w is the industrial wage rate. The necessary condition for the maximization of profits is that the industrial wage rate should be equal to themarginal product of labor. It is assumed that profits are maximized in themanufacturing sector and not in the agricultural sector. The agriculturalworkers can be expected to respond to wage differentials between industry andagriculture only if industrial wages are greater than agricultural income. Itis,therefore, assumed that the differential which is necessary to cause movementof agricultural labor into the industrial sector is roughly proportional to theindustrial wage rate.

$$wM + \mu \, wA = (1-\sigma) \; X + qY$$

where, wM is the industrial wage bill, μ wA is total agricultural incomeexpressed in manufactured goods, (1—σ) X is total consumption ofmanufactured goods by workers in both sectors, and qY is the value ofagricultural output measured in manufactured goods. The variable q is theterms of trade between agriculture and industry. It is assumed that allagricultural income, whether in the form of rent or wages, is consumed. Soinvestment in the manufacturing sector is financed entirely out of the incomesof property-holders in that sector.Jorgenson points out that once the share of labor in industrial output isdistributed to workers in the form of food and consumption goods, andagricultural workers have received the proportion of industrial output whichmust be traded for food, the remainder of industrial output is available forcapital accumulation or investment. He defines capital accumulation asinvestment less depreciation, and depreciation is regarded as a constantfraction of capital stock:

$$\dot{K} = I - \eta K$$
$$I = \dot{K} - \eta K \qquad ....(8)$$

where, η is the rate of depreciation, I is investment, and K is net capitalaccumulation.

The total industrial output is equal to consumption plus investment:

$$X=(1-\sigma) \; X - I \qquad ....(9)$$

where, X is the total industrial output, (1–σ) X is its consumption and I isinvestment.

$$X = (1-\sigma)X - \dot{K} - \eta K$$

or $$X = X - \sigma X - \dot{K} - \eta K$$

or $$X = \dot{K} - \eta K \quad ...(10)$$

This equation implies the following relation between output and capital stock

In the above equation (10),σ X represents saving, while investment is made upof two components: one, net capital accumulation K, and two, replacementinvestment ηK.

By using the production function $X = e^{\lambda t} K^{\sigma} M^{1-\sigma}$ to eliminate X, the level of output inthe manufacturing sector in the above equation (10), we have

$$+ \eta K = \sigma e^{\lambda t} K^{\sigma} M^{1-\sigma}$$

Which is the fundamental equation for the development of a dual economy.

Criticism

i. Jorgenson rules out the possibility of capital accumulation in agriculture and in support cites the case of the Japanese economy and Asian agriculture. As such, he excludes capital from the production function of the agricultural sector. This is unrealistic because a number of empirical studies, such as by Shukla for India, Nakamura for Japan, and Hansen for Egypt have shown that the use of capital has made rapid increases in labor productivity and farm production.

ii. Another weakness of Jorgenson's model is that he assumes the supply ofland as fixed in his agricultural production function. But the supply of landeven in a backward agricultural economy can be increased over the long runthrough land reforms and land reclamation, thereby increasing the area undercultivation. This may result in a larger agricultural surplus.

iii. Jorgenson's model is weak in that it emphasizes the role of only supplyfactors such as labor, capital and technical change, and neglects the demandfactors which also play an important role in the development of a dualeconomy.

iv. Jorgenson also neglects the important role played by the service sector inthe development of agricultural and industrial sectors of a dual economicsystem.

6.6 Todaro Model

The Harris-Todaro (H-T) model1 is based on the experiences of tropicalAfrica facing the problems of rural-urban migration and urban unemployment.The labor migration is due to rural-urban differences in average expectedwages. The minimum urban wage is substantially higher than the rural wage. Ifmore employment opportunities are created in the urban sector at the minimum age, the expected wage shall tend to rise and rural-urban migration shall beinduced leading to growing levels of urban unemployment. To remove urbanunemployment, Harris and Todaro suggest a subsidized minimum wagethrough a lump sum tax.The Harris-Todaro model is based on the following assumptions:

i. There are two sectors in the economy; the rural or agricultural sector (A) and the urban or manufacturing sector (M).

ii. The rural sector produces XA units of agricultural goods and the urban sector produces XM units of manufactured goods. Each sector produces only one unit.

iii. The model operates in the short run.

iv. Capital is available in fixed quantities in the two sectors.

v. There are N workers in economy with NA and NM numbers employed in the rural and urban sectors respectively.

vi. The number of urban jobs available (NM) is exogenously fixed. In the rural sector some work is always available. Therefore, the total urban labor force comprises N–NA alongwith an available supply of rural migrants. In other words, the total urban labor force equals N–NA with (N–NA)–NM unemployed.

vii. The urban wage is fixed at WM and the rural wage at WA , WM > WA.

viii. The rural wage equals the rural marginal product of labour and the urban wage is exogenously determined.

ix. Rural-urban migration continues so long as the expected urban real income is more than the real agricultural income.

x. The expected urban real income is equal to the proportion of urban labor force actually employed multiplied by the fixed minimum urban wage.

xi. There is perfect competition among producers in both the sectors.

xii. The price of the agricultural goods is determined directly by the relative quantity of the two goods produced in both the sectors.

Given the above assumptions, Harris and Todaro explain their modelmathematically.Output in the rural sector is supposed to be a function of labor so that theproduction function for agricultural good is

$$X_A = f(N_A, \overline{L}, \overline{K}_A) \qquad f' > 0; f'' < 0 \qquad \ldots(1)$$

where, XA , is the output of agricultural goods, NA is the rural labor unitsemployed to produce this output, is the fixed given land, and KA is the fixedquantity of available capital in the rural sector.f ' is the derivative of f withrespect to NA .

Similarly, output in the urban sector is supposed to be a function of labour sothat the production function for manufactured good is

$$X_M = f(N_M, \overline{K}_M) \qquad f' > 0; f'' < 0 \qquad \ldots(2)$$

where, XM is the output of manufactured goods, NM is the urban labor unitsemployed to produce this output, and$\bar{k}$M is the fixed quantity of availablecapital in the urban sector f ' is the derivative of f with respect to NM .The total labour available in the economy is N. Therefore,

$$N_A + N_M \leq N \qquad N_A; N_M \geq 0$$

The price determination equation in the economy is

$$P = p\left(\frac{X_M}{X_A}\right) \qquad p' > 0 \qquad \ldots(3)$$

The price determination equation in the economy is where; P is the price of agricultural goods in terms of the price ofmanufactured goods which is a function (p) of the relative output ofagricultural and manufactured goods.The agricultural wage equals the value of marginal product (MP) of labor expressed in terms of the manufactured goods,

$$w_A = f_A(N_A) = P(f'_M) \qquad \ldots(4)$$

In the urban sector, the producers are wage-takers and they aim at profit maximization which meansthat the urban market wage,

$$w_M = fM\,(N_M)$$

However, in this economy, the urban real minimum wage is at a lowerlevel due to institutional or political factors so that

$$w_M = f' \geq \overline{w}_M \qquad \text{.....(5)}$$

This equation expresses that wage in the urban sector is equal to the MP of labor because of the price-taking behavior of producers. This assumption iscalled the wage-rigidity axiom.

Assuming wage to be flexible, if wages are above there will be an excesssupply of labor in the urban sector and competition among producers willdrive wM to the level of .Thus the profit maximisation condition becomes

$$\overline{w}_M = f'_M\,(N_M)$$

The urban expected wage which leads to the migration of workers from the rural to the urban sector is given by

$$w_u^e = \overline{w}_M \bullet \frac{N_M}{N_U}, \qquad \frac{N_M}{N_U} \leq 1 \qquad \text{...(6)}$$

where, the expected real wage in the urban sector is equal to the urban realminimum wage (wm) adjusted for the proportion of the total urban labor force (NU) actually employed. When NM / NU = 1, there is full employmentin the urban sector and the expected real wage equals the real minimum wage,i.e. $w_u^e = \overline{w}_M$

The total labour endowment in the economy is

$$\overline{N} = \overline{N}_A + \overline{N}_U = N_A + N_U \qquad \text{...(7)}$$

This equation shows that there is a labor constraint in the economy in theform of workers actually employed in the rural sector (NA) plus the totalurban labor force (NM) with equals the initial endowment of rural labor(NA) plus permanent urban labor which, in turn, equals the total labourendowment.

The equilibrium condition is given by the equity equation

$$w_A = w_u^e \qquad \text{...(8)}$$

This is based on the hypothesis that migration from the rural to the urbansector is a positive function of urban-rural wage differential. This can bewritten as

$$\dot{N}_U = f(\overline{w}_M \bullet \frac{N_M}{N_U} Pf') \qquad f' > 0; f(0) = 0 \qquad \text{...(9)}$$

This implies that migration from the rural to the urban sector will cease whenthe expected wage differential is zero, i.e. $w_A = w_u^e$.

This completes the description of an H-T economy. But the above conditiondoes not ensure equilibrium in the entire economy. This requires satisfyingequations from (1) to (8). The H-T model contains eight equations and eightunknowns: XA , XM , NA , NM , w a , , N U and P. Given the productionfunctions of the rural and urban sectors and the fixed minimum urban wage it is possible to solve for sectoral employment, and the equilibrium employment in the urban sector, and consequently the equilibrium expectedwage, the relative output level and the terms of trade of the two sectors.

In the H-T model, migration is a disequilibrium phenomenon. Equilibrium issub-optimal one which is characterised by unemployment. In equilibrium

$$\overline{w}_M \bullet \frac{N_M}{N_U} = Pf'$$

and rural-urban migration ceases.

The H-T model is explained in Fig. 7 where the full employment equilibrium in the economy is represented by the line RM. There exists a uniqueequilibrium on the line $\phi = 0$. Point F is the only full employment equilibriumpoint at which NA number of workers are employed in the rural sector and NMin the urban sector. All-points on the line $\phi = 0$ lying above and to the east of Fare not feasible while points to the left of F are associated with a minimumwage higher than the full employment wage. Suppose a minimum wage is setabove the full employment level somewhere in the area to the west of F.Competition among producers will tend the economy to settle at, say, theminimum wage point W at which N'Aworkers are employed in the rural sectorand N'M in the urban sector. Thus NU –N'M workers are unemployed in the urbansector. This minimum wage w gives theminimum loss of unemployment andoutput in the two sectors and represents asub-optimal situation for the economy.According to Harris and Todaro, this is therational utility-maximizing choice forrural migrants at the minimum urban wagelevel.

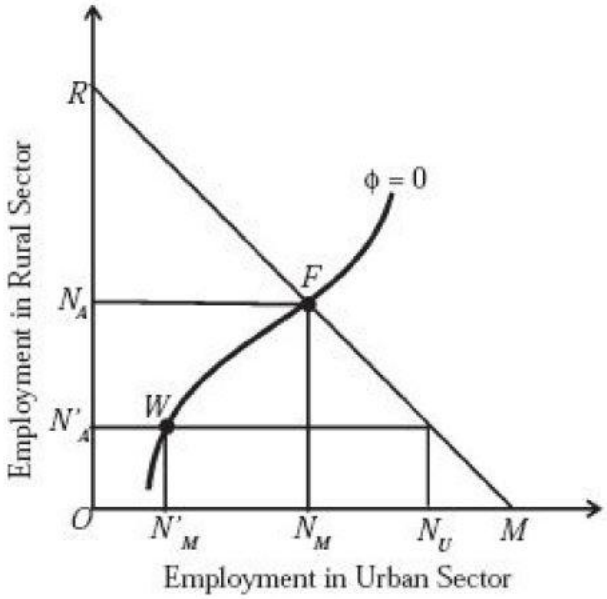


Figure 7

Criticisms

i. The H-T model does not specify alternate policy prescriptions such as giving a wage subsidy to the urban sector and at the same time restricting the migration of those rural workers who are not able to find jobs in the urban sector. Bhagwati and Srinivasan have suggested a uniform wage subsidy to both rural and urban sectors for the economy to attain the optimum level of employment and output.

ii. Harris and Todaro suggest non-distortionary lump sum tax to finance subsidy. But a lump sum tax is seldom non-distortionary.

iii. The H-T model does not take into consideration the generation of savings as a source of financing subsidy. Though savings are low in LDCs, yet they are an important source of non-distortionary finance to subsidise wages.

iv. This model does not incorporate the costs of rural-urban migration or the relatively higher costs of urban living which the migrants have to incur in the urban sector.

v. This model fails to take account of the existence of urban 'informal' or unorganized sector. It moves on the supposition that in the urban sector workers either find jobs in the 'formal' or organized industrial sector or they remain unemployed.

Summary

- The traditional subsistence sector consists of small-scale agriculture, handicraft and petty trade, has a high degree of labor intensity but low capital intensity and little division of labor; 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 labor.
- According to Boeke, western economic theory is meant to explain capitalistic society, whereas the eastern society is precapitalistic. The former is based on unlimited wants, a money economy, and different types of cooperative organizations. Moreover, it is wrong to apply the marginal productivity theory of distribution to explain the allocation of resources or the distribution of income in an underdeveloped economy because of the immobility of resources in such a society.
- Marginal productivity of labor is zero. Subsistence wages are given to the labor in the subsistence sector. New industries can be established as there is unlimited supply of labor available at minimum subsistence wages. In practice wages of the capitalist sector are 30 percent more than the subsistence sector. Capitalist sector needs skilled workers but unskilled laborers are available in subsistence sector.
- 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.
- Prof. D. W. Jorgenson has presented a theory of development of a dual economy. He divides the economy into two sectors—the modern or manufacturing (industrial) sector, and the traditional or agricultural sector

Keywords

- Dualism
- Surplus labour
- Commercialization of agriculture
- Rural-urban migration
- Traditional sector

Self Assessment

1. According to Boeke, wants of the people of underdeveloped countries are unlimited.

A. True

B. False

2. Technological dualism was given by

A. Boeke

B. Higgins

C. Adam Smith
D. Samuelson

3. According to Higgins, technical coefficients are
A. Fixed
B. Variable
C. Cannot be fixed
D. None of the above

4. The workers who are disguisedly unemployed their marginal productivity is
A. One
B. Two
C. Positive
D. Zero

5. According to Lewis, wages in the capitalist sector are 30 percent more than the wages that are given to the workers in the subsistence sector.
A. True
B. False

6. According to technical dualism there is _____unemployment in traditional sector
A. Structural
B. Disguised
C. Both a and b
D. None of the above

7. Factors are used in fixed proportion (technical dualism) in
A. Modern sector
B. Traditional sector
C. Both a and b
D. None of the above

8. According to Lewis the migration from the traditional sector to industrial sector will takes place until
A. All surplus workers are absorbed in industrial sector
B. Some workers are absorbed in the industrial sector

9. Under which of the following phase marginal productivity of the workers is equal to zero.
A. Phase I
B. Phase II
C. Phase III
D. All of the above

10. Under which of the following phase agriculture sector will commercialized?
A. Phase I
B. Phase II
C. Phase III
D. All of the above

11. Which phase of the Fei and Ranis model is similar to Lewis model?
A. Phase I
B. Phase II
C. Phase III
D. All of the above

12. Jorgenson has divided the economy into
A. Modern sector and traditional sector
B. Traditional sector and agriculture sector
C. Industrial sector and modern sector
D. None of the above

13. Which of the following are assumptions of Jorgenson model?
A. The economy consists of two sectors i.e., the agricultural sector and the manufacturing sector.
B. The output of the agricultural sector is a function of land and labour.
C. Land is fixed in supply.
D. All of the above

14. Which of the following are limitations of Todaro model.
A. Does not incorporate cost of rural- urban migration
B. Does not take into account the existence of informal sector in urban areas
C. Both a and b
D. None of the above

15. Why rural urban migration takes place?
A. Due to wage differential
B. Wages are comparatively more in urban areas
C. Employment opportunities are less in urban areas
D. Both a and b

Answers forSelf Assessment

1. B 2. B 3. A 4. D 5. A

6.	A	7.	A	8.	A	9.	A	10.	C
11.	A	12.	A	13.	D	14.	C	15.	D

Review Questions

- Critically examine the Social dualism.
- Critically examine Lewis model of unlimited supply of labour.
- Critically examine Todaro model of migration.
- Make an assessment on Jorgenson model.
- Critically examine technological dualism.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 07: Strategies of Economic Growth

CONTENTS

Objectives

After studying this unit the students will be able to

- Explain how to break the vicious circle of poverty
- Explain how the market size can be enlarged.
- Differentiate between balanced and unbalanced growth
- Explain how much critical effort is required for the development of the economy

Introduction

Balanced-growth equilibrium means that the capital intensity of an economy, itscapital 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, andoutput per worker are growing. Developing economies may adopt a strategy of unbalanced growthto rectify previous investment decisions, as put forward by economist Albert O. Hirschman.

7.1 Balanced Growth Approach

The doctrine of balanced growth has several authors who interpret it in their own way. To some it means investing in a laggard sector or industry so as to bring it abreast of others. To others, it implies that investment takes place simultaneously in all sectors or industries at once. Still to others, it means balanced development of manufacturing industries and agriculture. Balanced growth, therefore, requires balance between different consumer goods industries, and between consumer goods and capital goods industries. It also implies balance between industry and agriculture, and between the domestic and export sector.

Explanation of the Theory

According to Nurkse, vicious circles of poverty are at work in underdeveloped countries which retard economic development. If, however, they are broken, economic development will follow. The vicious circles operate both on the supply side and the demand side. On the supply side , there is the small capacity to save resulting from low real income. The low real income is due to low

productivity which in turn is due to deficiency of capital. The deficiency of capital is the result of low capacity to save. On the demand side , inducement to invest is low because of low demand which is due to low level of real income of the people. The inducement to invest is, therefore, limited by the size of the market which in turn depends upon productivity because 'the capacity to buy is in fact the capacity to produce.' And productivity depends on the amount of capital used in production. But for an individual entrepreneur, the use of capital is inhibited by the small size of the market which in turn is limited by low productivity. Thus the vicious circle is complete.

Did you know

What is vicious circle of poverty?

Vicious circle of poverty is a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty.

How to Break these Circles? Individual investment decisions cannot solve the problem. Nurkse cites Rosenstein-Rodan's famous example of the shoe factory to substantiate his argument. Suppose, a shoe industry is set up. If in the rest of the economy nothing is done to increase productivity and purchasing power, the market for the additional shoe output is likely to be deficient. People engaged in the industry will not like to spend all their income on shoes, human wants being diverse. Nor will the people outside the new industry buy a pair of shoes every year when they do not have enough to meet their bare necessities. Thus, the new industry is likely to fail for want of the adequate market.

How Can the Market be Enlarged?

The size of the market can be enlarged by monetary expansion, by salesmanship and advertising, by abolishing trade restrictions and by expanding the economic infrastructure. It can also be widened either by a reduction in prices, or by an increase in money incomes while keeping prices constant. This implies increase in productive efficiency and in real income. But in underdeveloped countries market is not large enough to permit production on a scale that may lead to reduction in costs. Moreover, inelastic consumer demand, technical discontinuities and lack of enterprise keep down the demand for capital. Therefore, the only way out of this impasse is more or less synchronized application of capital to a wide range of different industries People working with more and better tools in a number of complementary projects become each other's customers.

Notes: The doctrine of balanced growth requires a balance between different sectors of the economy during the process of economic growth. There should be proper balance between investment in agriculture and industry. A balance is also required between the domestic sector and the foreign sector.

Criticism

i. Simultaneous establishment of a number of industries is likely to raise money and real costs of production and so make them economically unprofitable to operate in the absence of sufficient capital equipment, skills, cheap power, finance and other necessary raw materials.

ii. Kindleberger observes that instead of starting with new industries, Nurkse's theory does not consider the possibility of cost reduction in existing industries.

iii. Simultaneous investment in different sector is beyond the Capabilities of Underdeveloped Countries.

7.2 Unbalanced Growth Theory

Economists like Singer, Kindleberger, Streeten, etc. have expressed their views in favour of the unbalanced growth It is, however, Hirschman who has propounded the doctrine of unbalanced growth in a systematic manner.

According to Hirschman, investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development. He maintains that "development has of course proceeded in this way, with growth being communicated from the leading sectors of the economy to the followers, from one industry to another, from one firm to another." He regards development as a "chain of disequilibria" that must

keep alive rather than eliminate the disequilibria, of which profits and losses are symptoms in a competitive economy.

According to Hirschman, when new projects are started they appropriate external economies created by previous projects and create new external economies that can be exploited by subsequent ones. There are some projects that appropriate more external economies that they create which he calls convergent series of investments. There are other projects too that create more external economies than they appropriate which he characterizes as divergent series of investments. 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. In SOC are included investments on 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.

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.

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.

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." 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 isoquant c. If the otherpath 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 smoother 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."

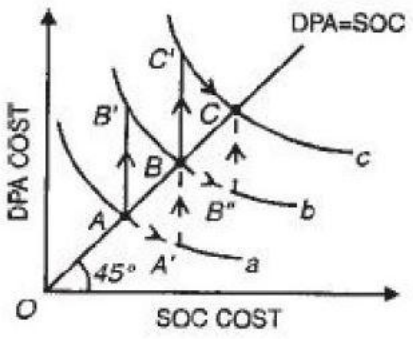


Figure 1

Linkages: 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.

Limitations

i. 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.

ii. 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.

iii. 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.

7.3 Balanced vs Unbalanced Growth

The case for balanced growth rests on the fact that vicious circles of povertyare at work in underdeveloped countries which are responsible for the smallsize of the local market for their goods. The solution lies in a balanced patternof investment in a number of mutually supporting different industries so thatthe size of the market is enlarged.

Its critics argue that an underdeveloped country does not possess sufficientresources in men, materials and money for simultaneous investments in anumber of complementary industries. Another serious weakness of thisdoctrine is that it emphasizes the complementarily of markets for final goods,primarily consumer goods as an inducement to invest and leaves outintermediate goods markets.

Proponents of unbalanced growth strategy favor investments in selectedsectors rather than simultaneously in all sectors of the economy. Investments inselected sectors lead to new investment opportunities. This is possible bydeliberately unbalancing the economy. The aim is to keep alive rather thaneliminate the disequilibria by maintaining tensions, disproportions anddisequilibria.

The strategy of unbalanced growth aims at removing scarcities inunderdeveloped countries by induced investment decision-making. Critics point out that in such countries decision-making itself is scarce along withother resources. Moreover, creating imbalances within the economy bymaking investments in strategic sectors in the face of acute shortage ofresources leads to inflationary pressures and balance of payments difficultiesin underdeveloped countries.

Despite these differences in approaches, the doctrines of balanced andunbalanced growth have two common problems: one, relating to the role ofthe state, and two , the role of supply limitations and supply inelasticity's.

Nurkse believes that balanced growth is relevant primarily to a privateenterprise system. "It is private investment that is attracted by markets and thatneeds the inducement of growing markets. It is here that the element of mutualsupport is so useful and, for rapid growth, indispensable." But critics point outthat private enterprise alone is incapable of taking investment decisions inunderdeveloped countries. Therefore, balanced growth presupposes planning.

On the other hand, in Hirschman's unbalanced growth strategy, the state playsan important role in encouraging SOC investments thereby creatingdisequilibria. If development starts via investment in DPA, political pressuresforce the state to undertake investments in SOC. Thus unbalanced growth alsorequires state planning.

Since both balanced growth and unbalanced growth involve lumpy investmentsin complementary activities, they require state planning. In order to getinvestment decisions implemented and to benefit from complementarities,coordination between the private and public sectors is essential in anunderdeveloped country, whether it adopts the strategy of balanced growth orunbalanced growth.

The other problem concerning the two strategies is the role of supplylimitations and supply inelasticity. Nurkse's theory of balanced growth ismainly related to the lack of demand, and neglects the role of supplylimitations. This is not a correct view because underdeveloped countrieswoefully lack in the supply of capital, skills, economic infrastructure and otherresources which are inelastic in supply. But the demand for final goods can becreated by import restrictions and export promotion without recourse to the strategy of balanced growth.

The unbalanced growth doctrine also neglects the role of supply limitationsand supply inelasticity. Though it emphasizes the scarcity of decision making,yet it ignores the scarcity of physical, human and financial resources in anunderdeveloped country.Thus both strategies err in neglecting supply limitations and base theirarguments on the developed countries which have high elasticity of supply ofresources

7.4 Big Push Approach

The theory of the "big push" is associated with the name of Professor Paul N. Rosenstein-Rodan. The thesis is that a "big push" or a large comprehensive programme is needed in the form of a high minimum amount of investment to overcome the obstacles to development in an underdeveloped economy and to launch it on the path to progress. The theory states that proceeding "bit by bit" will not launch the economy successfully on the development path, rather a minimum amount of investment is a necessary condition for this. It necessitates the obtaining of external economies that arise from the simultaneous establishment of technically interdependent industries. Thus indivisibilities and external economies flowing from a minimum quantum of investment are a prerequisite for launching economic development successfully. Rosenstein-Rodan distinguishes between three different kinds of indivisibilities and external economies. One, indivisibilities in the production function, especially the indivisibility of the supply of social overhead capital; two, indivisibility of demand; and three, indivisibility in the supply of savings.

Indivisibilities in the Production Function

According to Rosenstein-Rodan, indivisibilities of inputs, outputs or processes lead to increasing returns. He regards social overhead capital as the most important instance of indivisibility and hence of external economies on the supply side. The services of social overhead capital comprising basic industries like power, transport, and communications are indirectly productive and have a long gestation period. They cannot be imported. Their installations require a "sizeable initial lump" of investment. So excess capacity is likely to remain in them for some time. Social overhead capital is characterized by four indivisibilities:

i. It is irreversible in time and, therefore, must precede other directly productive investments.
ii. It has a minimum durability, thus making it very lumpy.
iii. It has a long gestation period.
iv. It has an irreducible minimum industry mix of different kinds of public utilities.

Indivisibilities of supply of social overhead capital are one of the principal obstacles to development in underdeveloped countries. Therefore, a high initial investment in social overhead capital is necessary to pave the way for quick-yielding directly productive investments.

Indivisibility of Demand

The indivisibility or complementarily of demand requires simultaneous setting up of interdependent industries in underdeveloped countries. This is because individual investment projects have high risks because low incomes limit the demand for their products. To illustrate, Rosenstein-Rodan takes first a closed economy where a hundred disguised unemployed workers are employed in a shoe factory whose wages constitute an additional income. If these workers spend all their income on shoes they manufacture, the shoe market will have a regular demand and thus succeed. But the fact is that they would not like to spend all their additional income on shoes, human wants being diverse. Nor will the people outside the factory buy additional shoes when they are poor. Thus, the new factory will be abandoned for want of an adequate market.

Did you know?

What is closed economy?

A closed economy is an economy that has no trade with other countries.

Rosenstein's example of the shoe factory is explained in Fig.2. The curves ATC and MC represent the costs of a plant which is a little smaller than the optimum-size plant. D1 and MR1 are the demand and marginal revenue curves of the shoe factory when investment is made only in it. It produces OQ1 (10,000) shoes and sells at OP1 price which does not cover the ATC. So the factory is incurring CABP1 losses. But when simultaneous investment is made in a number of different industries, the market for shoes expands. The demand for shoes rises to D4 (four times) so that the quantity of shoes becomes OQ (40,000). Now the shoe factory earns profits equal to P4RST. Similarly, other industries earn profits.

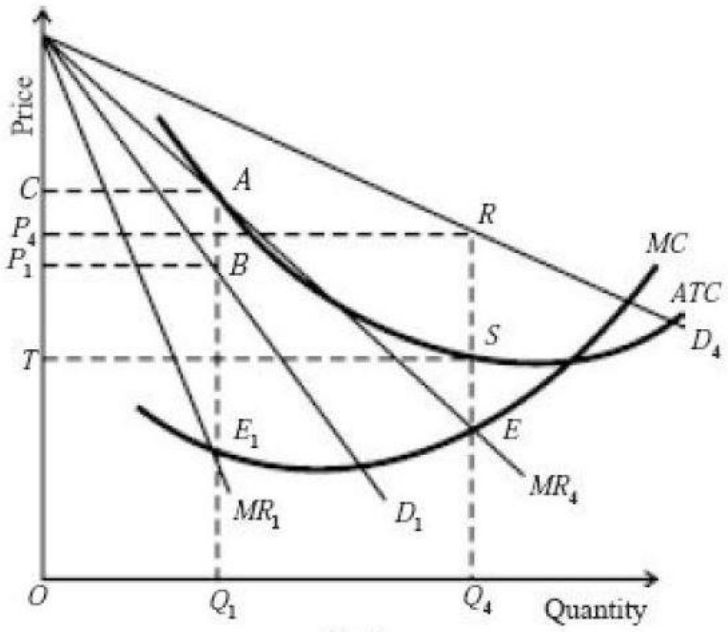


Figure 2

Indivisibility in the Supply of Savings

A high income elasticity of saving is the third indivisibility in Rosenstein's theory. A high minimum size of investment requires a high volume of savings. This is not easy to achieve in underdeveloped countries because of low incomes. To overcome this, it is essential that when incomes increase due to an increase in investment, the marginal rate of saving should be very much higher than the average rate of saving. Given these three indivisibilities and the external economies to which they give rise, a "big push" or a minimum quantum of investment is required to overcome the obstacles to development in underdeveloped countries.

Criticism

i. One of the principal defects of the big push theory is that it emphasizes the importance of a high level of investment in capital goods and consumer goods industries and social overhead capital, except agricultural and other primary industries. The neglect of the agricultural sector in such economies will retard rather than accelerate their development.
ii. High minimum amount of investment on social overheads is highly expensive. Moreover, overhead capital has a high capital-output ratio and a very long gestation period. This makes the task of developing UDCs more difficult and longer.
iii. Rodan's thesis is a sort of prescription for launching underdeveloped countries on the path to progress rapidly in the present. It is not an historical explanation of how development takes place. Historically, the presence or absence of a big push has not been a distinguishing feature of growth anywhere, according to Professor Hagen.

7.5 Critical Minimum Effort Theory

Harvey Leibenstein has developed the thesis that underdeveloped countries are characterized by the vicious circle of poverty that keeps them around a low per capita income equilibrium state. The way out of this impasse is a certain "critical minimum effort" which would raise the per capita income to a level at which sustained development could be maintained. According to Leibenstein, every economy is subject to "shocks" and "stimulants". A shock has the impact of reducing per capita income initially; while a stimulant tends to increase it. Certain countries are underdeveloped because the magnitude of the stimulants has been small and that of shocks large therein. It is only when the income-raising factors are stimulated much beyond the income-depressing factors that the critical minimum is reached and the economy would be on the path to development.

Task: Why shocks are comparatively stronger in underdeveloped countries?

Growth Agents: The rationale of the critical minimum effort thesis rests on the existence of certain favorable economic conditions so that the income-increasing forces expand at a rate higher than the income-depressing forces In the development process such conditions are created by the expansion of the "growth agents". They are the quantum of capacities residing in the members of the population to carry out growth-contributing activities. The typical growth agents are the entrepreneur, the investor, the saver, and the innovator.

The incentives are of two types: positive-sum incentives and zero-sum incentives. The 'positive-sum, incentives that lead to expansion of national income. It is apparent that only the positive-sum type of activities lead to economic development. But conditions in underdeveloped countries are such that entrepreneurs are engaged in zero-sum activities. In underdeveloped economies, there are certain influences averse to change that tend to depress per capita incomes. They are: the zero-sum entrepreneurial activities directed towards the maintenance of existing economic privileges through the inhibition and curtailment of potentially expanding economic opportunities; the conservative activities of both organized and unorganized labor directed against change.

To overcome these influences which keep the economy in a state of economic backwardness, a sufficiently large critical minimum effort is required to sustain a rapid rate of economic growth which should stimulate the positive sum incentives and create forces for counteracting zero-sum activities. As a result of the critical minimum effort, the per capita income would rise and tend to increase the level of saving and investment, which in turn, would lead to an expansion of the growth agents, increase in their contribution to per unit of capital as the capital-output ratio declines, decrease in the effectiveness of factors inhibiting growth, the creation of social and environmental conditions that promote social and economic mobility, increased specialization and expansion of secondary and tertiary sectors and the development of an atmosphere that leads to changes is more conducive to economic and social changes, and especially an environment that leads to eventual fertility decline and an eventual decline in the rate of population growth."

Leibenstein's critical minimum efforts thesis is explained in Fig. 3 where the 45°line measures induced increases and decreases in per capita income which are equal on any point on this line. The curve x t x t represents the per capita income rising forces and the curve z t z t the per capita

income-depressing forces. E is the equilibrium point where the two forces are in balance. If the stimulants raise per capita income from the equilibrium level Oe to Om, the income-raising forces, generated will raise the per capita income level by na. But at this level, the income-depressing forces ,fb generated by z t are greater than the income-raising forces generated by xt . These will, therefore, generate the downward path abcd, until it reaches the equilibrium position E. It is only when the investment programme raises the per capita income to Ok level that the path of sustained growth starts. The income raising forces generated at Ok will raise the income level to sG which will, in turn, generate the path of endless expansion of per capita income, as shown by the arrows rising above G. Raising per capita income to Ok level and beyond point G is the critical minimum effort case.

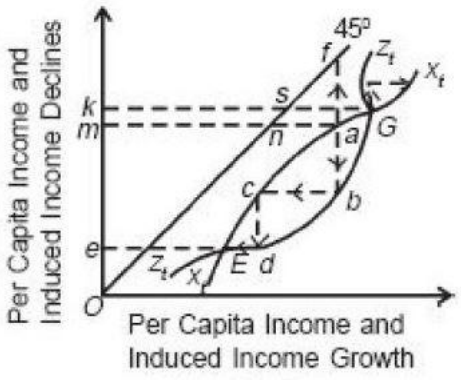


Figure 3

For sustained development, it is imperative that the initial investment effort must be above a certain minimum level so as to generate a sufficiently large per capita income level in order to overcome autonomous or induced income depressing forces. But the critical minimum effort need not be made all at once. It would be more effective, if it is broken up into a series of smaller efforts of which the applications to the economy are optimally timed. This is illustrated in Fig. 4 where the line ee represents the low per capita income level and mm the critical minimum per capita income level. The gap between the two is divided into Area I and Area II. The Area III above mm is of self sustained growth. If Oa is the per capita income to start with, the initial injection of investment would raise per capita income to Ob level. Then at time t the second injection of investment would raise per capita income by cd so that the critical minimum level mm is reached. If investment is not optimally timed, the per capita income would follow the cy path of the curve bcy toward the low equilibrium leveled.

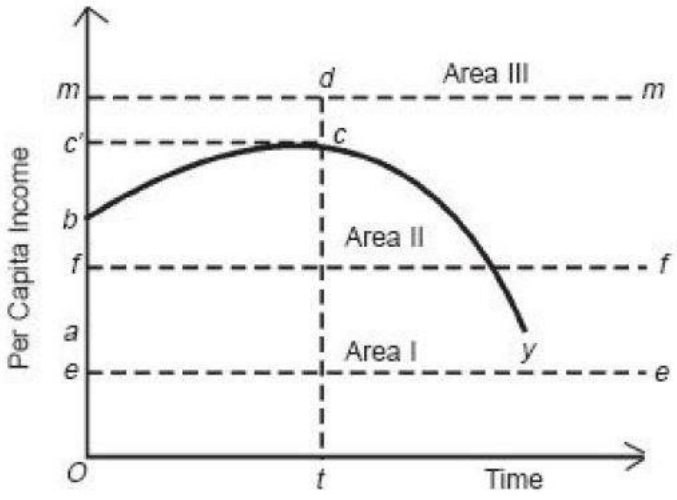


Figure 4

Population Growth a Function of Per Capita Income: Leibenstein's thesis is, however, based on the empirical evidence that the rate of population growth is a function of. If the per capita income is

raised above the subsistence equilibrium position, the mortality rate falls without any drop in the fertility rate. The result is an increase in the growth rate of population, Thus, an increase in per capita income tends to raise the growth rate of population. It is only up to a point. Beyond that, the increase in per capita income lowers the fertility rate and as development gains. This is discussed with the help of Fig. 5 where the rate of population growth or national income growth is measured along the horizontal axis and the level of per capita income on the vertical axis. The curve N measures the level of per capita income which generates a level of national income growth equal to the growth rate of the population. The curve P indicates the rate of population growth at each level of per capita income. Starting from point a which represents the subsistence equilibrium point where there is absence of population and income growth, if the per capita income is raised to Oy b ,the population growth rate is 1 per cent while the income growth rate is less than 1 per cent. At the Oy c level of per capita income, the rate of population growth is higher than the rate of national income growth, i.e., y c g >y c c, the former is 2 per cent while the latter is 1 per cent. Therefore, the per capita income level should be so raised as to increase the national income by more than the rate of population growth. This is only possible after Oy c level of per capita income whence the rate of population growth starts declining. Point e is the 3 per cent maximum biologically determined growth rate of population assumed by Leibenstein. Oy e is thus the critical minimum per capita income level which can sustain itself and generate the process of sustained economic development.

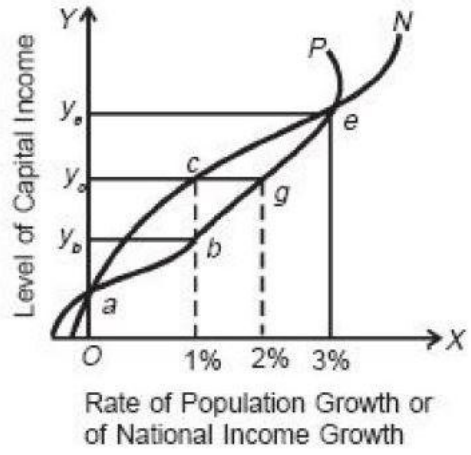


Figure 5

Criticism

i. Leibenstein ignores the state action in bringing down the fertility rate. As the experience of Japan has shown, no underdeveloped country can afford to wait for per capita income to rise above the critical minimum level so that the birth rate may start declining automatically.
ii. The theory fails to take into account the time element which is required for sustained efforts during which fundamental changes in the institutional and productive structure should be taking place for ensuring a successful take-off.
iii. According to Prof. Myint, the functional relationship between the level of per capita income and the rate of growth in total income is more complex and not so simple, as has been shown by Leibenstein.

Summary

1. The doctrine of balanced growth requires a balance between different sectors of the economy during the process of economic growth. There should be proper balance between investment in agriculture and industry. A balance is also required between the domestic sector and the foreign sector.
2. 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. There are other projects too that create more external economies than they appropriate which he characterizes as divergent series of investments.

3. A high minimum size of investment requires a high volume of savings. This is not easy to achieve in underdeveloped countries because of low incomes. To overcome this, it is essential that when incomes increase due to an increase in investment, the marginal rate of saving should be very much higher than the average rate of saving.
4. Certain countries are underdeveloped because the magnitude of the stimulants has been small and that of shocks large therein. It is only when the income-raising factors are stimulated much beyond the income-depressing factors that the critical minimum is reached and the economy would be on the path to development.
5. To overcome the influences of shocks, a sufficiently large critical minimum effort is required.

Keywords

- Balanced growth
- Vicious circle of poverty
- Unbalanced growth
- Critical minimum efforts
- Shocks

Self Assessment

1. Which of the following indivisibilities can be seen in underdeveloped countries according to Rosenstein Rodan?

A. Indivisibility of production function
B. Indivisibility of demand
C. Indivisibility of savings
D. All of the above

2. Which of the following way was suggested by RagnerNurkse to break the vicious circle of poverty?

A. Simultaneous investment in all sectors of the economy
B. Invest more money in leading sector of the economy
C. Invest less money in agriculture sector
D. Investment more money in industrial sector

3. The vicious circle of poverty can be

A. Demand side only
B. Supply side only
C. Both demand and supply side
D. None of the above

4. Social overhead capital includes the investment in

A. Education
B. Health
C. Communication
D. All of the above

5. Which of the following are ways to unbalance the economy according to Hirschman?
A. SOC to DPA
B. DPA to SOC
C. Both a and b
D. None of the above

6. Which of the following is pressure relieving path of economic development as discussed by Hirschman?
A. SOC to DPA
B. DPA to SOC
C. Investment in directly productive activities only
D. All of the above

7. Which of the following appropriate more economies then they create?
A. Investment in DPA
B. Investment in SOC
C. Both a and b
D. None of the above

8. Rosenstein Rodan theory of big push is based on which of the following idea?
A. Internal economies of scale
B. External economies of scale
C. Unbalanced growth
D. Investment in only one sector of the economy

9. Marginal propensity to save must be greater than average propensity to consume according to
A. Indivisibility of savings
B. Indivisibility of production
C. Indivisibility of investment
D. Indivisibility of production function

10. According to critical minimum effort theory, the population will start declining when the per capita income will be more than 3 percent because
A. Cost of living will increase
B. Cost of living will decrease
C. Demand for product will fall
D. Prices will fall

11. Stimulants are comparatively stronger in
A. Developing countries
B. Developed countries
C. Underdeveloped countries
D. Less developed countries

12. Why shocks are comparatively stronger than stimulants in developing economies?
A. Because of lack of entrepreneurs
B. Paucity of capital
C. Investment opportunities are limited
D. All of the above

13. Which of the following are shocks?
A. War
B. Unemployment
C. Both a and b
D. None of the above

14. Growth of industries stimulates the growth of those industries which supplying raw material. This strengthen the
A. Backward linkages
B. Forward linkages
C. Demand for steel
D. All of the above

15. Investment in leading sector of the economy is required for
A. Balanced growth
B. Unbalanced growth
C. Reduction of supply
D. Reduction of employment opportunities

Answers forSelf Assessment

1.	D	2.	A	3.	C	4.	D	5.	C
6.	A	7.	A	8.	B	9.	A	10.	A
11.	B	12.	D	13.	C	14.	A	15.	B

Review Questions

- Is it balanced or unbalanced growth strategy better for underdeveloped countries? Discuss it with an example.
- Critically examine the critical minimum effort theory of economic growth.

- Critically examine the big push theory of economic growth.
- Write a detailed note on balanced growth theory.
- Write a detailed note on unbalanced growth theory.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 08: Development Policy Making

CONTENTS

Objectives

After studying this unit the students will be able to

- Know about planning
- Describe the nature of development planning
- Know about role of market in economic development of the country

Introduction

In the initial decades after the Second World War and decolonization, the pursuitof economic development was reflected in the almost universal acceptanceof development planning as the surest and most direct route to economicprogress. Until the 1980s, few people in the developing world would havequestioned the advisability or desirability of formulating and implementing anational development plan. Planning had become a way of life in governmentministries, and every five years or so, the latest development plan was paradedout with great fanfare.National planning was widely believed to offer the essential and perhapsthe only institutional and organizational mechanism for overcoming the majorobstacles to development and for ensuring a sustained high rate of economicgrowth. To catch up with their former rulers, poor nations were persuadedthat they required a comprehensive national plan. The planning record, unfortunately,did not live up to its advance billing. But a comprehensive developmentpolicy framework can play an important role in accelerating growth, reducingpoverty, and reaching human development goals.

8.1 Nature of development Planning

Economic planning may be described as a deliberate governmental attemptto coordinate economic decision making over the long run and to influence,direct, and in some cases even control the level and growth of a nation's principaleconomic variables (income, consumption, employment, investment,saving, exports, imports, etc.) to achieve a predetermined set of developmentobjectives. An economic plan is simply a specific set of quantitative economictargets to be reached in a given

period of time, with a stated strategy forachieving those targets. Economic plans may be comprehensive or partial. Acomprehensive plan sets its targets to cover all major aspects of the nationaleconomy. Finally, theplanning process itself can be described as an exercise in which a governmentfirst chooses social objectives, then sets various targets, and finally organizes aframework for implementing, coordinating, and monitoring a developmentplan.

Proponents of economic planning for developing countries argued thatthe uncontrolled market economy can, and often does, subject these nationsto economic dualism, unstable markets, low investment in key sectors, andlow levels of employment. In particular, they claimed that the market economyis not geared to the principal operational task of poor countries: mobilizinglimited resources in a way that will bring about the structural changenecessary to stimulate a sustained and balanced growth of the entire economy.Planning came to be accepted, therefore, as an essential and pivotalmeans of guiding and accelerating economic growth in almost all developingcountries.

Did you know

What is partial planning?

A partial plan covers only a part of the national economy—industry, agriculture, the public sector, the foreign sector, and so forth.

8.2 Role of Market and Civil Society in Economic Development

Markets accomplish many positive things, not least of which is deliveringgoods that consumers want, where and when they want them, and providingincentives for innovation. Amartya Sen has pointed out that to be genericallyagainst markets is almost as strange as to be generically against conversations.As he says, some conversations do harm, even to those doing the conversing,but this is not a reason to be against conversations in general. To underpin awell-functioning market system requires special social, institutional, legal,and cultural conditions often very limited if not absent in developing nations.Fraud, corruption, monopoly, and other market failures do not disappear withthe wave of a magic neoclassical wand. Nathan Keyfitz and Robert Dorfmanhave identified 14 institutional and cultural requirements for the operation ofeffective private markets:

i. Trust (in banks, insurance companies, suppliers, etc.)
ii. Law and order (enforcement of contracts)
iii. Security of persons and of property
iv. Balancing competition with cooperation (for a safe workplace and a cleanerenvironment)
v. Division of responsibility and diffusion of power (an independent judiciary)
vi. Community altruism (a social "safety net" for the impaired, chronicallyunemployed, elderly, etc.)
vii. Social mobility, legitimating of ambition, and toleration of competitiveness
viii. Materialistic values as a stimulus to greater production
ix. Deferring gratification to generate private saving
x. Rationality unconstrained by tradition
xi. Honesty in government
xii. Efficient forms of competition, as opposed to monopolistic control
xiii. Freedom of information (along with protection of privacy)
xiv. Flows of information without restrictions or favouritism

Given the existence of these institutional and cultural preconditions, a wellfunctioningmarket system requires at least the following 11 market-facilitatinglegal and economic practices:

i. Property rights clearly established and demarcated; procedures for establishingproperty rights and transferring them
ii. Commercial laws and courts to enforce them, especially contract andbankruptcy laws

iii. Freedom to establish businesses in all sectors except those with significantexternalities, without excessive licensing requirements; analogous freedomto enter trades and professions and to attain government offices(equal economic opportunity)
iv. A stable currency and a reliable and efficient system for making transfers(a banking system)
v. Public supervision or operation of natural monopolies (industries with increasingreturns to scale) as occurs in industries where technological efficiencyrequires that a firm be large enough to supply 10% to 15% of thenational market
vi. Provision of adequate information in every market about the characteristicsof the products offered and the state of supply and demand, to bothbuyers and sellers
vii. Autonomous tastes—protection of consumers' preferences from influenceby producers and purveyors
viii. Public management of externalities (both harmful and beneficial) and provisionof public goods
ix. Instruments for executing stabilizing monetary and fiscal policies
x. Safety nets—provisions for maintaining adequate consumption for individualsaffected by certain economic misfortunes, especially involuntaryunemployment, industrial injuries, and work disabilities
xi. Encouragement of innovation, in particular, issuance and enforcement ofpatents and copyrights

It is clear that market reforms involve much more than merely eliminatingprice distortions, privatizing public enterprises, and declaring markets free.The setbacks to market reforms in many transition economies is in no smallmeasure attributable to the absence of some (or many) of the institutional preconditionsand market practices. Thus governments have important limits,and so do markets, as the earlier review of market failures makes clear.Again, the question is one of balance. This is reflected in the move away fromthe once-dominant "Washington Consensus."

8.3 Development Political Economy

Until recently, two extreme views seem often to have dominated the discussionsof the role of government in economic development. The first view hasbeen that effective government was not only necessary due to market failurebut possibly even sufficient to achieve economic development. At least implicitin this view is the argument that if a particular regime could not becounted on to perform competently and honestly in this process, either theregime would eventually be forced to do so as a result of building politicalpressures or else it would lose power, through elections if available or throughother means if not.

The second view, associated with the neoclassical counterrevolution ornew orthodoxy school, which has its roots in Nobel laureate Friedrich vonHayek, was developed in the ideas of Nobel laureate James Buchanan andwas applied to development policy by Anne Krueger, Deepak Lal, and others.In this view, participants in government, such as politicians and bureaucrats,were as selfish and self-interested as owners of companies but lacked the marketto restrain them. Even when the economy was locked in a poverty trap,government itself played a key role in that bad equilibrium. While thesepoints might enjoy broad agreement under some circumstances, this approachdrew the strong conclusion that as a rule, at least beyond a minimum role,governments could only make things worse.

It is easy to see how such extreme views became popular: At least they offereda guiding framework. Development specialists with a more nuancedview of government's role seemed to lack a clear theory. At the same time,most countries seemed to follow a particular "model" of development year afteryear, decade after decade, many reacting to colonial experiences: Governmentsin newly independent countries often either continued colonial policiesor seemed to choose policies in angry reaction to those of the colonial periodby emulating either Soviet policies or more moderate versions of them, as inIndia. In short, there was all too little on which to base a meaningful theory ofdevelopment policy formulation.The questions are insistent ones. Why did some developing countries reformquickly and effectively and others remain stuck year after year in an obviouslycounterproductive set of policies? Why did some adopt a course of aggrandizementfor

the rulers and others focus successfully on shared growth? Whydid some reform programs become bogged down in squabbling among interestgroups and others reach compromises that allowed for relatively efficientand equitable outcomes? Why were apparently good policy reforms abandonedin some countries after their adoption and stuck to diligently andunswervingly in others? Moreover, why did some governments that seemedto be following good advice on reform end up with an unequal and slowgrowthoutcome when they led to better outcomes elsewhere? Why weresome countries such as Chile able to make a transition to a centrist, sharegrowthregime after being stuck first in a stagnant import substitution modeand then in a dictatorship for which reducing poverty and inequality was nota priority? What makes for the dynamism of a Mauritius rather than thestagnation of a Guinea-Bissau, the recent progress of a Mozambique ratherthan the impasse of an Angola, a South Korea rather than a Philippines, aThailand rather than a Myanmar? There are better questions than answers,but a start has been made.A foundation is to focus on the quality of incentives provided by the underlyingeconomic institutions. Beyondthis, the general framework of political economy analysis is that people maybe assumed to oppose policy changes if they think they are likely to personallylose by them. Obviously, people do at times support policies that they believeare morally right, even if they will prove materially costly to them. As arule of thumb, however, most work in this field begins with the assumption ofmaterial self-interest, the so-called self-interest standard of rationality. For example,an economic reform that benefits most people may not be adopted if thelosers are relatively few in number but have a lot to lose and so have a greatincentive to take actions—ranging from lobbying to bribery—to block the reform,while the many gainers each stand individually to benefit relatively little, sothey do not have much of an incentive to take comparable political action insupport of the reform. This pattern of diffuse gainers and concentrated losershas been identified repeatedly in postmortems of reform failure.

8.4 Institution and Path Dependency

The framework suggested by Nobel laureate Douglass North is useful for understandingqualitative differences in policy formulation across countries. North distinguishesbetween institutions and organizations. Institutions are "formal andinformal rules of the economic game." These are humanly devised constraints,notably contract enforcement, that define incentives for savings, investment, production,and trade. These in turn affect benefits and costs and economic behaviourthat may lead to development or decline. Following from this, organizationsspring up around the property rights, designed to help those who control the organizationprosper under these existing property rights. Organizations emergethat are in large part defined and shaped by the incentives that emerge from theserules. In a widely cited quote, North says, if the institutional matrix rewardspiracy, then [only] piratical organizations will come into existence. Once these inefficient rights are in place, there are generally no incentivesfor the people in power to change them, especially when these rights can provideleaders with greater private gains than an alternative regime that mightbe better for society as a whole. Thus inefficient institutions continue at the expenseof overall welfare or of growth; the market cannot guarantee the evolutionof efficient institutions. This trap is an example of path dependency, acondition in which the past condition of an individual or economy affectsfuture conditions. Several examples of path dependency were examined inNorth argues that the "inability of societies to develop effective low-cost enforcementof contracts is the most important source of both historical stagnationand contemporary underdevelopment."

The individuals who control the state have the incentive to use it for privategain rather than for the public interest. But North argues that historically,on occasion, the interests of those with high bargaining power have coincidedwith the public interest; when this occurs, effective institutions emerge, thatprove very difficult to roll back once established.In addition, although there is no way to ensure that this will happen, itappears that the more examples of successful institutions in neighbouringcountries, the greater the pressure on governments to adopt similar institutions.

Clearly, the adoption of certain institutions, including human rights,property rights protection, and democracy, have spread over the objections ofdictators because of their popular appeal. An example of the outward spreadof democracy to neighbours can be seen in Europe from core advanced countriestoward less developed areas—first to Spain, Portugal, and Greece andthen to eastern Europe from the fall of the Berlin Wall to the "colour revolutions."Other examples are the spread of democracy across Latin Americafrom the 1980s, from Japan outward to other East Asian countries after theirmiddle classes reached a certain size, and in a cascade of freer elections inAfrica. A final approach argues that democratization can emerge as a commitmentdevice, that is, a reform accepted by elites who need to prevent revolutionbut can do so only by guaranteeing in this way that they will not renegeon their concessions. Of course, democracies make serious policy

errors too,but the chance that very bad policies will be implemented and go uncheckedare much reduced.An improved understanding of the political economy of successful policyreform and implementation will probably require continued and extensive interactionsbetween political scientists, sociologists, and economists, each ofwhom have valuable insights to contribute from their research. In the process,more will have to be done to base theory on the experiences of the governmentsof developing countries, which in many cases will be struggling withthe early stages of democratization and expanding avenues for developmentparticipation, with higher levels of conflict and in some cases an ongoingthreat of return to military government or other autocratic rule. As MerileeGrindle has noted, further progress in this field will require moving beyondpolitical-economy models that were developed primarily to study politicalprocesses in advanced economies with stable democratic traditions.

8.5 Aggregate Model

The first and most elementary planning model used in almost every developingcountry is the aggregate growth model. It deals with the entire economyin terms of a limited set of macroeconomic variables deemed most critical tothe determination of levels and growth rates of national output: savings, investment,capital stocks, exports, imports, foreign assistance, and so on. Aggregategrowth models provide a convenient method for forecasting output (and perhaps also employment) growth over a three- to five-year period. Almostall such models represent some variant of the basic Harrod-Domar (orAK) model.

Notes: Harrod-Domar has discussed about actual growth rate, warranted growth rate and natural growth rate.

Given targeted GDP growth rates and a national capital-output ratio, theHarrod-Domar model is used to specify the amount of domestic saving necessaryto generate such growth. Typically, this necessary amount of domestic savingis not likely to be realized on the basis of existing savings functions, and sothe basic policy problem of how to generate additional domestic savings or foreignassistance comes into play. For planning purposes, the Harrod-Domarmodel has been typically formulated along the following lines.We start with the assumption that the ratio of total output to reproduciblecapital is constant so that

$$K(t) = cY(t) \tag{1}$$

where K(t) is capital stock at time t, Y(t) is total output (GDP) at time t, and c isthe average (equal to the marginal) capital-output ratio. We assume next that aconstant share (s) of output (Y) is always saved (S), so that

$$I(t) = K(t+1) - K(t) + \delta K(t) = sY = S(t) \tag{2}$$

Where I(t) is gross investment at the time t and δ is the fraction of the capitalstock depreciated in each period. Now if g is the targeted rate of growth ofoutput such that

$$g = \frac{Y(t+1) - Y(t)}{Y(t)} = \frac{\Delta Y(t)}{Y(t)} \tag{3}$$

Thencapital must be growing at the same rate because from Equation (1)we know that

$$\frac{\Delta K}{K} = \frac{c\Delta Y}{K} = \frac{(K/Y)\Delta Y}{K} = \frac{\Delta Y}{Y} \tag{4}$$

Using Equation (2), we therefore arrive once again at the basic Harrod-Domargrowth formula (with the capital depreciation parameter):

$$g = \frac{sY - \delta K}{K} = \frac{s}{c} - \delta \tag{5}$$

Finally, because output growth can also be expressed as the sum of labor forcegrowth (n) and the rate of growth of labor productivity (p), Equation 11.5 canbe rewritten for planning purposes as

$$n + p = \frac{s}{c} - \delta \tag{6}$$

Of course, much development policymaking does not take productivity asexogenous but is actively focused on raising it. But given an expected rate of labor force and productivity growth (labor force growth can be calculatedfrom readily available demographic information, and productivity growth estimatesare usually based either on extrapolations of past trends or on an assumedconstant rate of increase), Equation(6)

can then be used to estimatewhether domestic savings will be sufficient to provide an adequate number ofnew employment opportunities to a growing labor force. One way of doingthis is to disaggregate the overall savings function (S sY) into at least twocomponentsources of saving, normally, the propensity to save out of wage income,W, and profit income, π. Thus we define

$$W + \pi = Y \tag{7}$$

And

$$s_\pi \pi + s_W W = I \tag{8}$$

where sπ and sW are the savings propensities from π and W, respectively. Bymanipulating Equation 11.5 and substituting Equations (7) and (8) into it,we arrive at a modified Harrod-Domar growth equation:

$$c(g + \delta) = (s_\pi - s_W)\left(\frac{\pi}{Y}\right) + s_y \tag{9}$$

which can then serve as a formula for ascertaining the adequacy of currentsaving out of profit and wage income. For example, if a 4% growth rate is desiredand if δ = 0.03, c = 3.0, and π/Y = 0.5, Equation (9) reduces to 0.42 = sπ =sW. If savings out of capital income amount to 25%, wage earners must saveat a 17% rate to achieve the targeted rate of growth. In the absence of such asavings rate out of labor income, the government could pursue a variety ofpolicies to raise domestic saving or seek foreign assistance.In countries where inadequate foreign-exchange reserves are believed tobe the principal constraint on economic growth, the aggregate growth modeltypically employed is some variant of the two-gap model, which will be described,along with their limits. In either case, aggregate growth models can provide only a rough firstapproximation of the general directions an economy might take. Thus theyrarely constitute the operational development plan. Perhaps more important,the simplicity and relatively low data collection cost of using aggregategrowth models can often blind us to their very real limitations, especiallywhen carried out in too mechanical a fashion. Average capital-output ratiosare notoriously difficult to estimate and may bear little relation to marginalcapital-output ratios, which are the relevant ratios for forecasting purposes,and savings rates can be highly unstable. The operational plan requires a moredisaggregated multisector model of economic activity like the well-knowninput-output approach.

8.6 Trends and Governance Reforms

Tackling the Problem of Corruption

Corruption is the abuse of public trust for private gain; it is a form of stealing. Indexesof corruption regularly rate the incidence of corruption far higher in developingcountries than in developed countries. This is understood to reflect bothcause and effect. An absence of corruption encourages investment and efforts toexpand the pie rather than merely fight over its distribution and thus encouragesgrowth; to this extent, improvements in governance in general and reduction ofcorruption in particular could be means to accelerate the process of development.In addition, as societies grow wealthier, good governance becomes morewidely demanded by the population. This latter effect makes simple correlationsbetween income and good governance difficult to interpret: Which causeswhich? Poor governance practices, such as bribery, controls over the press, andlimits on civil liberties, are often found together and are clearly mutually reinforcing. There is clear evidence that good institutionssuch as rule of law and constraints on elites lead to higher growth and incomes.But reform can also beget reform. For example, when Taiwan's press obtainedsubstantial freedoms, many public scandals became publicized, which in turnhelped generate public pressures for reform; the introduction of elections provideda mechanism to enforce this popular will.The elimination of corruption is important for development for several reasons.First of all, as just noted, honest government may promote growth andsustainably high incomes. In addition, the association of eliminating corruptionwith public empowerment suggests that it is a direct objective of development. Finally, the effects of corruption fall disproportionately

on the poor and are a major restraint on their ability to escape from poverty.The elimination of corruption and improvement of governance in general canthus also be viewed as part of an antipoverty strategy. While the rich may paylarge bribes under corrupt regimes, the poor generally pay much larger fractionsof their incomes in bribes and other forms of extortion. In other words,corruption may be viewed as a regressive tax on the absolutely poor. In addition,government for sale means government for the highest bidder. The poorfind fewer services in their communities, including poor education and healthfacilities, when corruption is rife. This makes it more difficult to accumulate themeans to escape from poverty traps. In addition, microenterprises of the poorpay a much higher fraction of their sales in bribes than larger firms do, andlow-income households pay a much larger percentage of their incomes inbribes than higher-income households, as Figure 1 illustrates for the case ofEcuador.

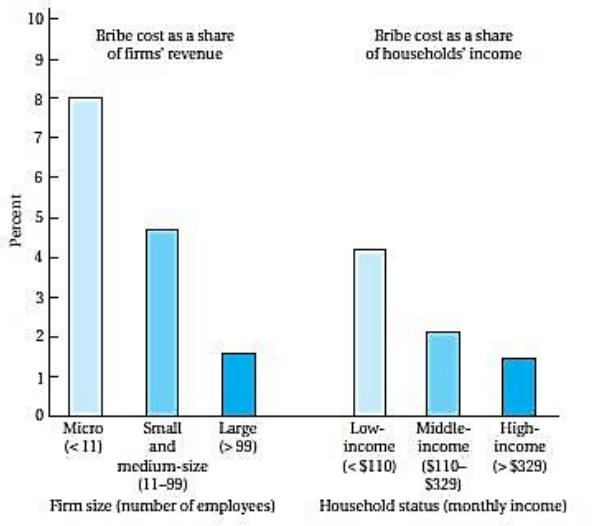


Figure 1

Countries that have avoided or successfully tackled corruption have tended, on average, to promotecompetition and entry in the economy, avoidingtoo much power in the hands of large monopolies such as those in the energysector in many countries, and have ensured that privatized firms faced competition;promoted civil service professionalism, with improved pay and incentivesfor public servants; made public expenditures more transparent, withclearer rules of procurement and budgeting; reduced immunity from prosecutionof executive, legislative, and judicial figures; provided judicial independence;established and enforced meritocratic, transparent promotion policies;and eliminated inefficient regulations and made needed ones more transparent. The relationship between the rule of law and per capita GDP is shown in figure 2

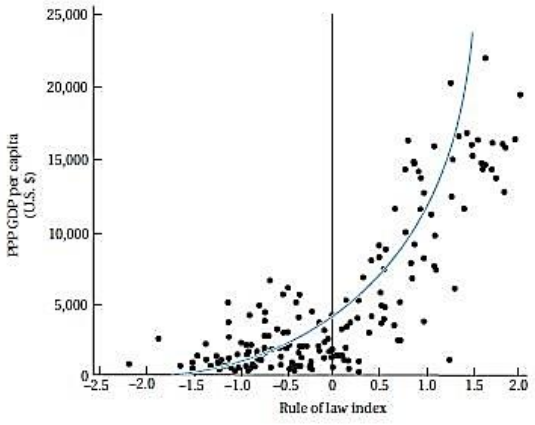


Figure 2

Decentralization

Decentralization has been a long-term trend in developed countries. TheUnited States, Canada, and Germany have had significant powers at the stateand local level enshrined in their constitutions. The European Union has beenproceeding—officially, at least—on the principle of "subsidiary," meaningthat decisions are made at the most local level feasible. The United Kingdomhas

decentralized authority to Scotland and Wales and also to local authoritiesin England. In Italy, power has been transferred to the 20 regions and theirprovinces. Local governments are closer to the urban and rural problems theymust address.

Did you know

What is decentralization?

Decentralization refers to tire systematic efforts to delegate to the lowest levels all authority except that which can only be exercised at central point.

Recently, trends toward decentralization and greater urban self-governmenthave been growing in the developing world as democracy has spread in LatinAmerica, and elsewhere, and the political process has allowed for providinggreater autonomy, notably more fiscal autonomy, for regional and local levelsof government. The constitutional reform that has frequently accompanieddemocratization has in many cases provided an opportunity to codify greaterlocal autonomy. A major motivation of the central government has often beento share fiscal burdens with regions and cities, but decentralization has sometimestaken on a life of its own that has been difficult to contain.Decentralization in Brazil to its 26 states and some 5,000 municipalitiesdates at least to the 1891 constitution, but the recent period of devolution ofauthority started with the constitutional reform of 1989, which gave new authorityand responsibilities to the states and developed fiscal federalism, increasingthe local share of government resources. The fiscal decentralizationoccurred in the wake of the debt crisis of the 1980s and the perceived need tocarry out structural adjustment by lowering the federal budget deficit andspread some of the adjustment burden to the regions. However, many observersconsider the resources available to states and cities too small in relationto responsibilities, with still more burden than opportunity.

Did you know

What is budget deficit?

Budget deficit refer to a situation in which spending is more than income.

Did you know

What is fiscal federalism?

Fiscal federalism refer to how federal, state and local governments share funding and administrative responsibilities within our federal system.

A wave of decentralization in Mexico also began in the late 1980s in thewake of the debt crisis, alongside programs of privatization, liberalization,and deregulation. Constitutional reforms transferred additional power—andresponsibilities—to the states and municipalities. But as in Brazil, local governmentscomplain that they have insufficient resources to carry out theiradded mandates.

A third Latin American example is the Bolivia decentralization of 1994,which recognized local forms of organization and citizen participation; indigenousand peasant organizations have sought an active role under the newsystem, although conflict has continued. The decentralization resulted from acombination of pressures from local government and popular organizationsand from international agencies.

The experience of Senegal is a well-known example of decentralization inAfrica. In 1996, presidents of rural councils were made more accountable totheir constituencies, and regional governments were established to developand carry out regional development policy. However, the fiscal limitations oflocal government in Latin America are small compared to those faced in Senegal,and thoroughgoing fiscal reform remains a top priority.In Asia, decentralization has proceeded apace with democratization, whilelong-standing democracies such as India have also provided greater local control,notably under India's 74th Constitutional Amendment. In China, decentralizationhas occurred to some extent.

Notes:74th constitutional amendment act mandated the setting up and devolution of powers to urban local bodies.

Development Participation

If the goal of economic growth is human development, then without participation,we could have economic growth without development. Indeed, participation—a say in development policies by the people most affected by them—is arguablyin itself a chief end of development. Participation is also a means tofurther human capabilities and other goals of development. Moreover, economic growth is greatly facilitated by human developmentand impossible to sustain without it. Development participation hasbeen shown to make projects work better. With genuine and full participationby beneficiaries on what projects are chosen and in the way that developmentassistance gets used more generally, we should expect less corruption andgreater development results per aid dollar spent.

Development participation has been discussed for decades. The United Nationshas been promoting it since the 1970s; it was an academic fad in the early1980s; and in the late 1990s, the World Bank came out vocally for developmentparticipation. Critics have complained that when the World Bank uses the termparticipation, it often seems meant as a strategy to reduce project costs or to deflectcriticism. But the World Bank has clearly discovered the merits of gettinggovernments and civil society to take ownership of development projects andreforms. Only then are reforms undertaken in a serious and sustainable way.What are the potential objections to the principle of genuine participation?First, the poorest countries need to make some policy decisions and get somerelief operations up and running immediately. The highly indebted poor countriesthat need immediate debt relief feel pressure to prepare plans quickly andprovide little more than nominal time for civil society participation. Even if themechanisms of participation are already in place, it takes time to operate them,to make sure there is sufficient voice, to aggregate the preferences voiced, andto work out a means of implementation. But in most cases, mechanisms of genuineparticipation are not in place; doing so may take years, even with the fullcooperation of national government and local power brokers.Second, unhealthy and unskilled people are probably not able to participateeffectively in development projects, let alone have a full voice in the decisionsthat affect them. A third objection is the costs of time: The poor are busytrying to survive. They may receive a low market wage, but that does notmean they have time available for volunteer work. This is especially true ofwomen. They work long hours in both economic activity and at home becausethey cannot afford alternatives to household production. They may reasonablyview expectations that they participate as unremunerated labour. Donorsand developing-country governments need to develop ways to reward participation,but a big part of the problem is the superficiality of what passes forparticipation in the field. These three objections suggest that participationmay have limits.

Distinctions between different types of participation are a valuable startingpoint and have been suggested by a number of authors. For example, JohnCohen and Norman examine degrees of participation along three dimensions:kinds of participation (in decision making, implementation, benefits,andevaluation), identity of participants (including residents, leaders, governmentpersonnel, and foreign personnel), and how participation occurs (the basis,form, extent, and effect of participation). David Deshler and Donald Sockdistinguish "genuine participation," which can include either citizen controlor cooperation, with delegated power or partnership agreements between citizensand agencies, from "pseudo-participation," which can include placation,consultation, or information without power sharing, as well as "therapy" andmanipulation. The deeper problem is that genuine participation is often notin the interests of national or local government officials and other elites.

Many NGOs are committed, at least on paper, to the more complete formsof participation and aid isoften channeled through these organizations. ButNGO staff often perceives, rightly or wrongly, that beneficiaries do not havethe skills and experience needed to make fundamental decisions or administerprojects efficiently. Administrative competence of beneficiaries is a less tangibleoutcome than, for example, the percentage of farmers who get linked up toirrigation canals; so staff, even with the best of motives, may not view genuineparticipation as a priority but more as a distraction. It is also obvious that staff owes their livelihoods to development work and do not have a material interestin working themselves out of a job. Thus voluntary failure may again bepresent, and staff is motivated to encourage participation as long as it increasesthe efficiency of the project but not necessarily beyond that point. Sucha level of participation may bring benefits but not normally the socially transformativebenefits of genuine participation.Sarah White reports on an NGO in the Philippines that was committed togenuine participation in theory and enabled local people to

develop andcontrol their own organization. But when this organization wanted to bypassthe NGO and interact directly with donors, the NGO would not allow it to doso. Victoria Michener reported on a nonformal education project run by anNGO (Save the Children/FDC in Burkina Faso). Participation itself is one ofthe six objectives of the project, to "increase community participation in educationaldecision making, and in the management of educational activities."

Participants are expected to play an active role in recruiting teachers and students,determining curriculum, building and maintaining the schoolhouse,and paying costs such as teacher salaries.

Overall, the projects would rankvery high in participation typologies such as that of Cohen and Uphoff, providingfor substantial participation in decision making, implementation, benefits,and evaluation. But at the same time, Michener notes an undertone of"planner-cantered participation," especially in the emphasis on the responsibilitiesof beneficiaries. To fieldworkers, participation comes with an obligationthat recipients give something in return—payment, in a sense—for thebenefits of a project: financial, in-kind, or at least the donation of time. Butparticipants naturally resent this requirement, at least in a context of paternalism.Typically, villagers cannot afford to repudiate the NGO; they do benefitfrom the assistance but lack the resources to continue the project on theirown.

Genuine public participation at all levels provides a foundation for democraticand responsive government. Participation will not cure all of the ills ofgovernment, including the limits of democracy itself, but it will go some distanceto alleviating the ills of the politics of development policy reform. Unfortunately,the rhetoric is still well ahead of the reality on the ground.We may conclude, then, that successful economic development requiresimproved functioning of the public, private, and citizen sectors. Each has seriousweaknesses that must be addressed. At the same time, each plays an essentialand complementary role in attaining balanced, shared, and sustainabledevelopment.

Summary

- Economic plans may be comprehensive or partial. A comprehensive plan sets its targets to cover all major aspects of the national economy. A partial plan covers only a part of the national economy—industry, agriculture, the public sector, the foreign sector, and so forth. Finally, the planning process itself can be described as an exercise in which a government first chooses social objectives, then sets various targets, and finally organizes a framework for implementing, coordinating, and monitoring a development plan.
- Marketreforms involve much more than merely eliminating price distortions, privatizing public enterprises, and declaring markets free. The setbacks to market reforms in many transition economies is in no small measure attributable to the absence of some (or many) of the institutional preconditions and market practices.
- Corruption is the abuse of public trust for private gain; it is a form of stealing. Indexes of corruption regularly rate the incidence of corruption far higher in developing countries than in developed countries.
- Decentralization has been a long-term trend in developed countries. The United States, Canada, and Germany have had significant powers at the state and local level enshrined in their constitutions. The European Union has been proceeding—officially, at least—on the principle of "subsidiarity," meaning that decisions are made at the most local level feasible.
- Participants are expected to play an active role in recruiting teachers and students, determining curriculum, building and maintaining the schoolhouse, and paying costs such as teacher salaries.

Keywords

- Economic growth
- Decentralization

- Corruption
- Participants
- Dependency

Self Assessment

1. Which of the following role can be played by comprehensive policy framework?

A. Reduction of poverty
B. Accelerating economic growth
C. Increase in income
D. All of the above (answer)

2. Economic plans may be

A. Comprehensive
B. Partial
C. Both a and b(answer)
D. None of the above

3. Which of the following plan cover only some parts of the economy?

A. Comprehensive plan
B. Partial plan (answer)
C. Market
D. All of the above

4. Which of the following are requirements of requirements for the operation of effective private markets?

A. Trust
B. Law and order
C. Balancing competition and cooperation
D. All of the above

5. Which of the following legal and economic practicesare required for well functioning of the economy?

A. Public management of externalities
B. Provision of public goods
C. Instruments for executing stabilizing monetary and fiscal policies
D. All of the above

6. Which of the following is basic aim of the government policies?

A. Reduce inequalities
B. Reduce poverty
C. Generation of employment opportunities
D. All of the above

7. Individuals who control the state usually have incentive to use it for
A. Benefits of the country
B. Their own benefit (answer)
C. Benefit of the society
D. Benefit of some individuals of the society

8. Which of the following are reasons of stagnation and underdevelopment of less developed countries?
A. Inability to develop efficient methods of production (answer)
B. Use of efficient methods of production
C. Use of machines
D. Use of capital

9. Which of the following variables are important for economic growth of the country?
A. Savings
B. Investment
C. Capital stock
D. All of the above (answer)

10. Absence of corruption encourages the investors to
A. Invest more money
B. Invest less money
C. Create more employment opportunities
D. None of the above

11. Elimination of corruption is required for
A. Economic growth of the country
B. Reduction in poverty
C. Accelerate economic development of the country
D. All of the above

12. Local governments are closer to the_____and rural problems.

13. Corruption is negatively effecting the economic growth of the country
A. True
B. False

14. If the goal of economic growth is human development, then without participation, we could have economic growth.
A. True
B. False

15. Participation itself is one of the objectives of the project, to "increase community participation in educational decision making, and in the management of educational activities".

A. True

B. False

Answers forSelf Assessment

1.	D	2.	C	3.	B	4.	B	5.	D
6.	D	7.	B	8.	A	9.	D	10.	A
11.	D	12.	Urban	13.	A	14.	A	15.	A

Review Questions

1. Write a note on nature of development planning.
2. Discuss the role of market economy in economic development.
3. Critically examine the aggregate model of economic growth.
4. Write a note on governance reforms.
5. Critically examine the developmental path.

Further Readings

- Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015
- Development Economics - Debraj Ray, Oxford University Press
- Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 09: Measuring Development and Development Gap

CONTENTS

Objectives

After studying this unit the students will be able to

- Learn about PQLI
- Learn about measures of poverty
- Learn about measures of inequality
- Describe the different stages of demographic transition

Introduction

The Physical Quality of Life Index (PQLI) is an attempt to measure the quality of life or well-being of a country. The value is the average of three statistics: basic literacy rate, infant mortality, and life expectancy at age one, all equally weighted on a 0 to 100 scale. 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 the quality of life in a quantitative way. It has also been criticized because there is considerable overlap between infant mortality and life expectancy.

9.1 Conventional Approach to Physical Quality of Life Index

In 1979, D. Morris constructed a composite Physical Quality of Life Index (PQLI). He found that mostof the indicators were inputs to development process rather than result of the development process.These indicators reflected that economically less developed countries are simply underdevelopedversions of industrialized countries.He, therefore, combines three component indicators of Infant Mortality, Life Expectancy and BasicLiteracy to measure performance in meeting the basic needs of the people. However, the choice ofindicators is

1. Life Expectancy Indicator (LEI)

2. Infant Mortality Indicator (IMI)
3. Basic Literacy Indicator (BLI)

Did you know?

What is life expectancy?

Number of years a person expect to live

Did you know?

What is infant mortality rate?

Infant mortality is the death of an infant before his or her first birthday. The infant mortality rate is the number of infant deaths for every 1,000 live births

Thesethree indicators can be improved in a variety of ways. However, Prof. Morris used LifeExpectancy (LE) at birth as the indicator. Infant mortality implies deaths before age one instead oflife expectancy at birth. In case, the figure for life expectancy at age one was not available, it couldbe worked out by using a formula which relates life expectancy at birth, infant mortality and theproportion of children

How to Normalize Indicators

We are familiar that life expectancy is measured in terms of years, infant mortality rate in terms ofper thousand and basic literacy rate in terms of percentage. They can Indian Economic Developmentand Elementary Statistics not be simply added. Moreover, basic literacy can have a natural zero forminimum and 100 for maximum, thus there exists no natural minimum or maximum values forother indicators. For comparison, each of the levels should be normalized. Prof. Morris chose thebest and worst levels in each of the three cases. In the case of positive indicators of life expectancyand basic literacy, the best is shown by the maximum and worst by the minimum. While in case ofnegative indicator of infant mortality, the best is denoted by the minimum and the worst by themaximum. For converting the actual levels of a positive variable into normalized indicators, firstthe minimum values are subtracted from the actual values and then the gap is divided by the range.For positive indicators, the formula is:

Achievement Level= Actual Value - Minimum Value / Maximum Value - Minimum Value

For negative indicator of infant mortality, actual value has to be subtracted from the maximumvalue and the gap if any has to be dividing by the range. The formula is

Achieve mental Level =Minimum Value - Actual Value / Maximum Value - Minimum Value

If not shell, there indicators are averaged to give what is called the Physical Quantity of life Index

(PQLI).

PQLI= (1/3) (LEI + IMI + BLI)

Notes:

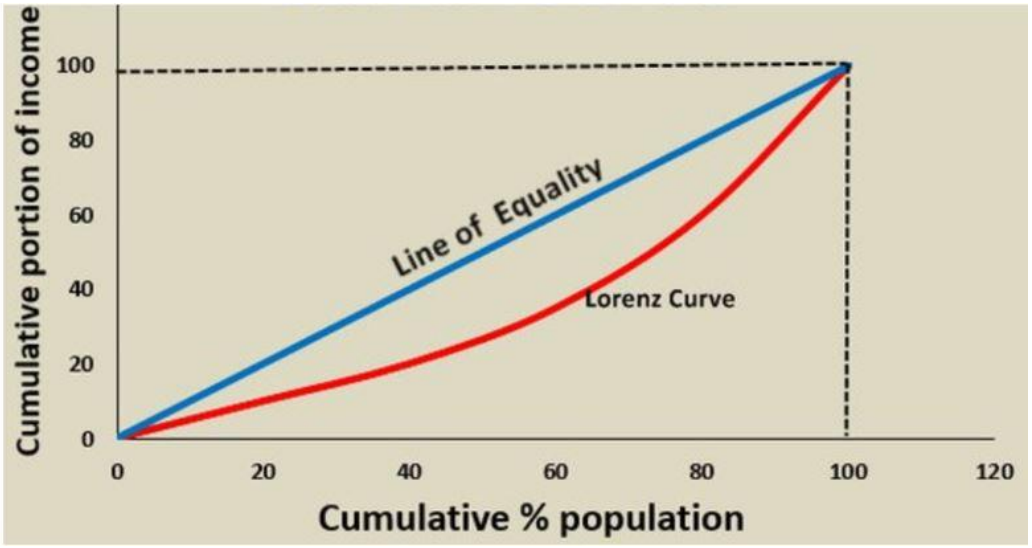
In case of life expectancy and infant morality, there exist no natural minimum and maximum values. The conversions from values to indices are linear. Put the actual value of these indicators of the country in the expression and get the reasonable indices as Physical Quantity of Life Index.

9.2 Measurement of Inequality

1. **Personal Income:**Personal income approach deals with the income that individual receives. How the person has earned income that is not important, important is how much person earns. Suppose Reeta and Seema are receiving same amount of income annually. Reeta is working for 4 hours whereas, Seema is working for 13 hours irrespective of that

both are included in the same income group. According to this approach, the person who is earning more income will be included in the category of rich people.

2. **Lorenz curve:**Conard Lorenz, who in 1095 devised the convenient and widely used diagram to explain the relationship between population groups and their income shares. Cumulative percentage of income recipient is shown on X-axis and cumulative percentage of income on Y-axis. The ray drawn from the origin at an angle of 45o is called Lorenz curve this curve shows the quantitative relationship between percentage of income recipients and the percentage of total income. The inequality is measured by the vertical distance between the line of equality and Lorenz curve. Larger the gap, greater will be the inequality and vice-versa. The case of perfect inequality is a situation in which one person receives all income while others receives nothing. This is represented by Lorenz curve with bottom horizontal and right and vertical axis. Since it is difficult to have either perfect income equality or inequality in any country, therefore Lorenz curve for different countries will lie to the right of the line of equality.



3. **Gini coefficient**: It is another measure of inequality. It is obtained by calculating the ratio of the area between diagonal line and Lorenz curve to the total half the square in which the curve lies. Gini coefficient can vary between zero and one. In case of perfect equality the value of Gini coefficient will be zero and it will be one in case of perfect inequality. Larger the value of Gini coefficient greater will be inequalities. Gini coefficient is considered efficient measure as it satisfies four properties. The four properties are:

i. **The anonymity:**The anonymity principle simply means that this measure of inequality does not identify the class of people the rich or poor, good or bad people. This measure remains silent about the quality of the people.

ii. **Scale of independence:**The scale of independence principle means that measure of inequality should not depend on the size of the economy. For example inequality measure should not depend on whether economy is rich or poor or average.

iii. **Population independence:**The population independence principle states that measure of inequality should not be based on number of income recipients. The inequality measure should be independent of size of population.

iv. **Transfer principle:**The transfer principle states that if some income is transferred from a rich person to poor one, the resulting new income distribution is more equal.

4. **Coefficient of variation:**The coefficient of variation indicates the extent of departure from normal distribution of income. Larger the coefficient of variation, greater will be inequality in income distribution and vice versa.

$$CV = \frac{\text{standard deviation}}{\text{Mean}} \times 100$$

5. **The Kuznets ratios:**Simon Kuznets introduced these ratios in his pioneering study of income distributions in developed and developing countries. These ratios refer to the share of income owned by the poorest 20 or 40% of the population, or by the richest 10%, or more commonly to the ratio of the shares of income of the richest x% to the poorest y%, where x and y stand for numbers such as 10, 20, or 40. The ratios are essentially "pieces" of the Lorenz curve and, like the range, serve as useful shorthand in situations where detailed income distribution data are missing.

9.3 Population Growth and Economic Development

The consequences of population growth on economic development haveattracted the attention of economists ever since Adam Smith wrote his Wealthof Nations. Adam Smith wrote, "The annual labour of every nation is the fundwhich originally supply it with all the necessaries and conveniences of life." Itwas only Malthus and Ricardo who created an alarm about the effects ofpopulation growth on the economy. But their fears have proved unfoundedbecause the growth of population in Western Europe has led to its rapidindustrialization. Population growth has helped the growth of such economiesbecause they are wealthy, have abundant capital and scarcity of labour. In suchcountries, the supply curve of labour is elastic to the industrial sector so thateven a high growth rate of population has led to a rapid increase inproductivity. In fact, every increase in population has led to a more thanproportionate increase in the gross national product.

Effects of Population Growth on Economic Development

Population growth affects economic development in two ways: First, bypromoting economic development and second, by retarding economicdevelopment. We discuss these divergent views as under:

Factors Promoting Economic Development

Kuznets, Lewis, Meier and other economists have shown that the growth ofpopulation has been an important factor in the economic growth of developedcountries in the following ways:

i. **Increase in Per Capita Product:**Prof. Kuznets in his study Modern Economic Growth has pointed out that substantial rates of population growth in Europe have led to high rates of increase in total product and per capita product. The growth of total product and per capita product has been accompanied by growth of national product. The growth of national product, in turn, has been due to the enormous addition to population which has led to large increase in working labor force. Kuznets points out that, "in modern times growth in population has been accompanied by growth in aggregate output for many countries so large that there was also a marked secular rise inper capita product."

ii. **Rise in Labour Productivity:**The rise in the rate of per capita product isthe result of rise in labor productivity. It is improvement in the quality of labor which increases productivity per unit of labor.This means a rise in the efficiency of labor which leads to greater output perunit of labor. Studies made by Schultz, Harbison, Kendrick, Solow and ahost of other economists reveal that one of the important factors responsiblefor the rapid growth of American economy has been the increase in labor productivity. According to Prof. J.K. Galbraith, a large part of America'sindustrial growth has been from improvements brought about by improvedmen.

iii. **Population Growth leads to Growth of Physical Capital:**It has beenproved by recent researches that the growth of physical capital stock dependsto a considerable extent on human capital formation which is the "process ofincreasing knowledge, the skills and the capacities of all people of thecountry." The spread of education, knowledge and know-how raise the level ofskills and physical efficiency of the people and thus increase the productivity of physical capital. The latter, in turn, raises the national product.

iv. **Population Growth leads to Age of High Mass-Consumption:**Rostowhas shown in his Stages of Economic Growth that during the "take-off stage"when the growth rate of population was high, the rate of net investment rose by5-10 per cent of national income. This led to the development of "leadingsectors" due to increase in the effective demand for their products. This pavedthe way for the Age of High Mass-Consumption through which almost alldeveloped countries are passing. Thus, population growth leads to increase inthe production of goods and ultimately to the extensive use (consumption) ofautomobiles, durable consumers' goods and household gadgets.

v. **Population Growth as a Source of Capital Formation:**According to Nurkse and Lewis, high population growth can be a source of capital formation in underdeveloped countries. Nurkse points out that underdevelopedcountries suffer from disguised unemployment on a mass scale. This surplus labor force can be put to work on capital projects like irrigation, drainage,roads, railways, houses, etc. They can be supplied simple spare tools byfarmers and food by their families. In this way, surplus rural labor force canbe a source of capital formation. On the other hand, Prof. Lewis suggests thateconomic development takes place when capital accumulates with thewithdrawal of surplus labor from the rural sector and its employment in theindustrial sector. Such workers are paid the subsistence wage rate which is lessthan the prevailing market wage rate. This leads to profits which are investedby capitalists for capital formation.

Factors Retarding Economic Development

The consequences of population growth on the development ofunderdeveloped countries (UDCs) are not the same because the conditionsprevailing in these countries are quite different from those of the developedeconomies. These economies are poor, capital-scarce and labor-abundant.Population growth adversely affects their economic development in thefollowing ways:

i. **Investment:**Faster population growth makes the choice scarcer betweenhigher consumption now and the investment needed to bring higherconsumption in future. Economic development depends upon investment. InUDCs the resources available for investment are limited. Therefore, rapidpopulation growth retards investment needed for higher future consumption.

ii. **Overuse of Resources:**Rapid population growth tends to overuse thecountry's natural resources. This is particularly the case where the majority ofpeople are dependent on agriculture for their livelihood. With rapidly risingpopulation, agricultural holdings become smaller and unremunerative tocultivate. There is no possibility of increasing farm production through the useof new land (extensive cultivation). Consequently, many households continueto live in poverty. In fact, rapid population growth leads to the overuse of land,thereby endangering the welfare of future generations. Even in countries wherenatural resources are untapped such as Brazil and other Latin Americancountries, rapidly increasing population makes it difficult to invest in roads,public services, drainage and other agricultural infrastructure needed to tapsuch resources.

iii. **Urbanization:** With rapidly growing population, it becomes difficult tomanage the adjustments that accompany economic and social change. Urbanization in UDCs creates

such problems as housing, power, water,transport, etc. Besides, growing population threatens permanent environmentaldamage through urbanization in some rural areas.

iv. **Per Capita Income:** The effect of population growth on per capita income is unfavorable. The growth of population tends to retard the per capita income in three ways: (i) It increases the pressure of population on land; (ii) it leads torise in costs of consumption goods because of the scarcity of the cooperantfactors to increase their supplies; and (iii) it leads to a decline in theaccumulation of capital because with increase in family members, expensesincrease. This adverse effect of population growth on per capita incomeoperate more severely if the percentage of children in the total population isHigh, as is actually the case in all UDCs. Children involve economic costs inthe form of time and money spent in bringing them up. But they are also aform of investment if they work during childhood as is the case with themajority of families, and if they support parents in old age which is rare in thecase of majority of children. As these economic gains from having manychildren are uncertain, therefore, a large number of children in the populationentails a heavy burden on the economy, because these children simply consumeand do not add to the national product. Another factor is the low expectancy oflife in underdeveloped countries. It means that there are more children tosupport and few adults to earn thereby bringing down the per capita income.Whatever increase in national income takes place that is nullified by increasein population. Thus the effect of population growth is to lower the per capitaincome.

v. **Standard of Living:**Since one of the important determinants of the standard ofliving is the per capita income, the factors affecting per capita income inrelation to population growth equally apply to the standard of living. A rapidlyincreasing population leads to an increased demand for food products, clothes,houses, etc. But their supplies cannot be increased in the short run due to lackof cooperant factors like raw materials, skilled labor, capital, etc.Consequently, their costs and prices rise which raise the cost of living of themasses. This brings down further the already low standard of living. Povertybreeds large number of children which increases poverty further, and thevicious circle of poverty, more children and low standard of living continues.But Hirschman and Colin Clark opine that population pressures leading tolowering of standards will encourage the people of UDCs to work hard inorder to improve their standard of living.

vi. **Agricultural Development:**In UDCs, people mostly live in rural areas,Agriculture is their main occupation. So with population growth the land-manratio is disturbed. Pressure of population on land increases because the supplyof land is inelastic. It adds to disguised unemployment and reduces per capitaproductivity further. As the number of landless workers increases, their wagesfall. Thus low per capita productivity reduces the propensity to save and invest.As a result, the use of improved techniques and other improvements on landare not possible. Capital formation in agriculture suffers and the economy isbogged down to the subsistence level. The problem of feeding the additionalpopulation becomes serious due to acute shortage of food products. Thesehave to be imported which increases the balance of payments difficulties. Thus,the growth of population retards agricultural development and creates anumber of other problems discussed above.

vii. **Employment:**A rapidly increasing population plunges the economy into massunemployment and under-employment. As population increases, theproportion of workers to total population rises. But in the absence ofcomplementary resources, it is not possible to expand jobs. The result is thatwith the increase in labour force, unemployment

and under-employmentincreases. A rapidly increasing population reduces incomes, savings andinvestment. Thus capital formation is retarded and job opportunities arereduced, thereby increasing unemployment. Moreover, as the labor forceincreases in relation to land, capital and other resources, complementaryfactors available per worker decline. As a result, unemployment and underemploymentincrease. UDCs have a backlog of unemployment which keeps ongrowing with the rapidly increasing population. This tends to raise the level ofunemployment manifold as compared with the actual increase in labour force.

viii. **Social Infrastructure:**Rapidly growing population necessitates largeinvestments in social infrastructure and diverts resources from directlyproductive assets. Due to scarcity of resources, it is not possible to provideeducational, health, medical, transport and housing facilities to the entirepopulation. There is over-crowding everywhere. As a result, the quality ofthese services goes down. To provide this social infrastructure requires hugeinvestment.

ix. **Labor Force:** The labor force in an economy is the ratio of workingpopulation to total population. Assuming 50 years as the average lifeexpectancyin an under-developed country, the labor force is in effect thenumber of people in the age-group of 15-50 years. During the demographictransitional phase, the birth rate is high and the death rate is on the decline. Theresult is that a larger percentage of the total population is in the lower agegroupof 1-15 years.It means that addition to the lower age-group is larger than the working agegroup.A large percentage of children in the labor force is a heavy burden onthe economy. It also implies that the labor force tends to increase with theincrease in population. It will grow even faster, if more women seek paidemployment. Since it is not possible to increase capital per worker (i.e., capitaldeepening) with growing labor force, each worker will produce less thanbefore. This will reduce productivity and income. Wages will fall in relation toprofits and rents thereby increasing income inequalities. Besides, rapid growthin the labor force increases both open unemployment and under-employmentin urban and rural areas.

x. **Capital Formation:** Population growth retards capital formation. Aspopulation increases, per capita available income declines. People are requiredto feed more children with the same income. It means more expenditure onconsumption and a further fall in the already low savings and consequently inthe level of investment. Further, a rapidly growing population by loweringincome, savings and investment compels the people to use a low leveltechnology which further retards capital formation.

xi. **Environment:**Rapid population growth leads to environmental damage.Scarcityof land due to rapidly increasing population pushes large number ofpeople to ecologically sensitive areas such as hillsides and tropical forests. Itleads to overgrazing and cutting of forests for cultivation leading to severeenvironmental damage. Moreover, the pressure of rapid growth of populationforces people to obtain more food for themselves and their livestock. As aresult, they over-cultivate the semi-arid areas. This leads to desertification overthe long run when land stops yielding anything. Besides, rapid populationgrowth leads to the migration of large numbers to urban areas withindustrialization. This results in severe air, water and noise pollution in citiesand towns.

9.4 Theory of Demographic Transition

The theory of demographic transition or of population stages or of populationcycle has many versions. It has been propounded by W.S. Thomson and F.W.Notestein. They explain the theory in three stages. But the two famous versions are C.P. Blacker's five stages of population growth which have been explained here, and Karl Sax's four stages of population growth, namely, High Stationary,Early Explosive Increase, Late Explosive Increase, and Low Stationary. Hedoes not explain Blacker's Declining Stage, while his four stages almostresemble Blacker 's other stages.The theory of Demographic Transition explains the effects of changes in birthrate and death rate on the growth rate of population.

Did you know?

What is demographic transition?

"Demographic transition refers to a population cycle that begins with a fall in the death rate, continues with a phase of rapid population growth and concludes with a decline in the birth rate

The theory of demographic transition is based on the actual population trendsof advanced countries of the world. This theory states that every country passesthrough different stages of population development. According to C.P.Blacker, they are:

i. The high stationary phase marked by high fertility andmortality rates
ii. The early expanding phase marked by high fertility and highbut declining mortality
iii. The late expanding phase with declining fertilitybut with mortality declining more rapidly
iv. The low stationary phase withlow fertility balanced by equally low mortality
v. The declining phasewith low mortality, lower fertility and an excess of deaths over births.

Thesestages are explained in the Fig. 1 (A) & (B). In the figure, the time for differentstages is taken on the horizontal axis and annual birth and death rates on thevertical axis. The curves BR and DR relate to birth rate and death rate respectively. P is the population curve in the lower portion of the figure.

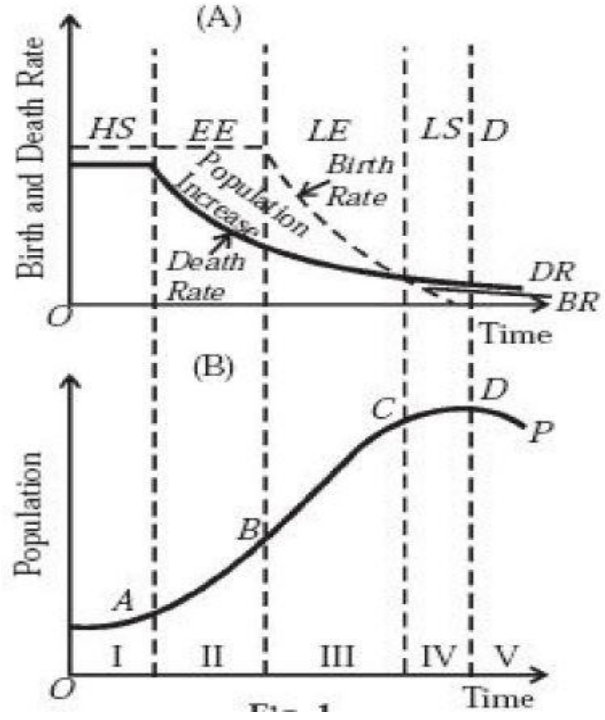


Figure 1

First Stage: In this stage the country is backward and is characterised by highbirth and death rates with the result that the growth rate of population is low.People mostly live in rural areas and their

main occupation is agriculturewhich is in a state of backwardness. There are a few simple, light and smallconsumer goods industries. The tertiary sector consisting of transport,commerce, banking and insurance is underdeveloped. All these factors areresponsible for low incomes and poverty of the masses. Large family isregarded as a necessity to augment the low family income. Children are anasset to the society and parents. The existence of the joint family systemprovides employment to all children in keeping with their ages. More childrenin a family are also regarded as an insurance against old age by the parents.People being illiterate, ignorant, and superstitious and fatalists are averse to anymethod of birth control. Children are regarded as God-given and pre-ordained.All these economic and social factors are responsible for a high birth rate inthe country. Alongwith high birth rate the death rate is also high due to nonnutritionalfood with a low caloric value, lack of medical facilities and the lackof any sense of cleanliness. People live in dirty and unhealthy surroundings inill-ventilated small houses. As a result, they are disease-ridden and the absenceof proper medical care results in large deaths. The mortality rate is the highestamong the children and the next among women of child-bearing age. Thus thebirth rates and death rates remain approximately equal over time so that a static equilibrium with zero population growth prevails. According to Blacker, thisstage continued in Western Europe approximately upto 1840 and in India andChina till 1900. This is illustrated in Fig. 1 (A) by the time period HS-' HighStationary" stage and by the horizontal portion of the P (population) curve inthe lower portion of the figure.

Second Stage: In the second stage, the economy enters the phase of economicgrowth. Agricultural and industrial productivity increases, and means oftransport develop. There is greater mobility of labor. Education expands.Income increase. People get more and betterquality food products, medicaland health facilities are expanded.Modern drugs are used by the people. All these factors bring down the deathrate. But the birth rate is almost stable. People do not have any inclination toreduce the birth of children because with economic growth employmentopportunities increase and children are able to add more to the family income.With improvement in the standard of living and the dietary habits of the people,the life expectancy also increases. People do not make any effort to control thesize of family because of the presence of religious dogmas and social taboostowards family planning. Of all the factors in economic growth it is difficult tobreak with the past social institutions, customs and beliefs. As a result of thesefactors, the birth rate remains at the previous high level. With decline in thedeath rate and no change in the birth rate, population increases at a rapid rate.This leads to Population Explosion. This is an "Early Expanding" (EE) stagein population development when the population growth curve is rising from Ato B as shown in Fig. 1(B), with decline in deathrate and no change in birth rate, as shown in theupper portion of the figure. According toBlacker, 40% of the world population was in thisstage upto 1930. Many countries of Africa arestill in this stage.

Third Stage: In this stage, birth rate startsdeclining accompanied by death rates decliningrapidly. With better medical facilities, the survivalrate of children increases. People are not willingto support large families. The country isburdened with the growing population. Peopleadopt the use of contraceptives so as to limitfamilies. Birth rate declines initially in urbanareas, according to Note stein. With death ratedeclining rapidly, the population grows at a diminishing rate. This is the "LateExpanding" stage as shown by LE in Fig. (A) and BC in Fig. (B). According toBlacker, 20% of the world population was in this stage in 1930.

Fourth Stage: In this stage, the fertility rate declines and tends to equal thedeath rate so that the growth rate of population is stationary. As growth gainsmomentum and people's level of income increases, their standard of livingrises. The leading growth sectors expand and lead to an expansion in output inother sectors through technical transformation. Education expands andpermeates the entire society. People discard old customs, dogmas and beliefs,develop individualistic spirit and break with the joint family. Men and womenprefer to marry late. People readily adopt family planning devices. They preferto go in for a baby car rather than a baby. Moreover, increased specialization following rising income levels and the consequent social and economicmobility make it costly and inconvenient to rear a large number of children.All this tends of reduce the birth rate further which along with an already lowdeath rate brings a decline in the growth rate of population. The advancedcountries of the world are passing through this "Lower Stationary" (LS) stageof population development, as shown in Fig. (A) and CD in Fig. (B).Population growth is curtailed and there is zero population growth.

Fifth Stage: In this stage, death rate exceeds birth rate and the populationgrowth declines. This is shown as D in Fig. (A) and the portion DP in Fig. (B).A continuing decline in birth rate when it is not possible to lower death ratefurther in the advanced countries leads to a "declining" stage of population.The existence of this stage in any developed country is a matter of speculation,according to Blacker. However, France appears to approach this stage.

Conclusion: The theory of demographic transition is the most acceptabletheory of population growth. It does not lay emphasis on food supply like theMalthusian theory, nor does it develop a pessimistic outlook towardspopulation growth. It is also superior to the optimum theory which lays anexclusive emphasis on the increase in per capita income for the growth ofpopulation and neglects other factors which influence it. The biologicaltheories are also one-sided because they study the problem of populationgrowth simply from the biological angle. Thus the demographic transitiontheory is superior to all the theories of population because it is based on theactual population growth trends of the developed countries of Europe. Almostall the European countries have passed through the first three stages of thistheory and are now in the fourth stage.

Task: Why death rate is more in first stage of demographic transition?

9.5 Indicators and Measurement of Poverty

Now let's switch our attention from relative income shares of various percentilegroups within a given population to the fundamentally important questionof the extent and magnitude of absolute poverty in developing countries.the extent of absolute poverty as the number of peoplewho are unable to command sufficient resources to satisfy basic needs.They are counted as the total number living below a specified minimum levelof real income—an international poverty line. That line knows no nationalboundaries, is independent of the level of national per capita income, andtakes into account differing price levels by measuring poverty as anyone livingon less than $1.25 a day or $2 per day in PPP dollars. Absolute poverty canand does exist, therefore, as readily in New York City as it does in Kolkata,Cairo, Lagos, or Bogotá, although its magnitude is likely to be much lower interms of percentages of the total population.

Absolute poverty is sometimes measured by the number, or "headcount," H,of those whose incomes fall below the absolute poverty line, Yp. When the headcountis taken as a fraction of the total population, N, we define the headcountindex, H/N. The poverty line is set at a level that remains constant in real termsso that we can chart our progress on an absolute level over time. The idea is toset this level at a standard below which we would consider a person to live in"absolute human misery," such that the person's health is in jeopardy.Of course, to define a minimum health standard that is invariant acrosshistorical epochs is an impossibility, in part because technology changes overtime. For example, today we have 15-cent oral rehydration therapy packetsthat can save the life of a child in Malawi. Not long ago, the death of a child aftera diarrheal disease would be taken as a sad but inevitable part of life,whereas today we regard such a death as a catastrophic moral failure of the internationalcommunity. We simply come as close as we can to establishing areasonable minimum standard that might hold over a few decades so that wecan estimate more carefully howmuch progress we have made on a (more)absolute rather than a (highly) relative scale.

Task: If Reena is earning Rs. 50000 per month and Ravneet is earning Rs. 100000. Who is comparatively poor among Reena and Ravneet?

Certainly one would not accept the international poverty level of $1.25 aday in an unquestioning way when planning local poverty work. One practicalstrategy for determining a local absolute poverty line is to start by definingan adequate basket of food, based on nutritional requirements from medicalstudies of required calories, protein, and micronutrients. Then, using localhousehold survey data, one can identify a typical basket of food purchased byhouseholds that just barely meet these nutritional requirements. One thenadds other expenditures of this household, such as clothing, shelter, and medicalcare, to determine the local absolute poverty line. Depending on howthese calculations are done, the resulting poverty line may come to more than$1.25 per day at PPP.

In many respects, however, simply counting the number of people belowan agreed-on poverty line can have its limitations. For example, if the povertyline is set at U.S. $450 per person, it makes a big difference whether most ofthe absolute poor earn $400 or $300 per year. Both are accorded the sameweight when calculating the proportion of the population that lies below thepoverty line; clearly, however, the poverty problem is much more serious inthe latter instance. Economists therefore attempt to calculate a total povertygap (TPG) that measures the total amount of income necessary to raise everyonewho is below the poverty line up to that line. Figure 5.6 illustrates how wecould measure the total poverty gap as the shaded area between poverty line,PV, and the annual

income profile of the population.Even though in both country A and country B, 50% of the population fallsbelow the same poverty line, the TPG in country Ais greater than in country B.Therefore, it will take more of an effort to eliminate absolute poverty in countryA.

The TPG—the extent to which the incomes of the poor lie below thepoverty line—is found by adding up the amounts by which each poor person'sincome, Yi, falls below the absolute poverty line, , as follows:

$$\text{TPG} = \sum_{i=1}^{H}(Y_p - Y_i) \quad (1)$$

We can think of the TPG in a simplified way (i.e., no administrative costs orgeneral equilibrium effects are accounted for) as the amount of money per dayit would take to bring every poor person in an economy up to our definedminimum income standards. On a per capita basis, the average poverty gap(APG) is found by dividing the TPG by the total population:

$$\text{APG} = \frac{\text{TPG}}{N} \quad (2)$$

Often we are interested in the size of the poverty gap in relation to the povertyline, so we would use as our income shortfall measure the normalized poverty gap(NPG): NPG = APG/ ; this measure lies between 0 and 1 and so can be usefulwhen we want a unitless measure of the gap for easier comparisons.

Another important poverty gap measure is the average income shortfall (AIS), which is the total poverty gap divided by the headcount of the poor:

AIS = TPG/H. The AIS tells us the average amount by which the income of apoor person falls below the poverty line. This measure can also be divided bythe poverty line to yield a fractional measure, the normalized income shortfall

(NIS): NIS = AIS/Yp.

The Foster-Greer-Thorbecke Index We are also often interested in the degreeof income inequality among the poor, such as the Gini coefficient amongthose who are poor, Gp, or alternatively, the coefficient of variation (CV) of incomesamong the poor, CVp. One reason that the Gini or CV among the poorcan be important is that the impact on poverty of economic shocks can differgreatly, depending on the level and distribution of resources among the poor.For example, if the price of rice rises, as it did in 1998 in Indonesia, low-incomerice producers, who sell a little of their rice on local markets and whose incomesare slightly below the absolute poverty line, may find that this pricerise increases their incomes to bring them out of absolute poverty. On theother hand, for those with too little land to be able to sell any of the rice theygrow and who are net buyers of rice on markets, this price increase can greatlyworsen their poverty. Thus the most desirable measures of poverty would alsobe sensitive to the distribution of income among the poor.

As was the case with inequality measures, there are criteria for a desirablepoverty measure that are widely accepted by development economists: theanonymity, population independence, monotonicity, and distributional sensitivityprinciples. The first two principles are very similar to the properties weexamined for inequality indexes: Our measure of the extent of poverty shouldnot depend on who is poor or on whether the country has a large or smallpopulation. The monotonicity principle means that if you add income tosomeone below the poverty line, all other incomes held constant, poverty canbe no greater than it was. The distributional sensitivity principle states that,other things being equal, if you transfer income from a poor person to a richerperson, the resulting economy should be deemed strictly poorer. The headcountratio measure satisfies anonymity, population independence, and monotonicity,but it fails on distributional sensitivity. The simple headcount failseven to satisfy the population independence principle.A well-known poverty index that in certain forms satisfies all four criteriais the Foster-Greer-Thorbecke (FGT) index, often called the Pα class of povertymeasures. The Pα index is given by

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{H}\left(\frac{Y_p - Y_i}{Y_p}\right)^\alpha \quad (3)$$

where Yi is the income of the ith poor person, Yp is the poverty line, and N isthe population. Depending on the value of α, the Pα index takes on differentforms. If α = 0, the numerator is equal to H, and we get the headcount ratio,H/N. If α = 1, we get the normalized poverty gap.

If α = 2, the impact on measured poverty of a gain in income by a poor personincreases in proportion to the distance of the person from the poverty line.For example, raising the income of a person from a household living at halfthe per capita poverty line by, say, one penny per day would have five timesthe impact on poverty reduction as would raising by the same amount the incomeof a person living at 90% of the poverty line.If α = 2, the resulting measure, P2, can be rewritten as

$$P_2 = \left(\frac{H}{N}\right)[\mathrm{NIS}^2 + (1 - \mathrm{NIS})^2 (\mathrm{CV}_p)^2] \quad (4)$$

As Equation 4shows, P2 contains the CVp measure, and it satisfies all four ofthe poverty axioms.Clearly, P2 increases whenever H/N, NIS, or CVp increases.

Note from the formula that there is a greater emphasis on the distributionof income among the poor (CVp) when the normalized income shortfall issmall and a smaller emphasis when the NIS is large.P2 has become a standard of income poverty measure used by the WorldBank and other agencies, and it is used in empirical work on income povertybecause of its sensitivity to the depth and severity of poverty. For the samereason, the P2 measure has now become part of the Mexican constitution. Mexico uses the P2 poverty measure to allocate funds foreducation, health, and welfare programs for the poor in accordancewith the regional intensity of poverty

The Newly Introduced Multidimensional Poverty Index Poverty cannotbe adequately measured with income, as Amartya Sen's capability framework,makes apparent. Income is imperfectly measured, buteven more important, the advantages provided by a given amount of incomegreatly differ, depending on circumstances. To capture this idea the United NationsDevelopment Program used its Human Poverty Index from 1997 to 2009.

In 2010, the UNDP replaced the HPI with its new Multidimensional PovertyIndex (MPI); by building up the index from the household level, the MPI takesinto account that there are negative interaction effects when people have multipledeprivations—worse poverty than can be seen by simply adding up separatedeprivations for the whole country, taking averages, and only then combiningthem. The first step in measuring poverty is to know which people arepoor. In the multidimensional poverty approach, a poor person is identifiedthrough what is called the "dual cutoff method": first, the cutoff levels withineach of the dimensions (analogous to falling below a poverty line such as $1.25per day if income poverty were being addressed), and second, the cutoff of thenumber of dimensions in which a person must be deprived (below the line) tobe deemed multidimensionally poor.

In applied studies, we need proxy measures, called indicators, for each of theselected dimensions. The index's creators report that they selected the three dimensions(health, education, and standard of living) and each of their correspondingindicators because they reflect problems often mentioned by the poor,they have been long considered important by the development community particularlyas reflected in the Millennium Development Goals, andthey are well established philosophically as human rights or basic needs; naturally,reliable data also had to be available for enough countries.

With respect to health, two indicators—whether any child has died in thefamily and whether any adult or child in the family is malnourished—areweighted equally (so each counts one-sixth toward the maximum possible deprivationin the MPI). Regarding education also, two indicators—whether noteven one household member has completed five years of schooling andwhether any school-age child is out of school for grades one through eight—aregiven equal weight (so again, each counts one-sixth toward the MPI). Finally, interms of standard of living, equal weight is placed on six deprivations (eachcounting one-eighteenth toward the maximum possible): lack of electricity, insufficientlysafe drinking water, inadequate sanitation, inadequate flooring,unimproved cooking fuel, and lack of more than one of five assets—telephone,radio, television, bicycle, and motorbike or similar vehicle.

Calculating deprivation in this way, individuals in a family are then identifiedas "multidimensionally poor" when deprived by a "weighted sum" of 0.3or more (3 out of 10 points as calculated in practice). For concreteness, a personwould get a value of 33% and thus be considered poor by having a child inthe family who is malnourished while at the same time the most educated personin the family received only three years of schooling. Or a multidimensionallypoor person might live in a household that has experienced a child deathand is also deprived in at least three of the six living standards indicators,which also sums to 1/6 + 1/18 + 1/18 + 1/18 = 1/3, or 33%. Or they could livein a household that is deprived in the other three living standard indicatorsand in which there is a school-age child not attending school. But if there

wereno health or education deprivations, a person would have to be deprived inall six standard-of-living indicators to be deemed poor. Thus the MPI approachidentifies the very poor by measuring a range of important householddeprivations directly, rather than only indirectly through income, then buildingthe index from household measures up to the aggregate measure. Ratherthan using already aggregated statistics in an index, the approach takes intoaccount the multiplied or interactive harm done when multiple deprivations areexperienced by the same individual or family. In essence, the approach assumesthat an individual's lack of capability in one area can to a degree be made upfor by other capabilities—but only to a degree. (Put differently, capabilities aretreated as substitutes up to a point but then as complements.) This greatlyaugments measures used previously.

Finally, the actual MPI for the country (or region or group) is computed; aconvenient way to express the resulting value is the product of the headcountratio HM (the percentage of people living in multidimensional poverty) andthe average intensity of deprivation A (the percentage of weighted indicatorsfor which poor households are deprived on average). The adjusted headcountratio HMA is readily calculated, and it also satisfies some desirable properties.One of these is dimensional monotonicity, meaning that when a person deemedpoor becomes deprived in another indicator, he or she is deemed even poorer;this would not be the case if using the simple headcount ratio. Moreover, HMAis a special case of a broader class of multidimensional poverty measures developedby Sabira Alkire and James Foster; for example, with better data anotherof these measures may be used to show the severity of multidimensionalpoverty, analogous to P2.

The UNDP reports the MPI for 104 developing countries, based on the currentlyavailable data; some examples are given in Table 5.2. More countriesmay be added as data availability improves, but already the countries encompass early 78% of the world's population. The index can range from 0 to 1.Slovenia and Slovakia receive an MPI of 0, the lowest possible value, indicatingthe least poverty, while the world's most impoverished country for whichdata were available to compute a ranking, Niger, ranks 104th, with an MPIvalue of 0.642. Based on the thresholds just described, the report found therewere nearly 1.7 billion people living in what was termed "acute" poverty—several hundred million more than the estimated number living on income ofless than $1.25 per day. At the broadest level, the results are not out of linewith what one might expect; sub-Saharan Africa has the highest proportion ofpeople living in poverty, and South Asia has the largest number of people livingin poverty (almost twice as many as in Africa).Only Niger had an MPI higher than 0.6. Seven other countries had an MPIhigher than 0.5, all in sub-Saharan Africa: Ethiopia, Mali, Burkina Faso, Burundi,Somalia, Central African Republic, and Guinea. A further eight countrieshad MPIs between 0.4 and 0.5; all of these were African nations as well.The severity of poverty in Africa is also brought home by some of the findings.In Guinea, Mali, and Niger, more than 50% are poor and live in a household inwhich at least one child has died. In Mozambique, Guinea, Burundi, Mali,Ethiopia, Burkina Faso, and Niger, more than 50% live in a poor householdwhere no one has completed five years of education.

The poorest non-African countries were Nepal (with an MPI of 0.350),Haiti (0.306), India (0.296), Bangladesh (0.291), Yemen (0.283), and Pakistan(0.275). But these six countries have a combined population of about 1.6 billionpeople. And 39% in India and 37% in Bangladesh live in a poor householdwhere at least one child or woman is undernourished.

The results showed that knowing income poverty is not enough if our concernis with multidimensional poverty. For example, multidimensionally,Bangladesh is substantially less poor and Pakistan substantially poorer thanwould be predicted by these countries' income poverty. In Africa,Ethiopia is far more multidimensionally poor and Tanzania much less so thanpredicted by income poverty. Most Latin American countries studied rankworse on multidimensional poverty than on income poverty, but Colombia'sincome and MPI poverty ranks are about the same.

9.6 Concept of Inclusive Growth with Reference to India

Indian economy is growing at a phenomenal rate. It is far from reaching its true potential. The country remains shackled in corruption, red tape, age old social barriers and a puzzling lack of transparency. Growth is not uniformacross sectors; and large cross-sections of the populace remain outside its purview. Several social, political andeconomic factors need to be tackled for sustaining a high rate of growth, as well as to make this growth inclusive.Elimination of child labor, women empowerment, removal of caste barriers and an improvement in work culture arejust a few of the things the Indian society needs to introspect on. Tackling corruption in high places, removing the illsof the electoral system, shunning politics of agitations and keeping national interest above petty politics may not betoo much to ask of the country's policy makers. Rapid growth in the rural

economy, well planned and targeted urbangrowth, infrastructure development, reforms in education, ensuring future energy needs, a healthy public-privatepartnership, intent to secure inclusivity, making all sections of society equal stakeholders in growth, and above allgood governance will ensure that India achieves what it deserves. Of the eight richest people in the world four are Indian, but the irony still remains that there's a marginal farmerin the interior of Maharashtra, who is struggling to feed his five children, the youngest of whom is a son, uneducatedand unemployed, with four sisters, all of marriageable age, whose marriage the farmer cannot afford. Try telling thefarmer that the economy is growing at a handsome 9% per annum, hardly consolation for the empty stomachs hischildren go to bed with every night.

Indian economy is growing, salaries are going through the roof for the educated but the fact still remains, that thepoor are still poor even though the rich have become super rich . The growth is far from inclusive.Economic liberalization which began in the early 1990s has accelerated India's growth rate to an average of 7% peryear since 1997, up from 3.5% in the 1970s. During this period India transformed itself from an agricultural economyto a service economy. Services now form 55% of the Indian economy. The growth and development of theInformation Technology and Information Technology enabled Services have had a significant role in changing theface of the economy. The good news does not end here. The growth rate for India is expected to overtake China'sdouble digit growth rate in the next few years.

Inclusive growth basically means "broad-based growth, shared growth, and pro-poor growth". As an approach ineconomic policy, it is believed to decrease the rapid growth rate of poverty in a country and increase the involvementof people into the growth process of that country.The 11th Plan defines inclusive growth to be "a growth process which yields broad-based benefits and ensuresequality of opportunity for all". The inclusiveness involves four attributes. They are Opportunity, capability, access and security. The Opportunity attribute focuses on generating more and more opportunities to the people and focuses on increasingtheir income. The Capability attribute concentrates on providing the means for people to create or enhance their capabilities in orderto exploit available opportunities.The Access attributes focuses on providing the means to bring opportunities and capabilities together.

Problems before Inclusive Growth Strategies in India

For a developing country like India, the need of inclusive growth is vital to achieve the over all progress of thecountry. Though it is positive for macro-economic stability, 2008-09 resulted a relative growth slowdown, mostlyfrom the spillover effects of the weakening of the global economic momentum and volatile financial markets. Thefollowing problems are the major concerns for developing countries like India to achieve the inclusive growth. Theyare: poverty, employment, regional inequality and problems in social development.

Challenges before Inclusive Growth Strategies in India

The key components of the inclusive growth strategy included a sharp increase in investment in rural areas, ruralinfrastructure and agriculture spurt in credit for farmers; increase in rural employment through a unique social safetynet and sharp increase in public spending on education and health care. The government also should go for a variety oflegislative interventions to empower the disadvantaged. Some of the challenges and opportunities before inclusivegrowth strategies in India are:

i. Poverty eradication
ii. Agricultural growth
iii. Good and Honest Government and Government schemes
iv. Child labour is a complex problem that is basically rooted in poverty.
v. The Indian. Social development
vi. Women Empowerment
vii. Eradicating the regional disparities.

To bring in inclusive growth, it is necessary to enhance the capabilities of women by providing education, so thatthey get the opportunity of getting employed and be self sustainable.

9.7 Institutions and Development

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

Market Failure

All classical and most of neo classical economists argue that laissez faire policy is the best as eachindividual is the best judge of his own interest. If all individuals are left free, there will automaticallye maximization of aggregate utility in the society. But later on economists realized that competitivemarkets lead to the most efficient allocation of resources, if and only if certain conditions are met. Ifthese 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 efficiencyare discussed below.

The Fundamental Theorems of Welfare Economics

There are two fundamental theorems of welfare economics:

i. 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 developedthese 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.

ii. 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 underutilized 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.

Government Failure

Market failure explained above clarified us that market mechanism is not always efficient. There aresituations 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 governmentfailure. Government plays many roles in the economy. It engages itself in production of goods andservices; it involves in economic planning; it announces monetary, fiscal and other policies for theeconomy as per requirements; it also takes care of effective administration in the country. But inpractice, by all means government may not be able to take market to Pareto optimality and may notattain 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 isalso not omnipotent to know all details and free from any defects. It also is not able to realize itsstated objectives in many cases or in some cases even set its objectives wrong. These are known ascases of government failure.

Task: Give two reasons of government failure

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 alsoplay their role. It is extremely relevant to understand the role of institutional set up in determiningthe allocation of resources. Neo-Classical theories were based on 'an institution free environment' ineffect. However, economists like Thorstein Veblen did consider the role of institutions in resourceallocation. There are many theories which have explained the fact that economic growth is related tosome endogenous factors which themselves are neither the causes nor the explanations of economicgrowth. Institutions and differences in them accounts for a large difference in the performance ofdifferent nations.

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 ofcompetition in the market influences the economic output of the firms. It has been observed thatgreater competition due to globalization, has improved the efficiency of domestic producers as theyknow 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 ownershiprights and anonymous markets are desirable. But for public goods, we need to solve the problem ofthe 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 constraintsthat shape human interactions. Institutions acts as an influence as well as a constraint in interactionsamong people. For example, a social institution of marriage and its relative importance in differentsocieties has implications for population growth, gender inequality, sex ratio and consumptionpatterns. 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 likeMarx's Theory of Economic Development and at the same time some theories have assumed aninstitution free environment like Walsarian analysis.Recently economists have made an effort in to extend Walsarian Analysis by incorporating the roleof institutions into it.

One view is to understand the role of changes in property rights and transaction costs on EconomicDevelopment. This view is explained by the economists like Ronal Coase and Douglass. Transactioncosts include the cost of negotiation, monitoring, coordination and enforcement of contracts. Iftransaction costs are high, it is crucial to allocate property rights. With higher transaction costs, someeconomies of scale might have to be sacrificed.Second view is to understand how Economic Development is affected by institutional changes. Thisis done by economists lie George Akerlof and Joseph Stiglitz.Once we understand, the reasons for the existence for the existence of some institutions, we caneasily analyze their roles in economic development.

Summary

1. The inequality is measured by the vertical distance between the line of equality and Lorenz curve. Larger the gap, greater will be the inequality and vice-versa. The case of perfect inequality is a situation in which one person receives all income while others receives nothing.
2. With rapidly growing population, it becomes difficult to manage the adjustments that accompany economic and social change. Urbanisation in UDCs creates such problems as housing, power, water, transport, etc. Besides, growing population threatens permanent environmental damage through urbanisation in some rural areas.
3. In 2010, the UNDP replaced the HPI with its new Multidimensional Poverty Index.
4. Inclusive growth basically means "broad-based growth, shared growth, and pro-poor growth". As an approach in economic policy, it is believed to decrease the rapid growth rate of poverty in a country and increase the involvement of people into the growth process of that country.
5. The key components of the inclusive growth strategy included a sharp increase in investment in rural areas, rural infrastructure and agriculture spurt in credit for farmers;

increase in rural employment through a unique social safety net and sharp increase in public spending on education and health care

Keywords

- Physical Quality of Life Index
- Inequality
- Poverty
- Institutions
- Economic Development
- Population Growth

Self Assessment

1. The value of PQLI index varies between

A. Zero and one
B. One and hundred
C. One and infinity
D. Zero and infinity

2. Which of the following is not component of PQLI?

A. Life expectancy
B. Literacy rate
C. Infant mortality rate
D. Maternal mortality rate

3. Which of the following is not measure of economic inequality?

A. Life expectancy
B. Personal income
C. Lorenz curve
D. Gini coefficient

4. Navneet is earning Rs. 100000 lakh per month and Ravneet is earning Rs. 50000 per month. So Ravneet is

A. Comparatively poorer
B. Comparatively richer
C. Rich
D. Very rich

5. If the value of Gini coefficient is zero then there is complete

A. Equality
B. Inequality
C. Comparatively distribution of income is more equal
D. Comparatively distribution of income is less equal

6. Lesser the difference between the Lorenz curve and line of equality
A. Lesser will be inequality
B. More will be inequality
C. More will be equality
D. Both a and c

7. Why population is increasing in the second stage of demographic transition?
A. Because of fall in death rate
B. Rise in birth rate
C. Both a and b
D. None of the above

8. Why birth rate is declined in third stage of population growth?
A. Rise in cost of living
B. Rise in number of educated people
C. Both a and b
D. None of the above

9. Why birth is declining in fifth stage of population growth?
A. Women are financially independent
B. Concept of childlessness
C. Concept to have more child
D. Both a and b

10. Which of the following can promote the economic development of the country?
A. Increase in per capital income
B. Increase in capital formation
C. Increase in productivity
D. All of the above

11. Which of the following are measures of poverty?
A. Total poverty gap
B. Foster-Greer-Thorbecke Index
C. Average poverty gap
D. All of the above

12. Human poverty index replaced with
A. Multidimensional poverty index
B. Poverty index
C. Inequality index
D. Equality index

13. Which of the following are challenges before the strategies of inclusive growth in India?

A. Poverty eradication
B. Eradication of regional disparities
C. Women empowerment
D. All of the above

14. Inclusive growth basically mean

A. Pro poor growth
B. Shared growth
C. Both a and b
D. None of the above

15. Which of the following stage of population growth is known as population explosion stage?

A. First stage
B. Second stage
C. Third stage
D. Fourth stage

Answers forSelf Assessment

1.	B	2.	C	3.	A	4.	A	5.	A
6.	A	7.	C	8.	C	9.	D	10.	D
11.	D	12.	A	13.	D	14.	C	15.	B

Review Questions

1. Write a note on conventional approach to physical quality of life index.
2. Critically examine the different measures of inequality.
3. Critically examine the theory of demographic transition.
4. How population growth effect the economic development of the country. Explain
5. Critically examine measure of poverty.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 10: Rural Urban Interaction and Development

CONTENTS

Objectives

After studying this chapter the students will be able to

- Learn about formal and informal sector
- Learn about rural urban migration
- Describe the reason of rural urban migration
- Describe the theory of urbanization

Introduction

The most important of many rural–urban interactions is the synergistic role that agriculture playsin the development of the non-agricultural sector. From agriculture comes the supply of labor toindustry and the surplus of food that allows a non-agriculturallabor force to survive. These are thetwo fundamental resource flows from agriculture, and they lie at the heart of the structuraltransformation that occurs in most developing countries.

There are other connections as well. Industry supplies inputs to agriculture: tractors, pump sets,chemicals of various kinds, and so on. With a large population in the rural sector, agriculture is oftena major source of demand for the products of industry, which include not just durables, but finalconsumption goods as well. Agrarian exports can serve as the source of vital foreign exchange, whichpermits the import of inputs to industrial production. While these links are important, the flow of labor from agriculture to industry and the parallel flow of agricultural surplus to nurture workers inindustry are often basic to the development process.

Lewis [1954] outlined a view of development that was based on the foregoing fundamental resourceflows. This approach, which views economic development as the progressive transformation of a"traditional" sector into a "modern" sector, goes beyond the narrower picture of agriculture-toindustrytransformation, but essentially builds on it. The starting point of the Lewis model is the ideaof a dual economy. In a sentence, dualism is the coexistence of "traditional" and "modern," wherethe words in quotes can have several shades of meaning. The traditional sector is often equated to theagricultural sector, which after all produces the traditional output of all societies. In contrast, themodern sector is the industrial sector, which produces manufactured commodities. At the same time,"traditional" can mean the use of older techniques of production that are labor-intensive and employsimple instruments. In contrast, "modern" might refer to the use of new technology, which is intensivein the use of capital. Finally, and perhaps most important at a conceptual level, "traditional" refers totraditional forms of economic organization, based on

family as opposed to wage labor, with overalloutput distributed not in the form of wages and profits, but in the form of shares that accrue to eachfamily member. In contrast, "modern" describes production organized on capitalist principles, whichrelies on the use of wage labor and is carried out for economic profit.

At one level, these distinctions are all a bit vague. Agricultural activity can be commercial, highlycapital-intensive, and employ wage labor, just like any other "modern" economic organization. Theterms labor-intensive versus capital-intensive are certainly not related one for one with traditionalversus modern. Similarly, it is unclear what "traditional" modes of organization mean: the form oforganization may simply depend on the particular environment (the presence of uncertainty, the lack ofa capital market, or limited resources). At the same time, even if we cannot furnish a perfectly logicaldistinction between the two concepts, they have general usefulness and help us to organize ourthoughts.

Essentially, the dual economy consists of two sectors that can be characterized in a number ofways; each way has suggestive advantages, but each carries with it the possibilities of error as well.We label the two sectors "agriculture" and "industry," but recognize that these are provisional labelsand subject to change when the particular issue under discussion needs a more precise description.For instance, it may be useful in some cases to view the urban informal sector as part of the"traditional" sector.

10.1 Formal and Informal Urban Sectors

Begin with the non-agricultural sector; that is, economic activity in urban or semi-urban areas.People who live in these areas are involved in industrial enterprises, both at the production andmanagerial level, and in various service sectors, such as retailing, trade, or tourism. Once we start todisaggregate our economy, it is useful to take the process a bit further, and a further division naturallysuggests itself. In all developing countries, two forms of urban economic activity are apparent. There are firms that operate under the umbrella of accepted rules and regulations imposed by government. Often, the workers of these firms belong to a union, and collective bargaining between firms and workers is not uncommon. These firms are required to pay minimum wages and must conform to certain standards of safety, rules of compensation for workers, pension schemes, and the like. Such firms pay taxes, may receive infrastructural facilities, such as access to subsidized electricity, and may have access to foreignexchange quotas or the right to import certain inputs. Although these norms and regulations vary fromcountry to country, the point is that such firms adhere by and large to such regulations and receive, inturn, the benefits of state economic support.

Think of these firms as the formal sector of the economy. The formal sector bears a closeresemblance to economic activity in developed countries. Because this sector is set up in a way thatpermits the creation and maintenance of records, firms in the formal sector are relatively tangibleentities: they can issue shares and pay out dividends, they can be audited, and they are protected bybankruptcy laws and implicit or explicit forms of insurance. To be sure, entry into the formal sector istypically costly. Perhaps only a certain minimum size of economic activity warrants the setup costs: alicense may be required for operation, tax records need to be kept, pension schemes need to be set upfor employees, and so on.

In contrast, the urban informal sector is a loose amalgam of (usually small-scale) organizationsthat escape the cover of many of these regulations and do not receive access to privileged facilities.The informal sector usually does not adhere to norms of minimum wages, retirement plans, orunemployment compensation. They do not pay taxes and they receive little government support. Thesefirms or businesses are not illegal in the strict sense, but there is a shadowy penumbra within whichthey live, and it is often convenient for the government to look the other way. It is difficult toimplement the rule that a peanut vendor pay his taxes, in part because it is impossible to ascertainhow much he earns. The same goes for the hawker, the teenager who shines shoes, domestic servants,professional beggars, owners of tea stalls, rickshaw pullers, and the young boy who assists in sellingbus tickets or carrying your shopping bags.As we have seen already, an enormous fraction of the labor force comes under this classification.Setup costs are relatively low: the business or trade is usually small scale, and license fees andadvance tax payments are unnecessary (although the occasional bribe may be needed).

Did you know?

What is share?

Company's capital is divided into equal parts.

Bolivia's Formal and Informal Sectors

In 1986, Bolivia's official labor force numbered 1.6 million, which was about half of the economically active population or aquarter of the total population. The informal sector was large and the lack of proper accounting here suggests that the figure of 1.6million is probably a significant underestimate.In the late 1980s, nearly half of all workers were in agriculture. Industry accounted for another 20% and the rest went toservices. The rapid growth of the services sector in developing countries is often an indicator that theagricultural sector is releasing labor faster than the industrial sector can soak it up. Bolivia is no exception. The services sector hasgrown steadily (and mainly at the expense of agriculture) since 1950. Urban workers were clustered in the cities of La Paz (40%),Santa Cruz (20%), and Cochabamba (20%). Urban incomes significantly exceeded rural incomes; the lowest incomes were in thesouthern highlands. Bolivia has a significant history of strong organized labor: labor unions were powerful and strong, and strikes ordemonstrations are not infrequent.Of course, most nonunionized labor was in the informal sector. This sector included nonprofessional, self-employed, unpaidfamily workers, domestic servants, and businesses with five or fewer employees. La Paz was the center of the informal sector, but there was also an illegal component linked to the coca industry.

The informal sector was characterized by ease of entry, the use of credit from noninstitutional sources, and no adherence togovernment regulations, especially regarding the sale of smuggled goods. We can imagine, then, that the variation in informalincomes was quite high. Owners of small businesses might average an income as much as twelve times the minimum wage. Incontrast, salaried workers and domestic servants made much less: typically around half theminimum wage.Informal activities included transportation (usually unregistered buses or taxis), laundry, electrical services, black market currency transactions, money lending, family grocery stores, and the sale of food, clothing, and smuggled consumer items. Industrial workers in the informal sector included seamstresses, weavers, carpenters, and butchers.

10.2 Rural Urban Migration

The Lewis model tells us that agricultural surpluses and labor must be transferred in tandem forindustrial development to begin. But as we have already noted, labor moves from one sector toanother in obedience to its own wishes and objectives. To the extent that these objectives may be outof line with social goals or policies, we might have over- or under migration to the cities.The classic theory of rural–urban migration is based on Harris and Todaro [1970]. We start bytalking about the basic theory, and then extend the framework in a number of different directions.The main idea of the Harris–Todaro model is that the formal urban sector pays a high wage toworkers and it is this high wage that creates urban unemployment. Many reasons might be provided for the phenomenon of an overly high urban wage.

Did you know?

What is unemployment?

The person is ready to work at the prevailing wage rate but the work is not available.

The sector may be unionized and subject to collective bargaining over wages, whereas other sectorsof the economy are not remotely as organized, so that wages are more flexible in those sectors. Inaddition, the urban formal sector is often treated as the showcase of government policy, so thatminimum wage laws, pension schemes, unemployment benefits, day care, and other facilities may berequired by law. These provisions may not raise the wage directly, but amounts to the same thing,because such forms of compensation raise worker utility.

Finally, it may well be the case that firms in the urban formal sector deliberately pay wages thatexceed levels found elsewhere so they can hire workers of the best quality and fire inferior workersafter their quality is revealed. Even if there are no quality differences across workers, "supermarket"wages may still be paid if firms wish to elicit effort from their workers. The idea is that if such effortis not forthcoming, then workers are fired and returned to the informal or rural labor market. Thethreat of being fired induces higher effort. Of course, being fired can carry no threat if the wagepackage is no different from what the worker can get elsewhere; in other words,

to make being fired aserious punishment, the firm must "buy the threat" by paying a higher-than-normal wage.

In contrast to the high wages paid in the formal urban sector, the informal urban sector and the rural sector have low wages that fluctuate according to supply and demand considerations. There isno unionization here and government policy is difficult to implement. Moreover, if the bulk of labor isfamily labor (as it is in much of the urban informal businesses, as well as in rural family farms) or ifthe bulk of labor effort is readily monitor able (as in harvest labor), then there will be little incentivefor employers in these sectors to pay higher wages as a potential threat. Even if there were such anincentive, the net effect is unlikely to dominate the huge premiums that are paid in the urban formalsector.

Migration in the Harris–Todaro model is then viewed as a response to the significant wage gapthat prevails between the two sectors. Of course, not everyone can be absorbed into the formal sectorat these high wages: some people are unlucky and fail to find a job, in which case they turn to theurban informal sector for some meager sustenance. Thus the migration decision is akin to leavingbehind a relatively sure thing (employment as an agricultural labor or on the family farm) for the greatuncertainty of employment as a formal laborer. Those who fail in this quest join the queue of theunemployed, perhaps in disguised form in the informal sector. Thus the urban informal sector (in theHarris–Todaro view) contains the failed aspirants to the formal sector dream—the lottery tickets thatdidn't win.

Did you know?

What is disguised unemployment?

Disguised unemployment is an economic term used to refer to a portion of labour force involved in redundant work with zero marginal productivity.

We begin by assuming that there are only two sectors in the economy: a rural sector and a formalurban sector. Solely for the purpose of setting a benchmark, we assume that wages in both sectors arefully flexible. Later, we introduce rigidity in the urban formal wage.Figure1 captures the basic story. The width of the horizontal axis is the entire labor force inthe economy. The labor force is divided between the agricultural sector, which we denote by A, andthe formal urban sector, which we denote by F. The left axis of the figure records various formalwages in the urban sector, whereas the right axis records agricultural wages. The curve AB may bethought of as a demand curve for labor in the urban formal sector: like most demand curves, it isdownward sloping, so that more labor can be absorbed in the sector only at a lower wage. Likewise,the curve CD captures the absorption of labor in agriculture. Just as in the urban sector,more agricultural labor typically can be absorbed only at a lower wage.

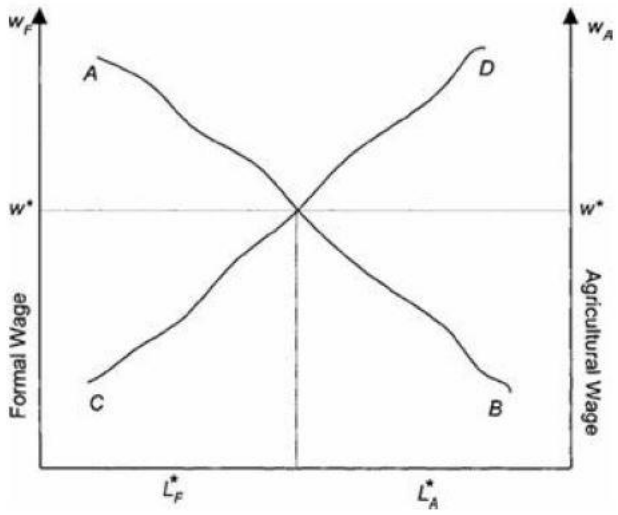


Figure 1

It is now easy enough to combine these two "absorption curves" to analyze the equilibrium of thissimple economy. To alleviate persistent migration between one sector and the other, the wages in thetwo sectors must be equalized.This equalization occurs at the intersection of the curves AB and CD,and we can read the equilibrium wage rate and intersectoral allocation of labor from this

intersection.Figure 1 records the equilibrium wage rate in this case as w*, with L*A individuals in the agrariansector and L*F individuals in the urban sector.

Did you know?

What is labor force?

Labor force means the number of persons who are currently employed and the persons who are seeking employment.

Floors on formal wages and the Harris–Todaro equilibrium

What is wrong with the preceding argument? Not much, it would appear: what we have in Figure10.4 and the accompanying discussion is a textbook case of competitive equilibrium. The problem isthat it assumes that the urban wage rate is perfectly flexible. We have already seen that this is not thecase. Indeed, it is not at all unreasonable to argue that the formal urban wage is too high for marketclearing to occur as described by figure 1. We have provided several reasons for this. Now let ussee what the implications are. In terms of our simple model, then, imagine that the wage rate in theformal sector is fixed at too high a level for market equilibrium to occur. Figure 2 captures thissituation by drawing the minimum formal wage, , at a level that lies above the intersection of thetwo absorption curves. It follows that private-sector formal firms will hire no more than the amountof labor at this wage.

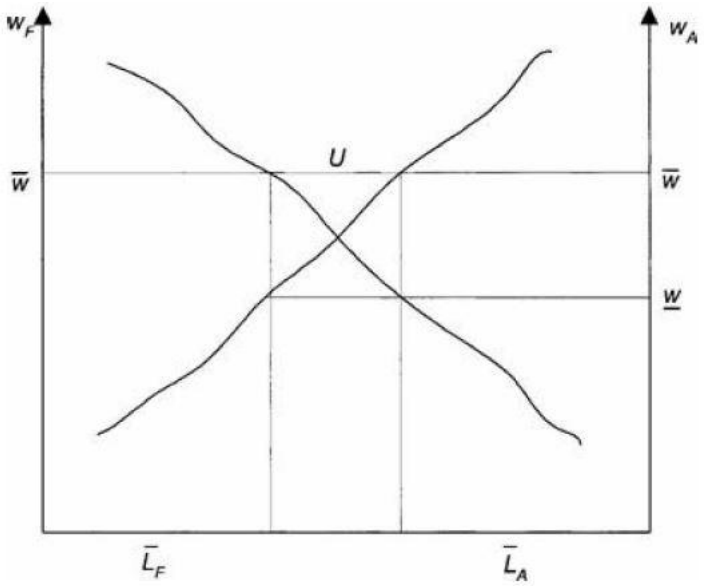


Figure 2

One possibility is that all the remaining individuals are employed in the agricultural sector. In thatcase, Figure 2 tells us that the wage in the agricultural sector must drop to. Now step back andlook at the final outcome. In both sectors we have full employment, so that no individual job seekerneeds to fear unemployment if she looks for a job in either sector. Nonetheless, the wages, and,are different. This cannot be an equilibrium state for the economy, because with full employment inboth sectors, workers will wish to migrate to the sector with the higher wage.

On the other hand, simply imposing the equality of wages across the two sectors is problematic aswell. Try it. Figure 2 then reveals that only an amount A can be soaked up in the agriculturalsector. If the formal and the agricultural sectors are the only two sectors in the economy, we musthave a pool of unemployed people. This cannot be an equilibrium state either. Given that agriculture has flexible wages, theunemployed workers cannot be physically located in agriculture. If they were, they would simplypour into that labor market and consequently drive the wages down. Therefore, they must be locatedin the urban sector. Now we have a situation in which these workers rationally migrate to the urbanformal sector, even though the wages there are the same as those in agriculture and there is significantrisk of unemployment. Under no stretch of the imagination can such a state of affairs be described asan equilibrium, even from an ex ante point of view.

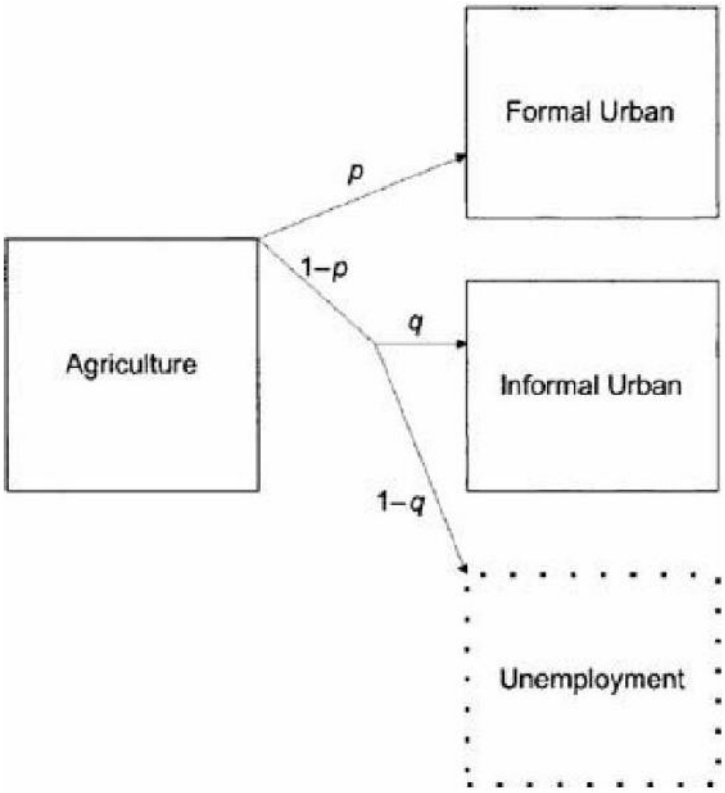


Figure 3

Although these alternatives do not work as descriptions of the final outcome, they are suggestiveof what the equilibrium might look like. The main idea is that potential migrants choose between arelatively safe option, which is to stay in the agricultural sector, and thegamble of moving to the urban sector, where a high-paying formal job may or may not be attainable.In turn, the probability of getting such a job is determined by the ratio of formal job seekers toavailable formal jobs. Those who do not get a job might be referred to as the unemployed, but thisdescription is not entirely accurate. Frustratedformal job seekers may enter the informal sector, where jobs or businesses are easy enough to findbut pay a pittance. Figure 3 schematically captures the gamble that isinvolved.

In this diagram, there are two sets of boxes. The left set is a single box: agriculture, with its wagewA.The right set describes the various options open in the urban sector, together with theprobabilities of access. First, there is the formal sector at some high wage. The probability ofobtaining such a job depends on the ratio of vacancies to job seekers. Denote this by p. Next, there isthe informal urban sector, in which our migrant can get absorbed in the event that no formal job isforthcoming. Denote the wage rate in the informal sector by wI and assume that it is fixed regardlessof the number of people in that sector.What is needed is a calculation of the expected value of these two risky options. The expectedvalue is calculated in the usual way: weigh each outcome by its probability of occurrence and add upover all outcomes. Thus the expected wage in the urban sector is neither nor wI, but the combinationp + (1 − p) wI. It is this expected wage that is compared to the wage in the agricultural sector.

In the preceding calculation, we implicitly assumed that there are only two options in the urbansector: formal or informal employment. However, once we understand how the calculation is carriedout, it is easy enough to expand the urban sector to include more possibilities. For instance, it isreasonable to suppose that not everyone is guaranteed to receive even the lower income wI in theinformal sector. It may be that some individuals do not get any employment at all, so that they are“openly” unemployed. This additional option is displayed by the dotted box in Figure 3, withassociated wages equal to zero.How can we now compute expected values? We need to know the probability of getting aninformal sector job, conditional on having been turned away from the formal sector: denote this by q.Thus after being turned away from the formal sector, the migrant manages to join the informal sectorwith probability q and remains openly unemployed with probability 1 − q. The expected value of thislatter set of possibilities is qwI + (1 − q)0 = qwI. Thus the overall expected wage is now p + (1 − p)qwI.

Did you know?

What is open unemployment?

Open unemployment is the situation when the work is not available.

With this small digression completed, let us return to the simpler case of just two urban outcomes:employment in the formal sector or employment in the informal sector. Suppose that we use LI todenote informal employment. Then we can see that the ratio

$$\frac{L_F}{L_F + L_I}$$

Captures the probability of getting a job in the formal sector. The number of employed people LF tellsus how many jobs there are, whereas the number LF + LI is the measure of the total number ofpotential job seekers. The ratio of the two thus gives us the chances that an urban dweller will get ajob in the formal or informal sector.Now we can work toward the important equilibrium concept first introduced by Harris andTodaro [1970]. Migration from the rural sector may be thought of as an irreversible decision, at leastfor the proximate future. Because the fate of a potential migrant is not known, we must consider theexpected income from migration and compare it with the actual income received in agriculture. Thuswe may conclude that if

$$\frac{\bar{L}_F}{\bar{L}_F + L_I}\bar{w} + \frac{L_I}{\bar{L}_F + L_I}w_I = w_A,$$

we are at an equilibrium where no person wishes to migrate from one sector to the other. This is theHarris–Todaro equilibrium condition.Some remarks are in order. First, the equilibrium condition represents a situation where ex antepeople are indifferent between migrating and not migrating; ex post, they will not be indifferent. Thelucky subgroup who land a job in the formal sector will be very pleased that they did migrate,whereas those who seek solace in the informal sector will regret that they made the move.Second, observe that the equilibrium concept implies a particular allocation of labor between thethree sectors of the economy. This is because it is the allocation of labor that affects the perceivedprobabilities of getting a job. If it is known, for instance, that the formal sector accounts for a smallerproportion of total urban employment, individuals will think harder before they hope for a job in theformal sector. Their expected wage calculation will yield a lower wage. This prospect will lower thesize of the urban labor force, but increase the size of the formal sector as a proportion of total urbanemployment, which in turn, feeds back on the probability of getting the formal job.Third, the equilibrium concept in no way requires that we stick to merely two subsectors of theurban sector (formal and informal) or that we have only one sector in agriculture. The fundamentalrequirement is that expected wages are equalized over the two sectors for a migration equilibrium tobe obtained, but these expectations may be the outcome of wages in three or more urban sectors orin several sectors in agriculture.

The Harris–Todaro equilibrium may be depicted on the sort of the diagram we have been using sofar, but not with the greatest degree of clarity.Recall Figure 2 and note that the agricultural wageof was too high to be equilibrium and that was too low. It stands to reason that the equilibriumagricultural wage is somewhere between these two extremes. Note that there is no necessaryrelationship between this equilibrium wage and the wage rate w* that arose in the flexible marketcase. Figure 4 denotes a typical Harris–Todaro equilibrium condition.

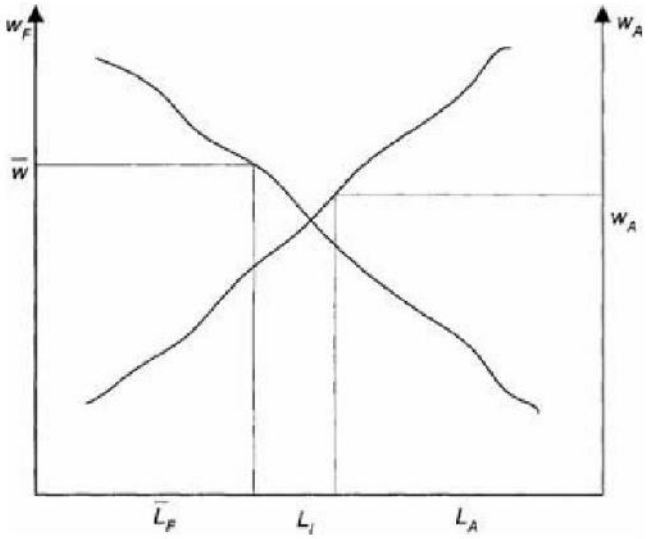


Figure 4

In this figure, the equilibrium agricultural wage is given by wA. LA people are employed inagriculture, F people are in the formal urban sector, and the remainder, LI, take refuge in the informalsector where they obtain an income of wI. The allocation is such that (10.1) holds.

10.3 Theory of Urbanization

Urbanization refers to the population shift from rural to urban residency, the gradual increase in the proportion of people living in urban areas, and the ways in which each society adapts to this change. Urbanization is an irreversible process. Urban region or city had first been noted in the Indus valley civilization in the middle of the 3rd millennium BC 116 in India. Hence one can say that there are several urban theories and some of which go back to the time of initial civilization. Most urban theories are derived ones some of which are:

1. Suburbanization
2. The dependency theory
3. Theory of spatial disparities
4. Migration theories
   a. Buffer's theory of migration
   b. Stouffer's law of intervening opportunities
   c. Migration theory of neo-classical economists
   d. Push and pull theories of migration
   e. Urban bias theory
5. Lewis two sector model
6. Modern theory of urbanization

1. **Suburbanization**

Suburbanization means "beyond the city" thus it refers to peripheral areas of large cities around the world. As cities grow, it expands towards outskirt areas and thus peripheral or suburban areas develop and grow. Cities expand towards peripheral area due to high density, increasing urban land price, pollution and well-developed transport and communication facilities. It is the responsibility of urban government to provide basic amenities in these areas as these suburban areas may not necessarily have a separate political unit.

2. **Dependency Theory**

The dependency theory argues that urban regions could establish expand and develop only if agriculture is well developed. The developing countries are sources of input for developed countries. Hence developing countries receive larger foreign investment in agriculture as well as

non-agricultural sectors. Developed agriculture pushed rural farmer and labourer while developing industries attract labourer due to large employment scope in urban areas.

3. Theory of Spatial Disparities

Spatial disparities theory states that disparities are created due to variation in geographically advantaged and disadvantaged regions, political importance of a city, economically favourable policies etc. Spatial forms divided the society. The problem of spatial disparities further leads to migration which creates pressure on urban amenities.

4. Migration Theories

Migration can be both a problem and a solution for various urban regions. There are several migration theories, some of them are discussed below.

a. Buffer Theory of Migration

Buffer theory of migration stated that "the workers who are imported on temporary base due to creation of short fall of labourer will return" However, it is not appropriate to make such assumption that labourer will go back. Migration cannot applicable always as adjustment mechanism. Hence, the Buffer's migration law is not practical.

b. Stouffer's Law of Intervening Opportunities

It states that "The number of persons going a given distance is directly proportional to the number of opportunities at that distance and inversely proportional to the number of intervening opportunities". Stouffer explained that between the final destination and departure place if there are good opportunities them the migrant will settle down in between rather than their planned final destination. Stouffer argues that the volume of migration had less to do with distance and population than with the availability of opportunities in each location.

c. Migration Theory of Neo-Classical Economists

Neo- Classical economist argues that the main reason for labour migration is wage difference between two geographic locations. These wage difference are usually due to labour demand and supply in specific geography.

d. Push and Pull Factors Theory

The push and pull theory is based on various push and pull factors. Push factors are those things/ factors which are unfavourable about the specific area that one lives in and hence push them to move away from that particular area. Pull factors are those things that attract one to another area due to various reasons. Push factors can be less of employment opportunities, natural disaster, war, pollution, poor, housing etc. and pull factors can be better employment opportunities, better living conditions, healthy environment etc.

e. Urban Bias Theory

It is emphasizing on political perspective of urban regions. This theory argues that government policies favour the urban regions. While the amenities are provided on a larger scale in urban areas but the larger proportion of the population is found in rural areas of a country. Hence, there is migration from rural to urban areas.

5. Lewis Two Sector Model

Industrialization with the support of specialization supports urbanization process. Lewis presents two sector model of development with high productivity of modern urban industrial sectors. Lewis assumes that abundant laborer in agriculture can be absorbed in labour scarce industrial units. However agricultural migrants cannot always support and help these industries to grow. Hence the major limitation of Lewis model is the assumption that rural and agricultural labourer are having skills and ability to get employment in urban industries.

6. Modern Theory of Urbanization

Modern theory was developed in the mid 20th century. It presented an idea that economic development is possible only if industries develop and expand by the introduction and use of advanced methods of production and use of modern technologies. According to modern school, the view which is shared by the classical economist, there cannot be urbanization without industrialization.

10.4 Role of Cities

Urbanization has been an essential part ofmost nations' development towards a strongerand more stable economy. The countries inthe South that urbanized most rapidly in thelast 10–20 years are generally those with themost rapid economic growth. Most of theworld's largest cities are in the world's largesteconomies, which is further evidence of thislink between economic wealth and cities. Citiesand towns also have important roles in socialtransformation. They are centers of artistic,scientific and technological innovations, ofculture and education. The history of cities andtowns is inexorably linked to that of civilizationin general.

Cities play an important role in economicdevelopment. Cities provide economiesof scale, agglomeration, and localization;they provide efficient infrastructure andservices through density and concentrationin transportation, communications, power,human interactions, water and sanitationservices. They attract talents and skilled laborthat allow specialization in knowledge, skills,and management capabilities possible. They canachieve the economies of scale,agglomerationand urbanization. Economic growth and urbanization areoften positively linked. Cities are the drivingforce for economic development. Economicgrowth also stimulates urbanization. Suchpositive relationship is clear in many countries.However, urbanization can also occur in theabsence of economic growth. For example,in some Sub-Saharan African countries,urbanization has occurred to a large extentindependent of economic development. Urbanization processes and patterns are alsodifferentiated by different institutional settingsand policies from country to country andregion to region.Despite the growing importance of citiesin world affairs and national economicdevelopment, the position of the city is regardedas marginal to current debates and developmentcontroversies. The negative impact of overurbanization is often over-emphasized such asthe concentration of poverty, slums and socialdisruption in developing cities. However, citiesdo represent the best hope for growth andopportunities.

Summary

1. Industry supplies inputs to agriculture: tractors, pump sets, chemicals of various kinds, and so on. With a large population in the rural sector, agriculture is often a major source of demand for the products of industry, which include not just durables, but final consumption goods as well.
2. Agricultural activity can be commercial, highly capital-intensive, and employ wage labour, just like any other "modern" economic organization.
3. The firms that operate under the umbrella of accepted rules and regulations imposed by government. Often, the workers of these firms belong to a union, and collective bargaining between firms and workers is not uncommon. These firms are required to pay minimum wages and must conform to certain standards of safety, rules of compensation for workers, pension schemes, and the like. Such firms pay taxes, may receive infrastructural facilities, such as access to subsidized electricity, and may have access to foreign exchange quotas or the right to import certain inputs.
4. The informal sector usually does not adhere to norms of minimum wages, retirement plans, or unemployment compensation.
5. In contrast to the high wages paid in the formal urban sector, the informal urban sector and the rural sector have low wages that fluctuate according to supply and demand considerations.

Keywords

- Urban bias
- Rural urban migration
- Formal sector
- Informal sector

- urbanization

Self Assessment

1. Firms under the formal sector can

A. Issue shares

B. Issue debentures

C. Payout dividend

D. All of the above

2. In the formal sector

A. Minimum wages are paid to the workers

B. Workers can form unions

C. Both a and b

D. None of the above

3. Which of the following norms are usually not followed in the informal sector?

A. Minimum wage

B. Payment of pension

C. Unemployment allowances

D. All of the above

4. Which of the following are informal activities?

A. Black market currency transaction

B. Family grocery store

C. Unregistered buses

D. All of the above

5. What was the central idea of Harris Todaro model of migration?

A. Comparatively higher wages are paid to the workers in the formal urban sector which creates urban unemployment

B. Urban wages are low

C. Rural wages are more than urban wages

D. None of the above

6. In the informal sector wages fluctuate with the change in demand and supply of workers.

A. True

B. False

7. Which of the following is main reason of migration?

A. Wage gap

B. Goods

C. Services

D. None of the above

8. Which of the following are two sectors in the economy according to Harris Todaro?
A. Rural sector
B. Formal urban sector
C. Both a and b
D. Modern sector

9. Under which of the following sector, jobs are easily available?
A. Formal sector
B. Informal sector
C. Government sector
D. Modern sector

10. Which of the following is main reason of migration according to neo-classicals?
A. Wage difference
B. Demand of the product
C. Supply of the product
D. None of the above

11. According to Lewis, which of the following sector is more productive?
A. Industrial
B. Agriculture
C. Traditional
D. None of the above

12. according to modern theories, economic development is possible only if
A. Industries develop
B. Shoe industry develop
C. Textile develop
D. Tiny industries develop

13. Cities provide economies of scale_____-and localisation.
14. Which of the following are negative impacts of over urbanization?
A. Poverty
B. Slums
C. Social disruption
D. All of the above

15. According to urban bias theory, comparatively more facilities are available in urban areas which are the main cause of migration.
A. True
B. False

Answers forSelf Assessment

1.	D	2.	C	3.	D	4.	D	5.	A
6.	A	7.	A	8.	C	9.	C	10.	A
11.	A	12.	A	13.	agglomeration	14.	D	15.	A

Review Questions

1. Write a note on formal informal urban sector.
2. Critically examine the rural urban migration theory of Harris Todaro.
3. Critically examine the theory of urbanization.
4. Write a note on rural urban migration.
5. Why the people of India are migrating to urban areas. Try to find out the reason.

Further Readings

- Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015
- Development Economics - Debraj Ray, Oxford University Press
- Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 11: Agriculture Transformation and Development

CONTENTS

Objectives

After studying this unit the students will be able to

- Learn about agriculture development.
- Learn about small scale agriculture.
- Describe about the improvement in small scale agriculture.
- Describe about agrarian system in development world.

Introduction

If the migration of people with and without school certificates to the cities of Africa, Asia, and Latin America is proceeding at historically unprecedented rates, a large part of the explanation can be found in the economic stagnation of outlying rural areas. Despite real progress, nearly 2 billion people in the developing world grind out a meagre and often inadequate existence in agricultural pursuits. Over 3.1 billion people lived in rural areas in developing countries in 2010, a quarter of them in extreme poverty

10.1 Agriculture Progress and Rural Development

People living in thecountryside make up more than half of the population of such diverse LatinAmerican and Asian nations as Haiti, Guatemala, India, Indonesia, Myanmar,Honduras, Sri Lanka, Pakistan, Bangladesh, the Philippines, Thailand, andChina. In sub-Saharan Africa, the ratios are much higher, with rural dwellersconstituting 65% of the total population.Of greater importance than sheer numbers is the fact that well over twothirdsof the world's poorest people are also located in rural areas and engagedprimarily in subsistence agriculture. Their basic concern is survival. Many hundredsof millions of people have been bypassed by whatever economicprogress their nations have attained. The United Nations Food and AgricultureOrganization estimated that in 2009, for the first time, over 1 billion people didnot have enough food to meet their basic nutritional needs. In the dailystruggle to subsist, farmer behavior in developing countries often seemed irrationalto many observers who until recently had little comprehension of theprecarious nature of subsistence living and the importance of avoiding risks. Ifdevelopment is to take place and become self-sustaining, it will have to includethe rural areas in general and the agricultural

sector in particular. The coreproblems of widespread poverty, growing inequality, and rapid populationgrowth all originate in the stagnation and often retrogression of economic lifein rural areas, particularly in Africa.

Task: Try to find out the main reasons of stagnation in rural areas of Africa.

Traditionally in economic development, agriculture has been assumedto play a passive and supportive role. Its primary purpose was to providesufficient low-priced food and manpower to the expanding industrial economy,which was thought to be the dynamic "leading sector" in any overallstrategy of economic development. Lewis's famous two-sector model, is an example of a theory of development that placesheavy emphasis on rapid industrial growth with an agricultural sector fuelingthis industrial expansion by means of its cheap food and surplus labor.

Nobel laureate Simon Kuznets introduced an early schema, noting thatagriculture made four "contributions to economic development": the productcontribution of inputs for industry such as textiles and food processing,the foreign-exchange contribution of using agricultural export revenues toimport capital equipment, the market contribution of rising rural incomescreating more demand for consumer products, and the factor market contribution,divided between the labor contribution—workers not needed on farms after agricultural productivity was raisedcould then work in industry—and the capital contribution (some farm profitscould be reinvested in industry as agriculture became a steadily smallerfraction of national income). The capital contribution has been misappliedas a "squeezing of the peasantry," but it meant investing first in agricultureand later reaping profits that would be partially reinvested in industry.

Did you know?

What is foreign exchange?

Foreign exchange refers to exchanging the currency of one country for another at prevailing exchange rates.

As can be seen from this description, however, the framework implicitly—and ironically—still treats industrialization rather than rural modernizationas the core development goal.Today, most development economists share the consensus that far fromplaying a passive, supporting role in the process of economic development,the agricultural sector in particular and the rural economy in general mustplay an indispensable part in any overall strategy of economic progress, especiallyfor the low-income developing countries.An agriculture- and employment-based strategy of economic developmentrequires three basic complementary elements:

a. Accelerated output growth through technological, institutional, and price incentive changes designed to raise the productivity of small farmers
b. Rising domestic demand for agricultural output derived from an employment-oriented urban development strategy
c. Diversified, non-agricultural, labor-intensive rural development activities that directly and indirectly support and are supported by the farming community.

To a large extent, therefore, agricultural and rural development has come to be regarded by many economists as the sine qua non of national development. Without such integrated rural development, in most cases, industrial growth either would be stultified or, if it succeeded, would create severe internal imbalances in the economy.

Six main questions, therefore, need to be asked about agricultural and ruraldevelopment as it relates to overall national development:

1. How can total agricultural output and productivity per capita be substantially increased in a manner that will directly benefit the average small farmer and the landless rural dweller while providing a sufficient food surplus to promote food security and support a growing urban, industrial sector?
2. What is the process by which traditional low-productivity peasant farms are transformed into high-productivity commercial enterprises?

3. When traditional family farmers and peasant cultivators resist change, is their behavior stubborn and irrational, or are they acting rationally within the context of their particular economic environment?
4. What are the effects of the high risks faced by farmers in low-income countries, how do farm families cope with these risks, and what policies are appropriate to lessen risk?
5. Are economic and price incentives sufficient to elicit output increases among peasant agriculturalists, or are institutional and structural changes in rural farming systems also required?
6. Is raising agricultural productivity sufficient to improve rural life, or must there be concomitant off-farm employment creation along with improvements in educational, medical, and other social services? In other words, what do we mean by rural development, and how can it be achieved?

There isconsiderable diversity among developing nations, as well as within developingcountries, each region tends to have a number of characteristics in common. First,these regions typically reflect the agricultural patterns of agriculture-basedeconomies (in Africa), agriculturally transforming economies (in Asia), and urbanizedeconomies (in Latin America). Relatedly, agriculture in these regions oftentypifies the stages of subsistence, mixed, and commercial farming, with importantregional exceptions and varying success at inclusion of the poor. Withsuccessful development, countries tend to move toward commercialized agriculture,though with different trajectories and differing economic, social, and technicalproblems to solve along the way. Regions that have high concentrations ofpoverty also often reflect patterns of traditional agriculture (in Africa), high populationdensity and subdivided smallholdings (in Asia), and the sharp inequalitiesof very large and very small farms (in Latin America).Over two-thirds of the world's extreme poor are involved in agriculturalactivities. We will therefore examine the economics of peasant subsistenceagriculture and discuss the stages of transition from subsistence to commercialfarming in developing nations. Our focus is not only the economic factorsbut also the social, institutional, and structural requirements of small-farmmodernization.

Did you know?

What is density of population?

Density of population is person per square kilometre.

10.2 Improving Small Scale Agriculture

Technology and Innovation

In most developing countries, new agriculturaltechnologies and innovations in farm practices are preconditions for sustainedimprovements in levels of output and productivity. In many parts of Africa,however, increased output in earlier years was achieved without the need fornew technology simply by extending cultivation into unused but potentiallyproductive lands. Almost all of these opportunities have by now been exploited,and there is little scope for further significant or sustainable expansion.Two major sources of technological innovation can increase farm yields.Unfortunately, both have somewhat problematic implications for agriculturaldevelopment. The first is the introduction of mechanized agriculture to replacehuman labor. The introduction of labor saving machinery can have a dramaticeffect on the volume of output per worker, especially where land is extensivelycultivated and labor is scarce. For example, one man operating a hugecombine harvester can accomplish in a single hour what would require hundredsof workers using traditional methods.

Did you know?

What is new agriculture technology?

New agriculture technology is package of high yielding varieties of seeds, assured irrigation, chemical, fertilizers, and herbicides.

But in the rural areas of many developing nations, where land parcels aresmall, capital is scarce, and labor is abundant, the introduction of heavilymechanized techniques is often ill suited to the physical environment and hasthe effect of creating more rural unemployment without necessarily loweringper-unit costs of food production. Importation of such machinery can requirelarge tracts of land (and thus the consolidation of small holdings) andtends to exacerbate the already serious problems of rural poverty and underemployment.And if mechanized techniques exclude women, the male-femaleproductivity gap could widen further, with serious repercussions.

Biological (hybrid seeds and biotechnology), water control (irrigation), andchemical (fertilizer, pesticides, insecticides, etc.) innovations—the second majorsource—are not without their own problems. They are land-augmenting;that is, they improve the quality of existing land by raising yields perhectare. Only indirectly do they increase output per worker. Improvedseeds; advanced techniques of irrigation and crop rotation; the increasinguse of fertilizers, pesticides, and herbicides; and new developments in veterinarymedicine and animal nutrition represent major scientific advances inmodern agriculture. These measures are often technologically scale-neutral;theoretically, they can be applied equally effectively on large and smallfarms. They do not necessarily require large capital inputs or mechanizedequipment. They are therefore particularly well suited for tropical and subtropicalregions and offer enormous potential for raising agricultural outputin developing nations and have been highly effective in doing so, particularlyin Asia. Again, the major challenge is to extend this success to sub-Saharan Africa, which will in some cases need new innovations. There arealso important environmental challenges in many parts of the developingworld, including risks posed by a falling water table, for which well-designedgovernment policy and in some cases restored collective action mechanismsare usually necessary.

Institutional and Pricing Policies: Providing the Necessary EconomicIncentives Unfortunately, although the green revolution varieties of wheat,corn, and rice, together with needed irrigation and chemicals, are scaleneutraland thus offer the potential for continued small-farm progress, thesocial institutions and government economic policies that accompany theirintroduction into the rural economy are often not scale-neutral. On the contrary,they often merely serve the needs and vested interests of the wealthylandowners. Because the new hybrid seeds require access to complementaryinputs such as irrigation, fertilizer, insecticides, credit, and agricultural extensionservices, if these are provided only to a small minority of large landowners,one impact of the green revolution can be (as in parts of South Asia andMexico) the further impoverishment of many peasants. Large landowners,with their disproportionate access to these complementary inputs and supportservices, are able to gain a competitive advantage over smallholders and eventuallydrive them out of the market. Large-scale farmers obtain access tolow-interest government credit, while smallholders are forced to turn to moneylenders.The result has all too often been the further widening of the gap betweenrich and poor and the increased consolidation of agricultural land inthe hands of a very few so-called progressive farmers. A developmental innovationwith great potential for alleviating rural poverty and raising agriculturaloutput can thus turn out to be antidevelopmental if public policies andsocial institutions militate against the active participation of the small farmerin the evolving agrarian structure.

Did you know?

What is green revolution?

Large increase in crop production in developing countries achieved by the use of artificial fertilizers, pesticides, and high-yield crop varieties is called as Green Revolution.

Another critical area of many past and some continued failures in governmentpolicies relates to the pricing of agricultural commodities, especiallyfood grains and other staples produced for local markets. Many governmentsin developing nations, in their headlong pursuit of rapid industrial and urbandevelopment, maintained low agricultural prices in an attempt to providecheap food for the urban modern sector. Farmers were paid prices beloweither world competitive or free-market internal prices. The relative internalprice ratio between food and manufactured goods (the domestic terms oftrade) thus turned against farmers and in favor of urban manufacturers. Withfarm prices so low—in some cases below the costs of production—there wasno incentive for farmers to expand output or invest in new productivityraisingtechnology. As a result, local food supplies continually fell short ofdemand, and many developing nations, especially in sub-Saharan Africa, thatwere once self-sufficient in food production had to import food.

Many development economists therefore argue that if governments are topromote further increases in agricultural production that make a larger impacton poverty reduction through green revolution technologies, they must notonly make the appropriate institutional and credit market adjustments butalso make continued progress to provide incentives for small and mediumsizefarmers by implementing pricing policies that truly reflect internal marketconditions.

Adapting to New Opportunities and New Constraints: As a route out ofpoverty and toward genuine rural development, enhanced cereal productivityrepresents only a small part of theagricultural opportunities. The best opportunities for sales to growing urbanareas are generally found in higher value-added activities, particularly horticulture(fruits, vegetables, and cut flowers) and aquaculture. These products,along with organic and perhaps Fair Trade versions of some otherwise traditionaldeveloping country exports such as coffee and spices, also provide goodopportunities for higher-value exports. But small farmers will need special organizationand assistance to take advantage of new opportunities. As the 2008World Development Report concluded, "Smallholders can bargain better as agroup than as individuals. So a high priority is to facilitate collective actionthrough producer organizations to reach scale in marketing and bargain forbetter prices." Otherwise, the risk is large that these developments will benefitmainly the larger farmers.

Did you know?

What is productivity?

Productivity is production per hectare.

One of the biggest constraints looking ahead is the looming environmentalproblems driven by global warming and climate change, which are expectedto most negatively affect sub-Saharan Africa and South Asia. Smaller andpoorer farmers are likely to be affected severely, because of their lower accessto irrigation and other inputs and generally lesser capacity to adapt—although, ironically, with their smaller use of irrigation and different crop mix,their absolute income declines may be less than those of richer farmers. Althoughthe majority of global warming problems are caused by developedcountries, to the extent that cultivated areas in developing countries continueto increase by means of eliminating remaining forested areas, climate changeproblems will only worsen. This "agricultural intensification," not only in forests but also in drier and other sensitive lands, further brings the risk of localsoil degradation and lost environmental services such as maintaining waterand air quality. The losses of wetlands and of biodiversity also lead to substantialnational (as well as international) costs. Moreover, intensification of agriculturehas often brought with it the misuse of agrochemicals, which can entaillarge human and ecosystem costs.

10.3 Washington Consensus Development Policy Making and the Role of the State

For much of the 1980s and into the 1990s, the so-called Washington Consensuson development policy held way. This consensus, encapsulated by JohnWilliamson, reflected the free-market approach to development followed inthose years by the IMF, World Bank, and key U.S. government agencies. Itcontained ten points, summarized in column 1 of Table 1.The ten points of the Washington Consensus are striking at least as muchfor what they do not contain as for what they do. There is no mention ofshared growth, of the central need to focus on eliminating absolute poverty toachieve development in any meaningful sense, or of reducing inequality, ascentral ends in themselves as well as instruments of economic growth. Drivingthe several components of the consensus was the conviction that government was more likely to make things worse than better. Prevalent also was theview that poverty would be taken care of by growth and was not a major obstaclein itself to growth and development.

Table 1: The Washington Consensus and East Asia

Elements of the Washington Consensus	South Korea	Taiwan
1. Fiscal discipline	Yes, generally	Yes
2. Redirection of public expenditure priorities toward health, education, and infrastructure	Yes	Yes
3. Tax reform, including the broadening of the tax base and cutting marginal tax rates	Yes, generally	Yes
4. Unified and competitive exchange rates	Yes (except for limited time periods)	Yes
5. Secure property rights	President Park starts his rule in 1961 by imprisoning leading businessmen and threatening confiscation of their assets	Yes
6. Deregulation	Limited	Limited
7. Trade liberalization	Limited until the 1980s	Limited until the 1980s
8. Privatization	No. Government established many public enterprises during 1950s and 1960s.	No. Government established many public enterprises during 1950s and 1960s.
9. Elimination of barriers to direct foreign investment (DFI)	DFI heavily restricted	DFI subject to government control
10. Financial liberalization	Limited until the 1980s	Limited until the 1980s

Did you know?

How IMF is different from world bank?

IMF is providing the loan to countries for short period and world bank provide loan to developing countries for long term.

The Washington Consensus list is also striking in its free-market approach,even in fields in which market failure is prevalent, such as the financial sector. Moreover, the list is striking in its limited applicabilityto two of the most successful cases in the history of economic development,South Korea and Taiwan. These cases not only represent among thehighest rates of economic growth over the past half century but also have oftenbeen cited as examples of shared growth, in which absolute poverty waseliminated early on, and the lower-income groups have continued to benefitfrom the development process, despite an upturn in inequality since the late1990s. The historical record of high growth in China reflects the combinationof various incentives for entrepreneurship and an extremely active industrialpolicy and other government activity. Indeed, as Dani Rodrik summarizes in

Table 1, for about half of its elements, the Washington Consensus is at bestof limited applicability to South Korea and Taiwan. It can be concluded thatthe state has had a broader role in the most successful development experiencesthan encapsulated by the Washington Consensus.

Toward a New Consensus

In recent years, major changes in the Washington Consensus worldviewhave occurred in Washington and elsewhere. In the Americas, the newviews were sometimes referred to as the New Consensus, which began totake shape at the April 1998 Summit of the Americas in Santiago, Chile.Other important contributions to attempts to describe an expanded andmore balanced consensus—albeit with a focus solely on growth ratherthan broader human development—include the Commission on Growthand Development's Growth Report: Strategies for Sustained Growth and InclusiveDevelopment (commonly referred to as the Spence Report) and thebroader scope suggested by Dani Rodrik. A final example including infrastructureand industrialization was articulated in the 2010 Seoul G20 communiqué.

Notes: In Europe and Japan, as well as in many parts of the developing world, such as India, has remained more positive toward the role of the state throughout the period but has to a large degree also converged toward the New Consensus.

Given that developing-country governments are highly constrained intheir available resources, some of these New Consensus objectives will have toreceive less emphasis than others. An important dimension of the New Consensusis the emphasis on government's responsibility to focus on poverty alleviation.This is in part a return to the focus of the 1970s; one reason for thisrenewed focus is those free-market policies of the 1980s and early 1990s wereviewed as inadequately helping the poor. The New Consensus also appears toreflect a growing sentiment that the goal of poverty eradication is finallyachievable, especially given recent progress in health, education, and other

areas.But the New Consensus on the role of government in development borrowssome important lessons from the Washington Consensus period. In particular,the stress on market-based development and limiting government's role indirect production continues to be the consensus view. And the new elementsare not based on an assumption that government is a benevolent provider ofsocial welfare. A sober view continues but emphasizing the importance ofbuilding state capacity and responsiveness by reacting to government failurewith judiciously designed reforms, seeking feasible improvements in economicinstitutions and encouraging a deepened civil society role.

The New Consensus also does not include some features that many commentatorshave considered significant to East Asian success, such as an activeor at least a highly targeted industrial policy—picking winners—to overcome coordination failures, because these remain controversial. There are doubtsabout the replicability of industrial policy experiences—specifically in encouragingparticular industrial activities—of these countries, and the most widelyheld perspective is that industrial policy is generally ineffective when governmentis less capable or more constrained (though some specialists concludefrom this problem that it should be a priority to raise government capabilities in these fields in other countries).The New Consensus view represents in part a renewed recognition thatmarkets do fail; that at times these failures cannot be addressed without a significantand ongoing role for government—that market failure can be significantlyworse than government failure after all; and that when governance ispoor, it can often be improved. Indeed, a key part of government's role is tohelp secure the foundations for economic development by ensuring that therequirements for an effective market-based economy are met. But few wouldcontend that government reform is easy or that government should revert tothe sort of deregister state that prevailed prior to the 1980s.

10.4 Agrarian System in Development World

Three Systems of Agriculture

A first step toward understanding what is needed for further agricultural andrural development progress is a clear perspective of the nature of agriculturalsystems in diverse developing regions and, in particular, of the economic aspectsof the transition from subsistence to commercial agriculture.One helpful way to categorize world agriculture, proposed by the agriculturaldevelopment economist Alain de Janvry and his colleagues in the WorldBank's 2008 World Development Report, is to see that alongside advanced agriculturalsystems in developed countries, three quite different situations are foundamong developing countries.

First, in what the report terms agriculture-based countries, agriculture isstill a major source of economic growth—although mainly because agriculturemakes up such a large share of GDP. The World Bank estimates that agricultureaccounts for some 32% of GDP growth on average in these countries, inwhich 417 million people live. More than two-thirds of the poor of thesecountries live in rural areas. Some 82% of the rural population of sub-SaharanAfrica lives in these countries. It also includes a few countries outside the region,such as Laos. And a few African countries, such as Senegal, are undergoingtransformation.

Second, most of the world's rural people—some 2.2 billion—live in whatthe report categorizes as transforming countries, in which the share of thepoor who are rural is very high (almost 80% on average) but agriculture nowcontributes only a small share to GDP growth (7% on average). Most of thepopulation of South and East Asia, North Africa, and the Middle East lives inthese countries, along with some outliers such as Guatemala.

Third, in what the report calls urbanized countries, rural-urban migrationhas reached the point at which nearly half, or more, of the poor are found inthe cities, and agriculture tends to contribute even less to output growth. Theurbanized countries are largely found in Latin America and the Caribbean,along with developing eastern Europe and Central Asia, and contain about255 million rural dwellers.

In many cases, the position of countries within these groups is not stagnant.Many countries that were in the agriculture-based category moved to the transformingcategory in recent decades, most prominently India and China.Figure 1 shows some of the country positions in each group, along withthe movement over time for four major countries over an approximatelythree-decade period: China, India, Indonesia, and Brazil. For example, Brazilhas moved from being a borderline transforming country to a solidly urbanizedone according to the World Bank classification.

Figure 1:Agriculture's Contribution to Growth and the Rural Share in Poverty in Three Typesof Countries

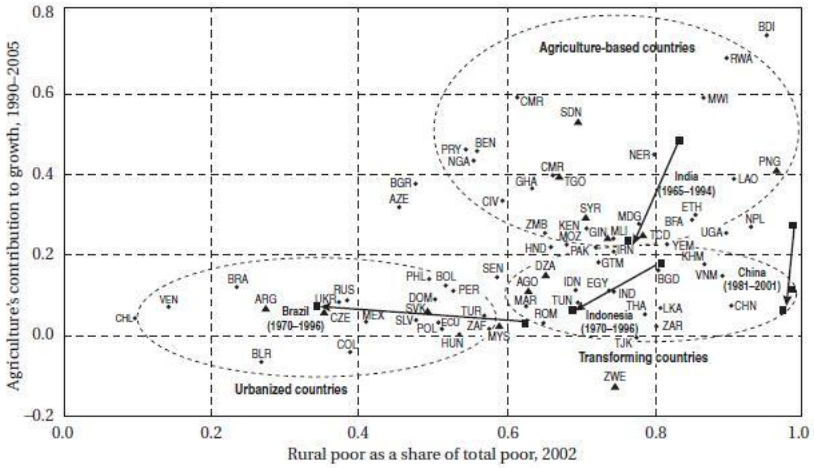


Table 2: Land Productivity in Developed and Developing Countries

Country	Agricultural Productivity (value added per worker, U.S. $,2005–2007)	Average Grain Yield (kilograms per hectare, 2006–2008)	Population (millions), 2008
Developed			
United States	45,015	6,578	304
Japan	39,368	5,977	128
United Kingdom	28,065	7,110	61
Developing			
Brazil	3,315	3,531	192
Mexico	3,022	3,341	106
Russian Federation	2,914	2,092	142
Sudan	844	600	41
Indonesia	657	4,508	227
India	460	2,574	1,140
Bangladesh	387	3,896	160
Kenya	367	1,621	39
Dem. Rep. of Congo	162	772	64

Agricultural productivity varies dramatically across countries. Table 2shows variations in land productivity (measured as kilograms of grain harvestedper hectare of agricultural land) between three developed countries(United Kingdom, Japan, and United States) and nine developing countries.Despite the far smaller number of farmworkers per hectare in the UnitedKingdom, its grain yield per hectare was 3 times that of India, 6 times that ofNigeria, and almost 12 times that of Sudan.It is also important to note that regional disparities can be quite largewithin countries. India has regions that fall within each of the three classifications,from modernized Punjab to semifeudal Bihar. Even upper-middle-income,urbanized Mexico has regions in the south with substantial poverty and highdependence on agriculture. Moreover, within regions, large and small, richand poor often exist side by side—though large does not necessarily mean efficient.Let us look at agricultural issues facing countries in Latin America,Asia, and sub-Saharan Africa in more detail.

Peasant Agriculture in Latin America, Asia, and Africa

In many developing countries, various historical circumstances have led to aconcentration of large areas of land in the hands of a small class of powerfullandowners. This is especially true in Latin America and parts of the Asiansubcontinent. In Africa, both historical circumstances and the availability ofrelatively more unused land have resulted in a different pattern and structureof agricultural activity.

Notes: Why land is concentrating in few hands in Latin America?

Table 3:Distribution of Farms and Farmland by Operational Farm Size and Land Tenure Status inSelected Developing Countries in Asia and Latin America

Country	Average Operational Farm Size (hectares)	Percentage of Farms and Farmland: Below 5 Hectares, Farms	Below 5 Hectares, Area	Above 50 Hectares, Farms	Above 50 Hectares, Area	Gini Coefficient of Land Concentration	Percentage of Tenanted Area in Total Farmland: Pure Tenancy	Total[a]	Percentage of Share Tenancy in Tenanted Land[b]
Asia									
Bangladesh	1.6	90.6	67.6	N.A.	N.A.	0.42	N.A.	20.9	91.0
India	2.3	88.7	46.7	0.1	3.7	0.62	2.4	8.5	48.0
Indonesia	1.1	97.9	68.7	0.0[c]	13.6	0.56	2.1	23.6	60.0
Nepal	1.0	97.2	72.1	0.0[c]	0.8	0.56	1.5	13.2	48.3
Philippines	3.6	84.8	47.8	0.2	13.9	0.51	21.4	32.8	79.3
Thailand	3.7	72.3	39.4	0.0[c]	0.9	0.45	6.0	15.5	29.0
Latin America									
Brazil	59.7	36.8	1.3	16.3	84.6	0.84	6.1	10.2	N.A.
Costa Rica	38.1	48.9	1.9	14.5	79.7	0.82	1.2	9.0	9.4
Colombia	26.3	59.6	3.7	8.4	77.7	0.86	5.3	11.5	49.4
Peru	16.9	78.0	8.9	1.9	79.1	0.91	4.5	13.6	0.0[c]
Uruguay	214.1	14.3	0.2	37.6	95.8	0.82	19.1	46.3	4.7
Venezuela	91.9	43.8	0.9	13.6	92.5	0.91	4.5	2.4	N.A.

Although the day-to-day struggle for survival permeates the lives and attitudesof impoverished peasants in both Latin America and Asia (and alsoAfrica, although the rural structure and institutions are considerably different),the nature of their agrarian systems differs markedly. In Latin America, in anumber of poorer and more backward areas, the peasants' plight is rooted inthe latifundio–minifundio system (to be explained shortly). In Asia, it lies primarilyin fragmented and heavily congested dwarf parcels of land. As Table 3shows, the average farm size in Latin America is far larger than in Asia; in allthe Asian countries surveyed, average-operation farm size was under 4 hectares,with farm size in Indonesia just 1.1 hectares. In contrast, average-operationfarm size ranged from 16.9 to 214.1 hectares in the Latin American countriessurveyed. Nevertheless, a substantial number of farms in Latin America consistedof less than 5 hectares, including 36.8% of farms in Brazil and 78.0% offarms in Peru. This is possible because of the huge farmlands controlled by thelargest farms in Latin America.Just as we can draw income Lorenz curves from data on the distribution ofincome, we can draw land Lorenz curves from data on the distributionof farm holdings among farmers. In this case, the x-axis reports theproportion of total holdings, and the y-axis reports the proportion of totalarea. Aland Gini may be calculated in a manner analogous to that of the income

Gini: It is the ratio of the area between the land Lorenz curve and the 45-degreeline, and the whole triangle. Table 3 presents land Gini for representativecountries in Asia and Latin America.The number of farms, the farmed area, and inequality in the distribution ofland is not completely rigid but changes over time. One of the broadest trends is for farm sizes to become smaller over time in Asia as land is subdivided,and this trend is seen increasingly also in Africa.

Agrarian Patterns in Latin America: Progress and Remaining Poverty Challenges

In Latin America, as in Asia and Africa, agrarian structures are not only part ofthe production system but also a basic feature of the entire economic, social,and political organization of rural life. The agrarian structure that has existedin Latin America since colonial times and is still widespread in a substantialpart of the region is a pattern of agricultural dualism known as latifundiominifundio.Basically, latifundios are very large landholdings. They are usuallydefined as farms large enough to provide employment for more than 12 people,though some employ thousands. In contrast, minifundios are the smallestfarms. They are defined as farms too small to provide employment for a singlefamily (two workers) with the typical incomes, markets, and levels of technologyand capital prevailing in each country or region.

Using Gini coefficients to measure the degree of land concentration, asseen in Table 3, researchers report that the coefficient for Colombia is 0.86,for Costa Rica 0.82, for Uruguay 0.82, for Peru 0.91, and for Venezuela 0.91. Althoughestimates vary, changes in land inequality are limited in the case ofLatin America. Other countries are even more unequal; the Ginifor Paraguay is an almost perfectly unequal 0.94.11 these are the highest regionalGini coefficients in the world, and they dramatically reflect the degree ofland ownership inequality (and thus, in part, income inequality) throughoutLatin America.

But latifundios and minifundio do not constitute the entirety of Latin Americanagricultural holdings. A considerable amount of production occurs onfamily farms and medium-size farms. The

former provide work for two tofour people, and the latter employ 4 to 12 workers (just below the latifundio). InVenezuela, Brazil, and Uruguay, these intermediate farm organizations accountfor almost 50% of total agricultural output and employ similar proportions ofagricultural labor. These farms use a more efficient balance between labor andland, and studies show that they have a much higher total factor productivitythan either latifundios or minifundio, as the law of diminishing returns wouldsuggest. Indeed, evidence from a wide range of developing countries, demonstratesthat smaller farms are more efficient (lower-cost) producers of mostagricultural commodities.

A major explanation for the relative economic inefficiency of farming the fertile land on the latifundios is simply that the wealthy landowners oftenvalue these holdings not for their potential contributions to national agriculturaloutput but rather for the considerable power and prestige that theybring. Much of the land is left idle or farmed less intensively than on smallerfarms. Also, latifundio transaction costs, especially the cost of supervisinghired labor, are much higher than the low effective cost of using family labor on family farms or minifundio. It follows that raising agricultural productionand improving the efficiency of Latin American agrarian systems in traditionalareas will require much more than direct economic policies that lead tothe provision of better seeds, more fertilizer, less distorted factor prices, higheroutput prices, and improved marketing facilities. It will also require a reorganizationof rural social and institutional structures to provide Latin Americanpeasants, particularly indigenous people who find it more challenging to migrate, a real opportunity to lift themselves out of their present state of economicsubsistence and social subservience.Despite the fact that many minifundio owners remain in poverty, especiallyamong indigenous and mixed-race populations, and many latifundios continueto operate well below their productivity potential, a more dynamic sector,including some larger farms, has emerged. Efficient family and medium-sizefarms are found throughout the region.

At an aggregate level the agricultural sector in Latin America appears to bedoing fairly well. Chile has led the way in "nontraditional exports," notablyfresh fruits for the northern hemisphere winter markets and also aquaculture,vegetables, and wines. Diversification has reduced variance in export earnings.Productivity growth in cereals has been quite solid. Sugarcane-basedbiofuels and soybeans have played important roles in agricultural growth inBrazil. And in traditional exports, particularly coffee, Latin America has ledthe way in taking advantage of niche opportunities for higher-value-addedactivities such as organic and Fair-Trade markets.Some Latin American countries, such as Guatemala and Honduras, are still inthe mixed transition phase, and in such countries, the latifundio-minifundio patterntends to remain particularly dominant. But much of this pattern still prevailsin many other areas. The extremely rural inequalities inLatin America typically stem from the Spanish and Portuguese colonial period,in which indigenous peoples were exploited in what often amounted to slavery,and African slaves were forcibly brought to the region. Overcoming this legacyhas been a long and painful process, with much remaining to be achieved. Socialdiscrimination continues, and improved access for the poor to agricultural landin countries such as Colombia is still in all too many cases suppressed.Areas with less favorable agricultural conditions, often with a concentrationof minority populations, such as northeast Brazil, the Andean region, andparts of Mexico and Central America, tend to have persistently high povertylevels. Extreme rural inequality inhibits progress in these areas both becauseof reduced access by the poor to credit and other inputs and because elites effectivelycontinue to block political participation by the poor, who often receivelow levels of government services. Moreover, rural-to-urban migrationhas been disproportionately among more educated people, and the result isthat rural populations are becoming older, more female, and more indigenous. These are factors in poverty rates that remain high for middle-income countriesand will require sustained action by government and civil society.

Transforming Economies: Problems of Fragmentation and Subdivision of Peasant Land in Asia

If the major agrarian problem of Latin America, at least in traditional areas, canbe identified as too much land under the control of too few people, the basicproblem in Asia is one of too many people crowded onto too little land. For example,the per capita availability of arable land as early as 1994 in India, China,and Bangladesh was 0.19, 0.08, and 0.07 hectares, respectively. The land is distributedmore equally in Asia than in Latin America but still with substantiallevels of inequality. As seen in Table 9.2, the estimated Gini coefficients for landdistribution in Asia range from 0.42 in Bangladesh and 0.45 in Thailand to 0.62in India and 0.56 in Indonesia and Nepal.Throughout much of the twentieth century, rural conditions in Asia typicallydeteriorated. Nobel laureate Gunnar

Myrdal identified three major interrelatedforces that molded the traditional pattern of land ownership into its presentfragmented condition: (1) the intervention of European rule, (2) the progressiveintroduction of monetized transactions and the rise in power of the moneylender,and (3) the rapid growth of Asian populations.

The traditional Asian agrarian structure before European colonizationwas organized around the village. Local chiefs and peasant families each providedgoods and services—produce and labor from the peasants to the chiefin return for protection, rights to use community land, and the provision ofpublic services. Decisions on the allocation, disposition, and use of the village'smost valuable resource, land, belonged to the tribe or community, eitheras a body or through its chief. Land could be redistributed among villagemembers as a result of either population increase or natural calamities suchas drought, flood, famine, war, or disease. Within the community, familieshad a basic right to cultivate land for their own use, and they could beevicted from their land only after a decision by the whole village.The arrival of the Europeans (mainly the British, French, and Dutch) led tomajor changes in the traditional agrarian structure, some of which had alreadybegun.

Notes: What is peasant farming?

Contemporary landlords in India and Pakistan are able to avoid much ofthe taxation on income derived from their ownership of land. There are variations,but landlords in South Asia are often absentee owners who live in thetown and turn over the working of the land to sharecroppers and other tenantfarmers. Sharecropping is widespread in both Asia and Latin America butmore pervasive in Asia. It has been estimated that of all tenanted land, some84.5% is sharecropped in Asia but only 16.1% in Latin America. The institutionis almost unknown in Africa, where the typical arrangement continues to befarms operated under tribal or communal tenures. For example, as shown inTable 3, about 48% of all tenanted land is sharecropped in India, 60% in Indonesia,and 79% in the Philippines. Though common in Colombia, sharecroppingis unusual elsewhere in Latin America; for example, it has all butdisappeared in Peru.The creation of individual titles to land made possible the rise to power ofanother dubious agent of change in Asian rural socioeconomic structures, themoneylender. Once private property came into effect, land became a negotiableasset that could be offered by peasants as security for loans and, in thecase of default, could be forfeited and transferred to the often-unscrupulousmoneylender. At the same time, Asian agriculture was being transformed froma subsistence to a commercial orientation, both as a result of rising local demandin new towns and, more important, in response to external food demandsof colonial European powers. With this transition from subsistence tocommercial production, the role of the moneylender changed drastically. In the subsistence economy, his activities had been restricted to supplying the peasant with money to tide him over a crop failure or to cover extraordinary ceremonialexpenditures such as family weddings or funerals. Most of these loanswere paid in kind (in the form of food) at very high rates of interest. With thedevelopment of commercial farming, however, the peasant's cash needs grewsignificantly. Money was needed for seeds, fertilizer, and other inputs. It wasalso needed to cover his food requirements if he shifted to the production ofcash crops such as tea, rubber, or jute. Often moneylenders were more interestedin acquiring peasant lands as a result of loan defaults than they were inextracting high rates of interest. By charging exorbitant interest rates or inducingpeasants to secure larger credits than they could manage, moneylenderswere often able to drive the peasants off their land. They could then reap theprofits of land speculation by selling this farmland to rich and acquisitive landlords.Largely as a consequence of the moneylenders' influence, Asian peasantcultivators saw their economic status deteriorate. And rapid populationgrowth often led to fragmentation and impoverishment.To understand the deterioration of rural conditions in some Asian countriesduring the twentieth century, consider the cases of India, Indonesia, andthe Philippines. In 1901, there were 286 million Indians; a century later, therewere 3 times that number. The Indonesian population grew from 28.4 millionin 1900 to 210 million in 2000. The population of central Luzon in the Philippineshas increased more than tenfold from its level of 1 million in 1903. Ineach case, severe fragmentation of landholdings inevitably followed, so thattoday average peasant holdings in many areas of these countries are less than1 hectare.

As these holdings shrink even further, production falls below the subsistencelevel, and chronic poverty becomes a way of life for many. Peasants are forced toborrow even more from the moneylender at interest rates ranging from 50% to200%. Most cannot repay these loans. They are then compelled to sell their landand become tenants with large debts. Because land is scarce, they are forced topay high rents or sharecrop on unfavorable terms. And because labor is

abundant,wages are extremely low. Peasants can thus get trapped in a vise of chronicpoverty from which, in the absence of major rural reconstruction and reform,there is no escape. Thus many rural Asians are gradually being transformed fromsmall proprietors to tenant farmers and sharecroppers, then landless rural laborers,then jobless vagrants, and finally migrant slum dwellers on the fringes ofmodern urban areas. At the same time, other farmers have benefited from theenormous productivity gains resulting from the green revolution.Colonial practices often had long-lasting influences.In the case of India, regions in which property rights to land weregiven to landlords had significantly lower productivity and agricultural investments—and significantly lower investments in health and education—inthe postindependence period than regions in which property rights weregiven to cultivators.

Summary

- Despite real progress, nearly 2 billion people in the developing world grind out a meagre and often inadequate existence in agricultural pursuits. Over 3.1 billion people lived in rural areas in developing countries in 2010, a quarter of them in extreme poverty. People living in the countryside make up more than half of the population of such diverse Latin American and Asian nations as Haiti, Guatemala, India, Indonesia, Myanmar, Honduras, Sri Lanka, Pakistan, Bangladesh, the Philippines, Thailand, and China.
- There is considerable diversity among developing nations, as well as within developing countries, each region tends to have a number of characteristics in common.
- The Washington Consensus list is also striking in its free-market approach, even in fields in which market failure is prevalent, such as the financial sector. Moreover, the list is striking in its limited applicability to two of the most successful cases in the history of economic development, South Korea, and Taiwan.
- In many developing countries, various historical circumstances have led to a concentration of large areas of land in the hands of a small class of powerful landowners. This is especially true in Latin America and parts of the Asian subcontinent.
- Peasants are forced to borrow even more from the moneylender at interest rates ranging from 50% to 200%. Most cannot repay these loans. They are then compelled to sell their land and become tenants with large debts.

Keywords

- Agriculture Progress
- Rural Development
- Agrarian Patterns
- Green Revolution
- Market
- Farming

Self Assessment

1. Two-third population of the developing countries is dependent upon

A. Agriculture sector
B. Industrial sector
C. Service sector
D. None of the above

2. Which of the following are core problems of developing countries?

A. Inequalities
B. Population growth
C. Poverty
D. All of the above

3. Where the surplus labour can be seen?

A. Agriculture sector
B. Industrial sector
C. Service sector
D. None of the above

4. Which of the following is agriculture development strategy of economic development?

A. Rising demand for agricultural product
B. Increase agricultural output
C. Use labour intensive techniques
D. Both a and b

5. Which of the following can be seen in rural areas of developing countries?

A. Capital scarcity
B. Abundant labour
C. Abundant capital
D. Both a and b

6. Which of the following can increase the productivity?

A. Improved seeds
B. Chemical
C. Fertilizers
D. All of the above

7. Easy access to low rate credit to large farmers is increasing the gap between farmers.

A. True
B. False

8. Adverse weather conditions _____effect the agricultural production.
9. Which of the following are among the tenpoints of Washington Consensus?

A. Reducing poverty
B. Reducing inequality
C. Economic growth
D. All of the above

10. Which of the following is main objective of New Consensus?

A. Poverty alleviation
B. Increasing the gap between rich and poor
C. Increasing the gap between small and marginal farmers
D. None of the above

11. Land productivity is comparatively more in developed countries.
A. True
B. False
12. Under which of the following country the largest farm size can be seen?
A. Latin America
B. Indonesia
C. Brazil
D. None of the above

13. Why land size is becoming smaller and smaller in Asia?
A. Subdivision of land
B. Fragmentation of holding
C. Both a and b
D. None of the above

14. Which of the following are three inter-relatedforces that molded the traditional pattern of land ownership into its present fragmented condition?
A. Intervention of European rule
B. Progressive introduction of monetized transactions and the rise in power of the moneylender
C. Rapid growth of Asian populations
D. All of the above

15. Which of the following is one of the reasons of commercialization of agriculture?
A. Private property
B. Demand
C. Supply of land
D. Increase in prices of agricultural products

Answers forSelf Assessment

1.	A	2.	D	3.	A	4.	D	5.	D
6.	D	7.	A	8.	Negatively	9.	D	10.	A
11.	A	12.	A	13.	C	14.	D	15.	A

Review Questions

1. Discuss briefly Washington consensus development policy making.
2. Critically examine the agrarian system prevailing in the developing countries.
3. Critically examine the agrarian pattern of Latin America.
4. Critically examine the improvement in small-scale agriculture.
5. Write a note of agricultural progress and rural developing occurring in developing countries.

Further Readings

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Unit 12: Human and Social Aspects of Development

CONTENTS

Objectives

After studying this unit the students will be able to

- Describe social aspects of development
- Describe the role of health and education in economic development
- Describe the human capital approach development

Introduction

Education and health are basic objectives of development; they are importantends in themselves. Health is central to well-being, and education is essentialfor a satisfying and rewarding life; both are fundamental to the broader notionof expanded human capabilities that lie at the heart of the meaning of development. At the same time, education plays a key role in the ability of a developing country to absorb modern technology and to developthe capacity for self-sustaining growth and development. Moreover, health isa prerequisite for increases in productivity, and successful education relies onadequate health as well. Thus both health and education can also be seen asvital components of growth and development—as inputs to the aggregate productionfunction. Their dual role as both inputs and outputs gives health and educationtheir central importance in economic development.It is hard to overstate how truly dramatic the improvements in worldhealth and education have been. In 1950, some 280 of every 1,000 children inthe developing world as a whole died before their fifth birthday. By 2008, thatnumber had fallen to 118 per 1,000 in low-income countries, and 57 per 1,000in middle-income countries (though now compared with 7 per 1,000 in highincomecountries and just 4 in many European countries). Some importantkillers have been completely or nearly eradicated. Smallpox used to kill morethan 5 million people every year; the virus no longer exists outside a few laboratorysamples. Major childhood illnesses such as rubella and polio have beenlargely controlled through the use of vaccines. In addition, recent decadeshave witnessed a historically unprecedented extension of literacy and otherbasic education to a majority of people in the developing world. The UnitedNations reports that although there were still a staggering 780 million illiteratepeople aged 15 or older in the world in 2004, the good news is that 82% of allpeople are literate today, compared to just 63% as recently as 1970.2 But almosttwo-thirds of the world's illiterate people are women.

Despite such outstanding achievements, developing countries continue toface great challenges as they seek to continue to improve the health and educationof their people. The distribution of health and education within countriesis as important as income distribution; life expectancy may be quite highfor better-off people in developing countries but far lower for the poor. Childmortality rates in developing countries remain more than ten times higherthan those found in rich countries. These deaths generally result from conditionsthat are easily treatable, including millions who continue to die needlesslyeach year from dehydration caused by diarrhea. If child death rates indeveloping countries fell to those prevailing in developed countries, thelives of more than 8 million children would be saved each year. Many childrenwho survive nonetheless suffer chronic problems of malnutrition, debilitatingparasitic infections, and other recurrent illnesses. Problems caused by lack ofkey micronutrients such as iodine, as well as protein, affect nearly 2 billionpeople, but children are particularly vulnerable. Whereas a child in Europe,North America, or Japan can expect to receive more than 12 years of schooling,the average child in sub-Saharan Africa and South Asia can expect to spendless than five years in school—before taking account of teacher absenteeismand making no adjustment for the lack of schoolbooks and other resourceseven when a teacher is present.

12.1 Education and Health in Economic Development

Health and education are closely related in economic development.On onehand, greater health capital may improve the return to investments in education,in part because health is an important factor in school attendance and inthe formal learning process of a child. A longer life raises the return to investmentsin education; better health at any point during working life may in effectlower the rate of depreciation of education capital. On the other hand, greatereducation capital may improve the return to investments in health, becausemany health programs rely on basic skills often learned at school, includingpersonal hygiene and sanitation, not to mention basic literacy and numeracy;education is also needed for the formation and training of health personnel.Finally, an improvement in productive efficiency from investments in educationraises the return on a lifesaving investment in health.The past half century or so has witnessed unprecedented advances inhuman capital. Health and education levels improved in both developed anddeveloping countries, but by most measures they have improved more rapidlyin developing countries. As a result, there has been some international convergencein these measures. Only in sub-Saharan Africa, where life expectanciesfell due to the AIDS crisis, has some doubt been cast on the trend toward catchingup in health. As primary enrollments rise in developing countries, education iscatching up, though some observers believe that the quality gap may be largerthan ever. Even though the health and education gap between developed anddeveloping countries remains large and further improvements may prove difficult,the progress to date has been unmistakable.

Health and education levels are much higher in high-income countries. Thereare good reasons to believe that the causality runs in both directions: Withhigher income, people and governments can afford to spend more on educationand health, and with greater health and education, higher productivityand incomes are possible. Because of these relationships, development policyneeds to focus on income, health, and education simultaneously.People will spend more on human capital when income is higher. But theevidence shows clearly that even if we were able to raise incomes without alarge improvement in health and education, we could not count on that incomeincrease being used to adequately invest in children's education and health.The market will not solve this problem automatically, and in many cases,household consumption choices themselves may lead to a surprisingly smalllink between income and nutrition, especially for children. The income elasticityof the demand for calories (that is, the percentage change in calories consumedfor a percentage change in family incomes) among low-income peoplerange from near zero to about 0.5, depending on the region and the statisticalstrategy used by the researchers. This less than proportional response is due totwo factors: Income is spent on other goods besides food, and part of the increasedfood expenditures is used to increase food variety without necessarilyincreasing the consumption of calories. If the relationship between income andnutrition is indeed quite low, as some studies suggest, then development policiesthat emphasize increasing incomes of the poor without attention to theway these additional resources are expended within the family may not lead toimproved health, and successful development more generally, at least not veryquickly.In this case, credit may help the poor improve their nutrition,for example, because seasonal price fluctuations are also shown to be an importantdeterminant of calorie consumption along with average income among thevery poor, but credit will not be sufficient if nutrition remains inadequate anddoes not improve automatically with higher income.

Note that even if income elasticities for calories are higher than the traditionalvery low estimates imply—say, on the order of 0.3 to 0.58—calories arenot the same as nutrition, and the nutrition of earners is not the same as thenutrition of their children. The income elasticity of "convenience" foods isgreater than unity. An increase in income frequently allows families in developingcountries to switch consumption from nutritious foods such as beansand rice to nonnutritious "empty calories" such as candy and soda, whichmay be perceived as modern and symbolic of economic success. Parents maythen fail to place restrictions on children's consumption of such items or toplace positive restrictions on consumption of nutritious foods.Howarth Bouis found that intake of vitamins A and C is not positively associatedwith income in the Philippines and argued that consumer educationwas important. Moreover, morbidity (incidence of sickness) did not necessarilydecrease significantly with income in that country.A major problem isthat poor health (e.g., diarrheal diseases) can negate the health advantages ofbetter nutrition. A study of the Gambia found that diarrhea is associated withreduced nutritional status even after calorie intake is controlled for.

There is considerable evidence that the better the education of the mother,the better the health of her children. Usually, formaleducation is needed in complementary relationship with ongoing access tocurrent information. Paul Glewwe found in an analysis of data from Moroccothat a mother's basic health knowledge had a positive effect on her children'shealth. Several mechanisms were possible, such as that "formal education directlyteaches health knowledge to future mothers; literacy and numeracyskills acquired in school assist future mothers in diagnosing and treating childhealth problems; and exposure to modern society from formal schoolingmakes women more receptive to modern medical treatments." But, Glewweconcludes, "mother's health knowledge alone appears to be the crucial skillfor raising child health. In Morocco, such knowledge is primarily obtainedoutside the classroom, although it is obtained using literacy and numeracyskills learned in school. Teaching of health knowledge skills in Moroccanschools could substantially raise child health and nutrition in Morocco." There are still opportunities for improving health through simple activities in schoolthat have not been utilized.Health status, once attained, also affects school performance, as has beenshown in studies of many developing countries. Better health and nutritionleads to earlier and longer school enrollment, better school attendance, andmore effective learning. For example, it has been found that the probability ofattending school among nutritionally stunted children in Nepal is far lowerthan for nonstunted students. Undernourished children were found to lag20% in test score gains in northeast Brazil, one of the worst pockets ofpoverty in Latin America. Children with low height for their age, an indicatorof undernutrition, have been found to lag in school grade attainment inmany parts of the world, including rural China and Thailand. Thus to improvethe effectiveness of schooling, we must improve the health of childrenin developing countries. Indeed, advances in statistical methods are showingthat the links from health to educational attainment in developing countriesare stronger than had been believed. These effects are large forboth boys and especially for girls.

12.2 Human Capital Approach of Development(Investing in Education and Health)

The analysis of investments in health and education is unified in the humancapital approach. An analogy is made to conventional investments in physical capital:

After an initial investment is made, a stream of higher future income can begenerated from both expansion of education and improvements in health. Asa result, a rate of return can be deduced and compared with returns to otherinvestments. This is done by estimating the present discounted value of the increasedincome stream made possible by these investments and then comparingit with their direct and indirect costs. Of course, health and education alsocontribute directly to well-being.

 **Example**: Education increases empowermentand autonomy in major matters in life, such as capacity for civic engagement,making decisions concerning one's own health care, and freedom tochoose one's own spouse over arranged marriage.

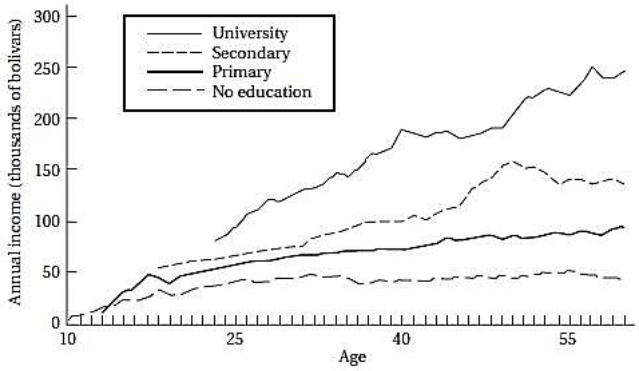
But the basic humancapital approach focuses on their indirect ability to increase well-being byincreasing incomes. In this section, we will generally illustrate points with educationalinvestments, but the same principles apply to health investments.

Did you know

What is human capital?

Human capital is the term economists often use for education, health, and other human capacities that can raise productivity when increased.

Figure 1: Age-Earnings Profiles by Level of Education: Venezuela

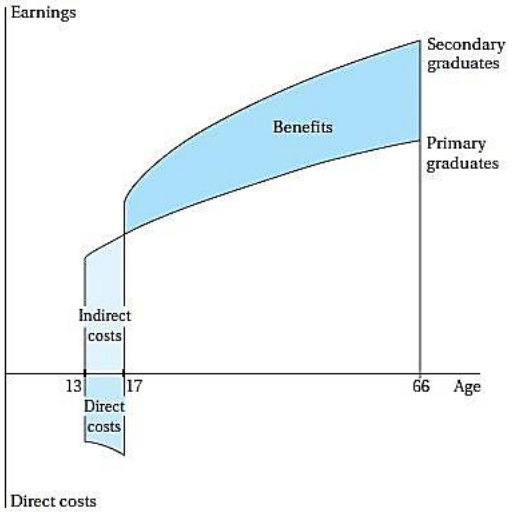


The impact of human capital investments in developing countries can bequite substantial. Figure 1 shows the age-earnings profiles by levels of educationin Venezuela. The chart shows how incomes vary over the life cycle forpeople with various levels of education. Note that those with higher levels ofeducation start full-time work at a later age, but as the graph shows, their incomesquickly outpace those who started working earlier. But such future incomegains from education must be compared with the total costs incurred tounderstand the value of human capital as an investment. Education costs includeany direct tuition or other expenditures specifically related to education,such as books and required school uniforms, and indirect costs, primarily incomeforgone because the student could not work while in school.Formally, the income gains can be written as follows, where E is incomewith extra education, N is income without extra education, t is year, i is thediscount rate, and the summation is over expected years of working life:

$$\sum \frac{E_t - N_t}{(1 + i)^t} \qquad (1)$$

An analogous formula applies to health (such as improved nutritional status),with the direct and indirect cost of resources devoted to health compared withthe extra income gained in the future as a result of higher health status.Figure 2 provides a typical schematic representation of the trade-offs involvedin the decision to continue in school. It is assumed that the individualworks from the time he or she finishes school until he or she is unable to work,retires, or dies. This is taken to be 66 years.

Figure 2: Financial Trade-Offs in the Decision to Continue in School



Two earnings profiles are presented—for workers with primary school but no secondary education and forthose with a full secondary (but no higher) education. Primary graduates areassumed to begin work at age 13, secondary graduates at age 17. For an individualin a developing country deciding whether to go on from primary tosecondary education, four years of income are forgone. This is the indirectcost, as labeled in the diagram. The child may work part time, a possibility ignoredhere for simplicity, but if so, only part of the indirect-cost area applies.There is also a direct cost, such as fees, school uniforms, books, and other expendituresthat would not have been made if the individual had left school atthe end of the primary grades. Over the rest of the person's life, he or shemakes more money each year than would have been earned with only a primaryeducation. This differential is labeled "Benefits" in the diagram. Beforecomparing costs with benefits, note that a dollar today is worth more to an individualthan a dollar in the future, so those future income gains must be discountedaccordingly, as is done in Equation 1. The rate of return will behigher whenever the discount rate is lower, the direct or indirect costs arelower, or the benefits are higher.

Table 1:Sample Rates of Return to Investment in Education by Level of Education, Country, Type,and Region

Country Type and Region	Social Rate of Return (%)			Private Rate of Return (%)		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Developing						
Sub-Saharan Africa	24	18	11	41	27	28
Asia	20	13	12	39	19	20
Latin America	18	13	12	26	17	20
Developed	14	10	9	22	12	12

This analysis was performed from the individual's point of view in thethree right-hand columns of Table 1. Notice that in sub-Saharan Africa andAsia, the private rate of return to primary education is about 40%! Despite thisextraordinary return, many families do not make this investment because theyhave no ability to borrow even the meager amount of money that a workingchild can bring into the family—the topic of the next section.

Notes: Thehigher rates of return for developing countries reflect that the income differentialbetween those with more and less schooling is greater on average than forthe developed countries.

The first three columns of Table 1 indicate the social rate of return. This isfound by including the amount of public subsidy for the individual's educationas part of the direct costs, because this is part of the investment from thesocial point of view (and also by considering pretax rather than after-tax incomes).It should be noted that these social returns are probably understatedbecause they do not take into account the externality that educated people conferon others (e.g., being able to read for other family members), not to mentionother individual and social benefits such as increased autonomy and civic participation.

12.3 Social and Private Cost of Benefit Development

Typicallyin developing countries, the social costs of education increase rapidly as studentsclimb the educational ladder. The private costs of education (those borneby students themselves) increase more slowly or may even decline.

Did you know?

What is social cost of education?

The opportunity cost to society as a whole resulting from the need to finance costly educational expansion at higher levels when these limited funds might be more productively used in other sectors of the economy.

This widening gap between social and private costs provides an evengreater stimulus to the demand for higher education than it does for educationat lower levels. But educational opportunities can be accommodated tothese distorted demands only at full social cost.

Figure 3: Private versus Social Benefits and Costs of Education:An Illustration

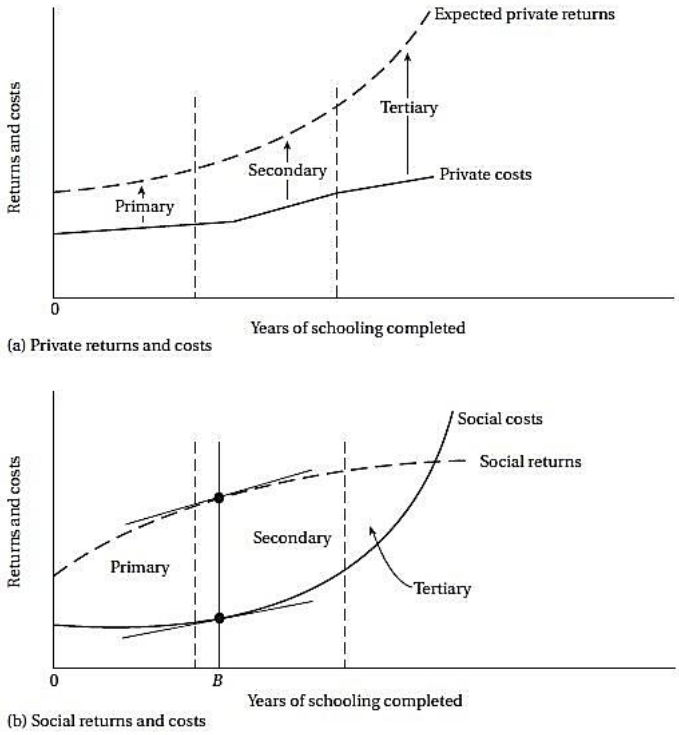


Figure 3 provides an illustration of this divergence between private andsocial benefits and costs. It also demonstrates how this divergence can lead toa misallocation of resources when private interests supersede social investmentcriteria. In Figure 3a, expected private returns and actual private costsare plotted against years of completed schooling. As a student completes moreand more years of schooling, expected private returns grow at a much fasterrate than private costs, for reasons explained earlier. To maximize the differencebetween expected benefits and costs (and thereby the private rate of returnto investment in education), the optimal strategy for a student would beto secure as much schooling as possible.Now consider Figure 3b, where social returns and social costs are plottedagainst years of schooling. The social benefits curve rises sharply at first, reflectingthe improved levels of productivity of, say, small farmers and the selfemployedthat result from receipt of a basic education and the attainment ofliteracy, arithmetic skills, and elementary vocational skills. Thereafter, themarginal social benefit of additional years of schooling rises more slowly, andthe social returns curve begins to level off. By contrast, the social cost curveshows a slow rate of growth for early years of schooling (basic education) andthen a much more rapid growth for higher levels of education. This rapid increasein the marginal social costs of postprimary education is the result bothof the much more expensive capital and recurrent costs of higher education(buildings and equipment) and the fact that much postprimary education indeveloping countries is heavily subsidized.It follows from Figure 3b that the optimal strategy from a social viewpoint,the one that maximizes the net social rate of return to educational investment,would be

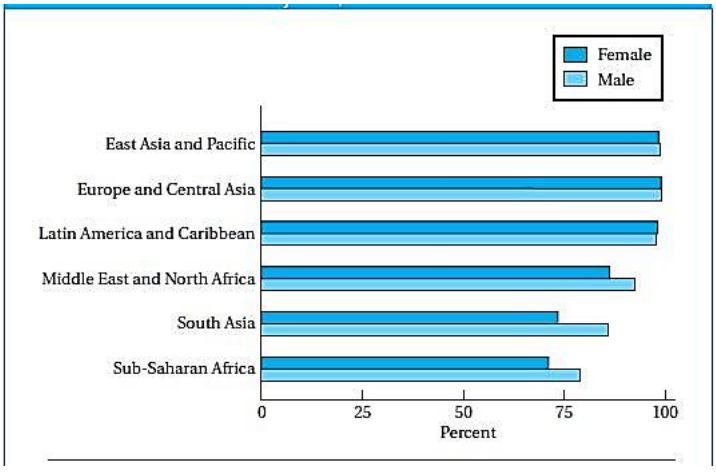
one that focuses on providing all students with at least Byears of schooling. Beyond B years, marginal social costs exceed marginal socialbenefits, so additional public educational investment in new, higher-levelschool places will yield a negative net social rate of return. The value of B, suchas nine years of school, would vary according to economic conditions and willbe controversial both because of difficulties in calculating earnings gains anddebate over which types of social benefits should be considered.Figure 3 also illustrates the inherent conflict between optimal private andsocial investment strategies—a conflict that will continue to exist as long asprivate and social valuations of investment in education continue to divergeas students climb the educational ladder.

To a large degree, the problem of divergent social versus private benefitsand costs has been artificially created by inappropriate public and privatepolicies with regard to wage differentials, educational selectivity, and the pricingof educational services. As a result, private calculations of the value of educationexceed its social value, which must take account of unemployment. Aslong as artificial and nonmarket incentives in the form of disproportionate expectedbenefits and subsidized costs continue to exist and place a premium onthe number of years one spends getting an education, the individual will decidethat it is in his or her best private interests to pursue a lengthy formal educationprocess.Basic education, which has been steadily approaching the target of universalprimary school enrollment, has made great contributions to development,broadly conceived. Moreover, despite the substantial distortions just reviewed,it seems clear that the expansion of educational opportunities has contributed toaggregate economic growth by (1) creating a more productive labour force andendowing it with increased knowledge and skills; (2) providing widespreademployment and income-earning opportunities for teachers, school and constructionworkers, textbook and paper printers, school uniform manufacturers,and related workers; (3) creating a class of educated leaders to fill vacancies leftby departing expatriates or otherwise vacant or prospective positions in governmentalservices, public corporations, private domestic and foreign businesses,and professions; and (4) providing the kind of training and education thatwould promote literacy and basic skills while encouraging "modern" attitudeson the part of diverse segments of the population. Even if alternative investmentsin the economy could have generated greater growth, this would not detractfrom the important contributions, noneconomic as well as economic, thateducation can make and has made to promoting aggregate economic growth.However, we must also consider the structure and pattern of that economicgrowth and its distribution implications—who benefits.

12.4 Inequality and Social Welfare

Education and Gender Young females receive less education than youngmales in most low-income developing countries.

Figure4: Youth Literacy Rate, 2008



While youth literacy is nowmuch higher than it was as recently as 1990, Figure 4 shows that in most regionsgirls still lag behind boys. Large majorities of illiterate people and thosewho have been unable to attend school around the developing world are female.The educational gender gap is especially great in the least developedcountries in Africa, where female literacy rates can be less than half that ofmen in countries such as Niger, Mali, Guinea, and Benin. The gap is also relativelylarge in South Asia; in India, the adult female literacy rate is just 47.8,which is just 65% of the male rate (the female youth literacy rate is 67.7, 80% ofthe male youth literacy rate). In Pakistan,

the adult female literacy rate is just36%, only 57% of the male rate (in this case, the female youth literacy rate is54.7%, some 72% of the male rate). Recall that the target for MillenniumDevelopment Goal 3 ("promote gender equality and empower women") isto "eliminate gender disparity in primary and secondary education preferablyby 2005, and at all levels by 2015." Although the 2005 date was missedin many countries, progress has been dramatic in many others. In most low-incomecountries and many middle-income countries, women make up aminority—sometimes a small minority—of college students. But the long-termtrend in higher-income countries for a significantly higher and growingshare of female than male enrollment in tertiary (university) educationhas been extending recently to many upper-middle-income countries in theMiddle East, Latin America, and elsewhere.School completion is also subject to gender inequalities, and the gap is oftenparticularly large in rural areas. For example, in rural Pakistan, 42% ofmales complete their primary education, while only 17% of females do. In thecities, the gender gap is smaller though still substantial, as 64% of males completeprimary education versus 50% of females in urban areas.Empirical evidence shows that educational discrimination against womenhinders economic development in addition to reinforcing social inequality.Closing the educational gender gap by expanding educational opportunitiesfor women, a key plank of the Millennium Development Goals, is economicallydesirable for at least three reasons:

i. The rate of return on women's education is higher than that on men's in most developing countries.
ii. Increasing women's education not only increases their productivity in the workplace but also results in greater labour force participation, later marriage, lower fertility, and greatly improved child health and nutrition, thus benefiting the next generation as well.
iii. Because women carry a disproportionate burden of poverty, any significant improvements in their role and status via education can have an important impact on breaking the vicious circle of poverty and inadequate schooling.

Health and Gender Girls also face discrimination in health care in many developingcountries. In South Asia, for example, studiesshow that families are far more likely to take an ill boy than an ill girl to ahealth center. Women are often denied reproductive rights, whether legally orillegally. Broadly, health spending on men is often substantially higher thanthat on women. And in many countries such as Nigeria, health care decisionsaffecting wives are often made by their husbands.Female genital mutilation/cutting (FGM/C) is a health and gender tragedy,explained in the 2005 UNICEF report Changing a Harmful Social Convention:Female Genital Mutilation/Cutting. FGM/C is most widely practiced in sub-Saharan Africa and the Middle East and is believed to have affected about 130million women. This practice, which is dangerous and a violation of the mostbasic rights, does not only result from decisions made by men; many motherswho have undergone FGM/C also require their daughters to do so. If mostother families practice FGM/C, it becomes difficult for any one family to refuseto take part, to avoid the perceived resulting "dishonor" to the daughterand her family and lost "marriageability." The general problem fits the modelof multiple equilibria associated with social norms or conventions, such asfoot binding, an interpretation suggested by Gerry Mackie drawing on workof Nobel laureate Thomas Schelling. This general framework was also appliedearlier in the text in the analysis of whether women have high or lowfertility. In anencouraging sign of progress, there are a growing number of experiences of"mass abandonment" of the practice of FGM/C, sometimes started with anorganized pledge of families in an intermarrying group that they will nolonger follow the practice with their daughters. Thus such coordination failurescan be overcome, often with facilitation of locally based NGOs and similarorganizations.

12.5 Poverty and Human Capital

Studies have also demonstrated that contrary to what might have been assumed,the educational systems of many developing nations sometimes act toincrease rather than to decrease income inequalities.The basic reason for this perverse effect of formal education on income distributionis the positive correlation between level of education and level oflifetime earnings. This correlation holds especially for workers who are able tocomplete upper secondary and university education where income differentialscan be on the order of 300% to 800%. And as levels of earned income areclearly dependent on years of completed schooling, it follows that large incomeinequalities will be reinforced if students from the middle- and upper-incomebrackets are represented disproportionately in secondary and universityenrollments. In short, if for financial or other

reasons the poor are effectivelydenied access to secondary and higher educational opportunities, the educationalsystem can actually perpetuate and even increase inequality across aswell as within generations in developing countries.The private costs of primary education (especially in view of the opportunitycost of a child's labour to poor families) are higher for poor students thanfor more affluent students, and the expected benefits of (lower-quality) primaryeducation are lower for poor students. Together, the higher costs andlower expected benefits of education mean that a poor family's rate of returnfrom investment in a child's education is lower than it is for other families. Thepoor are therefore more likely to drop out during the early years of schooling.As a result of these higher opportunity costs, school attendance, and thereforeschool performance, tends to be much lower for children of poor familiesthan for those from higher-income backgrounds. This is greatly compoundedby the lower quality of schools attended by the poor, plagued by poor teachingand teacher truancy and inadequate facilities. Thus in spite of the (oftenvery recent) existence of free and universal primary education in many developingcountries, children of the poor, especially in rural areas, are often unableto proceed beyond the first few years of schooling.This financial process of eliminating the relatively poor during their firstfew years of schooling is often compounded by the substantial tuition chargedat the secondary level. Despite the recent rapid proliferation of private schoolsfor nonelites in South Asia and other developing regions, their quality is generallynot high, and their teacher qualifications are often lower than those inthe public schools. In many cases, parents do not appear to be getting whatthey think they are paying for. The cost of quality education therefore becomesprohibitive to lower-income families, who are often unable to borrow funds tofinance their children's education. Child labour can be understood as a substitutefor a loan as a way to bring money to the family now at later cost—a veryhigh cost in the case of child labour. This in effect amounts to a system of educationaladvancement and selection based not on any criteria of merit butstrictly on family income levels. It thus perpetuates concentration of incomewithin certain population groups and means that earned income will accrueprimarily to people who already possess the bulk of unearned income andwealth—those whose assets already place them in the upper deciles of thepersonal income distribution scale.The inegalitarian nature of many developing-country educational systemsis compounded even further at the university level, where the governmentmay pay the full cost of tuition and fees and even provide university studentswith income grants in the form of stipends. Because most university studentsalready come from the upper-income brackets (and were so selected at thesecondary level), highly subsidized university education using public fundsoften amounts to a transfer payment from the poor to the wealthy in thename of "free" higher education.

Case Study

The Mexican Program on Education, Health, andNutrition is widely known by its Spanishacronym, Progresa, though officially renamed theOportunidades Human Development Program(http://www.oportunidades.gob.mx). Progresa/Oportunidades combats child labor and poor educationand health by ensuring that parents can feedtheir children, take them to health clinics, and keepthem in school while providing financial incentivesto do so.

Progresa/Oportunidades builds on the growingunderstanding that health, nutrition, and educationare complements in the struggle to end poverty.The program features the promotion of an integratedpackage to promote the education, health,and nutrition status of poor families. It providescash transfers to poor families, family clinic visits,in-kind nutritional supplements, and other healthbenefits for pregnant and lactating women andtheir children under the age of 5. Some of thesebenefits are provided conditionally on children'sregular school and health clinic attendance, and soprograms of this kind are commonly calledconditional cash transfer (CCT) programs.In effect, low-income parents are paid to sendtheir children to school and clinics, and this is one ofthe recent tactics most widely believed by the donorand development community to be effective in sustainablyreducing poverty. The benefits compensateparents for lost income or the lost value of work athome. Such payments work to increase school enrolments,attendance, progress through grades,other schooling outcomes, and nutrition and health.Before the program, Mexico operated a maze ofinefficiently run food subsidy programs managedby as many as ten different ministries. Theseprograms were very blunt instruments againstpoverty and often failed to reach the very poor. Forexample, the better-off urban poor benefited farmore than the hard-to-reach but worse-off ruralpoor. There was no mechanism to ensure that foodsubsidies benefited vulnerable children in poorhouseholds. Nor was there any clear exit strategyfor sustainably helping poor families stay out ofpoverty. Malnutrition remained common in poorrural (especially indigenous) families, and educationalachievements and health gains had failed toreach the poor in the way they had benefited thebetter-off in Mexico. For economic reasons, manypoor children had to work rather than go to school.But poor health and education as a child are majordeterminants of lifelong

poverty.One solution has turned out to be Progresa an innovative developing-countrydesignedintegrated poverty program. Its majorarchitect was Santiago Levy, a development economistwho led the design and implementation of theprogram in the 1990s while serving as deputy ministerof finance. Levy describes the program and itsdevelopment, implementation, and evaluation inhis excellent 2006 book, Progress against Poverty.From its inception in rural areas in August 1997,the Progresa program had grown to cover some 5million rural and urban households by 2007. It hasbeen estimated that more than 21 million peoplebenefit—approximately one-fifth of the Mexicanpopulation—in over 75,000 localities. In 2002, theprogram distributed 857 million doses of nutritionsupplements and covered 2.4 million medicalcheckups. Over 4.5 million "scholarships" wereprovided to schoolchildren. By the end of 2005, theprogram had covered 5 million families, whichcontained almost one-quarter of the country's populationand most people living in extreme poverty.Progresa/Oportunidades affects child nutritionthrough four program components, called pathways:cash transfers, which may be used in part for improvednutrition; nutritional supplements given toall participating children under 2, pregnant andbreastfeeding mothers, and children between theages of 2 and 5 who show signs of malnutrition;growth monitoring, which provides feedback to parents;and other preventive measures, including requiredparticipation in regular meetings where vital information about hygiene and nutrition is taught.Participating families receive school programpayments every other month. In addition, familiesreceive grants for school supplies and food subsidies,on the proviso that they get regular publichealth care for the children, including medicalcheck-ups and immunizations. Payments are generallyprovided through the mother, because evidenceshows that mothers use more of their availablefunds in support of the children's well-being thanfathers do. The payments are supplied via a bankcard, directly from the federal government and notthrough intermediaries, reducing chances of corruption,and mothers are taught how and where tocash in their payments.Program payments are conditional on children ingrades three through nine attending school regularly.

In developing countries such as Mexico, childrenare often enrolled in school but do not attendfor long. The payments increase as the child increasesin grade level. This gives an incentive tokeep children in school longer and helps the childrencontinue into higher grades. Initially, parentsof a third grader received a little over $10 permonth; parents of girls in ninth grade got over $35per month. This was close to two-thirds of the incomethe children would receive as laborers. Theoverall result was to break the trade-off that parentsface between higher consumption for the family todayand the higher future consumption possiblewhen the child has completed school. Families ofgirls also receive slightly higher payments thanboys, partly because girls are more likely to dropout, while the social benefits of keeping girls inschool are well known from development economicsresearch to be very high. Provided that the schooland health check-up conditions are met, the families,not the government, decide how to best spend theseextra resources. Levy estimates that the averagefamily participating in the program receives about$35 per month in combined cash and in-kind transfers,which is about 25% of average poor rural familyincome without the program.The program is also more effective than standardalternatives. For example, evidence shows thatProgresa/Oportunidades has a larger impact on enrolment and performance per dollar spent thanbuilding new schools.The budget for even the much-expanded Progresa/Oportunidades program in 2005 was stillsome $2.8 billion—fairly modest, even in Mexico'seconomy. This represented less than 0.4% of grossnational income. Only Mexico's pension (socialsecurity) scheme is a larger social program. Progresa/Oportunidades is also organizationally efficient,with operating expenses of only about 6% of totaloutlays. This it owes in part to the direct provisionof cash grants via bank cards to the beneficiaries,bypassing the sometimes ineffective and potentiallycorrupt administrative bureaucracy. Fully 82% goesto the direct cash transfers and the remaining 12%to nutritional supplements and other in-kind transfers.Some additional costs for provision of healthcare and schooling are borne by the Mexican healthand education ministries.However, Progresa/Oportunidades is laudednot so much as for its modest cost as for the fact thatit works. It has been subject to one of the most rigorousrandomized trials of any public povertyprogram in the world. The Washington-based InternationalFood Policy Research Institute (IFPRI),with many affiliated researchers, has intensivelystudied the program, using a variety of methods.The most convincing evidence comes from the waythe program was initially rolled out. Only somecommunities were to take part in the program atfirst, before it reached full scale, and the order inwhich initially targeted communities were includedwas randomized. Data were collected from both initiallyincluded and excluded families, so that theimpact of the program could be studied independentlyof the many possible confounding factors thatcan otherwise distort the results of an evaluation.Participants in these rigorous studies have includedsome of the world's leading development microeconomists.Evaluations of Progresa/Oportunidades indicatethat its integrated approach has been highly successful,with large improvements in the well-beingof participants. Malnutrition has measurably declined;family use of health care, including

prenatalcare, has increased, and child health indicators haveimproved; school attendance is up significantly,and the dropout rate has declined substantially,especially in the so-called transition grades sixthrough nine, when children either get launched towardhigh school or drop out. In general terms, theresearch showed that Progresa/Oportunidades increasedby some 20% the number of children whostay in school rather than drop out just before highschool. Child labor decreased by about 15%. Atfirst, there were some concerns that adults mightwork less when receiving the transfers, but the evidenceis that no work reduction has occurred. Severalof the most statistically reliable studies andtheir research methods and findings are reviewedin Emmanuel Skoufias's 2005 IFPRI report,PROGRESA and Its Impacts on the Welfare of RuralHouseholds in Mexico. Other key research reports arelisted among the sources at the end of this casestudy.

The lessons of Progresa/Oportunidades arespreading throughout Latin America and some ofits features are also found in the Bolsa-Familia programin Brazil, Familiaspor la Inclusión Social inArgentina, Chile Solidario, FamiliasenAcción inColombia, Superemonos in Costa Rica, Bono deDesarrollo Humano in Ecuador, Programa de AsignaciónFamiliar in Honduras, Program deAvance Mediante la Salud y la Educación inNicaragua, Red de Oportunidades in Panama, andProyecto 300 in Uruguay. By 2010, Progresa hadbeen replicated in whole or in part in 29 countries.Although the cost of a CCT program like Progresa/Oportunidades may be manageable inmiddle- to upper-middle-income countries, inlow-income countries, outside financial assistanceis needed, both for the payments themselvesand to increase the number (and quality)of clinics and schools to be availed of in the program.Poverty reduction still requires complementaryimprovements, such as better roads topoor areas, public health investments, and localempowerment. The will to replace poorly performingbut politically expedient programs withmore effective ones is necessary. Administrativeinfrastructure may be a major challenge, and disbursingfunds to beneficiaries electronically canprove problematic. But CCT pilot or larger-scaleprograms have been launched in recent yearsin several African countries including Nigeria,Malawi, and Mali.

In conclusion, CCT programs focusing on improvinghealth, nutrition, and education are a keycomponent of a successful policy to end poverty—although in most cases, they will need to be part ofa broader strategy to be fully effective. In Mexico, asin other countries, the broader package includes developmentof infrastructure so the poor can gettheir products to market and get access to safe waterand electricity but by buildingthe human capital of the poor, the program providesthe essential foundation for the poor to increasetheir capabilities and take advantage of opportunitiesas the economy grows. It thereby also enhancesthe prospects for Mexico's own growth and development.

In sum, the Progresa/Oportunidades programis a model of success in many ways. The rigorousprogram evaluations show that it has a substantialeffect on human welfare. It was designed andimplemented in the developing world with closeattention to local circumstances while makingconstructive use of what has been learned in developmenteconomics. It placed the crucial complementaritiesbetween education, health, and nutritionat the center of the program design while payingclose attention to the need for appropriate incentivesfor beneficiaries. Finally, its method of cashtransfer and the move away from cumbersome andnontransparent in-kind transfer programs placedconstraints on possible bureaucratic inefficiencyas well as official corruption. Progresa/Oportunidadesthus offers a model for providing healthand educational progress for poor families and opportunitiesfor their permanent escape frompoverty.

Summary

- Health is central to well-being, and education is essential for a satisfying and rewarding life; both are fundamental to the broader notion of expanded human capabilities that lie at the heart of the meaning of development.
- greater health capital may improve the return to investments in education, in part because health is an important factor in school attendance and in the formal learning process of a child. A longer life raises the return to investments in education; better health at any point during working life may in effect lower the rate of depreciation of education capital.
- Health and education levels are much higher in high-income countries. There are good reasons to believe that the causality runs in both directions: With higher income, people and

governments can afford to spend more on education and health, and with greater health and education, higher productivity and incomes are possible.

- In developing countries, the social costs of education increase rapidly as students climb the educational ladder. The private costs of education increase more slowly or may even decline.This widening gap between social and private costs provides an even greater stimulus to the demand for higher education than it does for education at lower levels. But educational opportunities can be accommodated to these distorted demands only at full social cost.
- The educational systems of many developing nations sometimes act to increase rather than to decrease income inequalities.

Keywords

- Education
- Health
- Human Capital
- Social Welfares
- Social and Private Cost

Self Assessment

1. Which of the following is prerequisite to increase productivity of the workers?

A. Health (answer)
B. Science
C. Capital formation
D. Money

2. Which of the following are vital components of economic growth and development?

A. Health
B. Education
C. Both a and b (answer)
D. Money

3. Health capital improve the rate of return to investment in education.

A. True
B. False

4. Good education and health are positively correlated with productivity.

A. True
B. False

5. People will be able to spend more on health when their income will be

A. More (answer)
B. Less

C. Income does not effect expenditure on health
D. None of the above

6. Income elasticity of demand for calories is comparatively _____than manufactured goods.
A. More
B. Less (answer)
C. Greater than one
D. Less than one

7. Which of the following are included in the direct cost of education?
A. Tuition fee
B. Expenditure on books
C. Expenditure on uniform
D. All of the above

8. A person will forgo the income of four years if he decides to go from primary education to secondary education. This is the
A. Indirect cost of education
B. Direct cost of education
C. Cost
D. Benefit

9. Private cost of education is borne by
A. Students themselves
B. Society
C. Part of the society
D. None of the above

10. Increase in educational opportunities has contributed to aggregate economic growth by
A. Creating a more productive labour force
B. Creating a class of educated leaders
C. Providing training
D. All of the above

11. Education system is also one of the reasons of increasing inequalities in developing countries.
A. True
B. False

12. The private cost of education is comparatively more among _____students.
13. Which of the following is substitute of loan for poor people?
A. Child labour

B. Education loan
C. Subsidized loan
D. None of the above

14. Which of the following can be included in human capital?
A. Education
B. Health
C. Both a and b
D. None of the above

15. The divergence between the private benefits and social cost of education can lead to misallocation of resources.
A. True
B. False

Answers forSelf Assessment

1.	A	2.	C	3.	A	4.	A	5.	A
6.	B	7.	D	8.	A	9.	A	10.	D
11.	A	12.	Poor	13.	A	14.	C	15.	A

Review Questions

1. Critically examine the role of health and education in economic development of the country.
2. Critically examine the human capital approach to economic development.
3. Write a note on poverty and human capital.
4. Critically examine social and private cost benefits of development.
5. Make an assessment on inequality and social welfare.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 13: Capital Formation

CONTENTS

Objectives

After studying this unit the students will be able to

- Describe two gap theory
- Learn about the foreign aid
- Learn about foreign investment
- Learn about capital formation

Introduction

Capital formation is the net accumulation of capital goods, such as equipment, tools, transportation assets, and electricity, during an accounting period for a particular country.Generally, the higher the capital formation of an economy, the faster an economy can grow its aggregate income.To accumulate additional capital, a country needs to generate savings and investments from household savings or based on government policy.When investors purchase stocks and bonds issued by corporations, the firms can put the capital at risk to increase production and create new innovations for consumers.The World Bank tracks gross capital formation, which it defines as outlays on additions to fixed assets, plus the net change in inventories.

13.1 Two Gap Theory

Hollis Chenery and other writers have put forth the two-gap approach toeconomic development. The idea is that savings gap and foreign exchange gapare two separate and independent constraints on the attainment of a target rateof growth in LDCs. Chenery sees foreign aid as a way of filling these two gaps in order to achieve the target growth rate of the economy.To calculate the size of gaps, a target growth rate of the economy is postulatedalong with a given capital-output ratio. A savings gap arises when the domesticsavings rate is less than the investment required to achieve the target. Forexample, if the growth target of national real income is 6 percent per annum,and the

capital-output ratio is 3:1, then the economy must save 18 per cent ofits national income to achieve this growth target. If only 12 per cent ofsavings can be mobilized domestically, the savings gap is 6 per cent of nationalincome. The economy can achieve the target growth rate by filling this savingsgap with foreign aid. Similarly, a fixed relationship is postulated betweentargeted foreign exchange requirements and net export earnings. If net exportearnings fall short of foreign exchange requirements, a foreign exchange gapappears which can be filled by foreign aid.The two gaps are explained in terms of the national income accountingidentities:

$E - Y \equiv I - S \equiv M - X \equiv F$

where E is national expenditure, Y is national output and income, I isinvestment, S is saving, M represents imports, X exports and F is net capitalinflow.(I — S) is the domestic savings gap and (M—X) is the foreign exchange gap.Like the basic national income accounting identities, the two gaps are alwaysequal ex-post in any given accounting period. But they may differ ex-antebecause in the long run those who make decisions about savings, investment,exports and imports are different people. So during the planning process, theplans of savers, investors, importers and exporters are likely to be different.Ex-ante (or planned) investment is related to the target growth rate of theeconomy, If the target growth rate is high, investment will also be high. Butdomestic savings depend upon the level and distribution of income in thesociety. Ex-ante imports include the imported inputs needed for development.They are also affected by the size of the national income and the distribution ofincome among the public and the different sectors of the economy. Exports areexogenously determined by world prices and by quantities that change withweather or natural conditions. As these elements are assumed to be independentof each other, the savings gap and the foreign exchange gap are unequal in size in the ex-ante sense. It is also assumed that savings and foreign exchangecannot be substituted for each other. Further, the country cannot transform itspotential savings into exports.

Did you know?

What is capital output ratio?

Capital output ratio is amount of capital required to produce one unit of output.

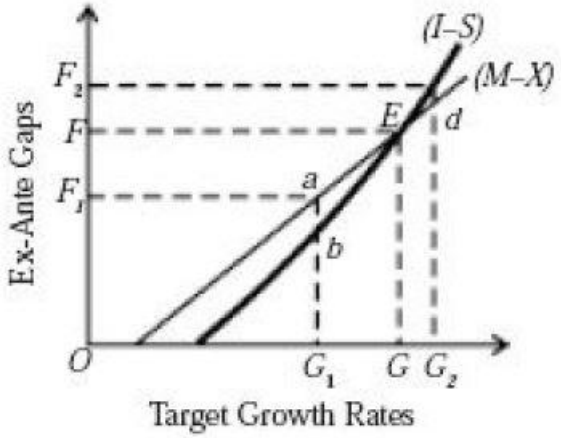


Figure 1

Given these assumptions, Figure 1 illustrates the twoex-ante gaps and their relation to different targetgrowth rates of income. The ex-ante savings andforeign exchange gaps are measured along thevertical axis and the target growth rates along thehorizontal axis. The ex-ante savings gap isrepresented by (I - S) curve and the ex-ante foreignexchange gap by (M–X) curve. Both are equal atpoint E and the target growth rate of OG is achievedwith OF inflow of net foreign aid. If the target growth rate is OG1 then theforeign exchange gap is larger than the savings gap by ab. This growth ratewill not be achieved because the inflow of foreign capital is not sufficient tofill the larger foreign exchange gap OF1. Short run forces might bring aboutthe ex-post equality of the two gaps without achieving the target growth rate.On the other hand, if the target growth rate is OG2, the savings gap is largerthan the foreign exchange gap by cd. Again, this growth rate will not beachieved because the inflow of foreign capital is inadequate to fill the savingsgap. It requires a larger inflow of foreign capital to meet the larger savingsgap OF2. Imports cannot be reduced due to the nature and limited flexibility ofthe productive system and of the composition of consumer demand. Toovercome these structural rigidities, Chenery suggests restrictions on thepattern of

consumption, the distribution of income, the level and growth ofemployment and changes in the exchange rate. Such measures can bringadjustments in the two gaps without foreign aid. But they will retard growth.

Did you know?

What is ex-ante investment?

Ex-ante investment is planned investment. According to Keynes ex-ante savings and ex-ante investment is equal only at equilibrium point.

Some economists are of the view that if prices are flexible, such rigidities arenot likely to be found. If resources are optimally allocated, there can be onlysavings constraint on growth and hence only savings gap in the economy. Ifappropriate exchange rate policies or price policies are followed, resourceswould shift to remove the difference between the growth effect of imports anddomestic savings and hence the difference in the ex-ante gaps. This view holdsthat if the foreign exchange gap is dominant, it must be due to inappropriateprice policies which might have led to the mall allocationof resources.Assuming that all capital goods are imported and only consumer goods areproduced domestically, another two–gap model holds that structural rigiditiesimply that (i) no substitution is possible between imported capital goods anddomestic factors in production, and (ii) no substitution is possible betweendifferent consumer goods in consumption.The foreign aid required to fill the gap is determined by the dominant gap at agiven point in time. If the savings gap is larger than the foreign exchange gap,the economy is said to be in a savings constraint. On the other hand, if theforeign exchange gap is larger than the savings gap the economy is in aforeign exchange constraint. Foreign aid can help in removing the savingsconstraint by the inflow of capital. Over the long run, the amount of foreignaid required will equal the difference between the increase in investment andthe increase in savings generated by rising income. When the savings gapdisappears the target growth rate of the economy will be sustained.

If the foreign exchange constraint is dominant or binding for an LDC at anygiven point in time, foreign aid can help in overcoming it with foreign aid.The country can start new investment projects by importing capital andintermediate goods and technical assistance. Over the long period, the requiredforeign aid will equal the difference between the increases in imports andexports. The foreign exchange gap will disappear when exports rise to a levelwhich covers the required imports for the target growth rate of the economy.Of the two gaps which dominate first in LDCs, Chenery and Strout citeempirical evidence to show that first such countries have dominant savingsconstraint and then the foreign exchange constraint over their course ofdevelopment. In fact, they divide countries having savings constraint andforeign exchange constraint in two separate categories.

Limitations

The two-gap analysis is based on certain restrictive assumptions which limit its usefulness in achieving the target growth rate in LDCs.

i. It presupposes that an increase in domestic savings cannot be utilized as asubstitute for the required foreign exchange to maintain investment for thetarget growth rate. It further assumes that the country cannot follow exportpromotion and import substitution policies. It also assumes structural rigiditiesand non-substitutability between different types of goods. Given such rigidities,if the foreign exchange gap is larger than the savings gap, the domestic savingpotential can be used neither to produce capital goods nor exports. Theseassumptions are highly unrealistic and have not been supported by empiricalevidence.

ii. Critics point out that the LDCs with dominant savings constraint do not needforeign aid. A dominant savings gap implies that the country is functioning at afull employment level. It is, therefore, not utilizing its foreign exchange toimport capital goods for investment purposes because the domestic resourcesare fully employed. As there is full employment, investment in capital goodsthrough imports will lead to inflation.This analysis does not consider the absorptive capacity of the economy, andability to formulate and execute productive projects with aid.

iii. The two-gap analysis is a highly aggregative approach which treats all typesof capital investments as homogeneous. This is unrealistic because the capitalrequirements of LDCs are meant for specific needs and they receive foreignaid for different sectors, industries and projects.

iv. The two gaps are mechanistic. They assume stable values of the parametersin future. But this is unrealistic because the capital-output ratio and themarginal savings rate change over time, depending on domestic conditions andpolicies. After all, foreign aid cannot be exclusively relied upon to fill thesegaps in the long run. With development, structural rigidities are removed andthe domestic economy is so transformed as to equilibrate the two gaps.Domestic policies aiming at import substitution and export promotiondetermine the aid requirements of LDCs. Aid helps in removing rigidities andbringing structural transformation of the economy. Thus the two-gap model isvery mechanistic in that it lays emphasis on filling the gaps rather thantransforming the economy with aid.

13.2 Foreign Investment

At the turn of the present century, private foreign capital mostly flowed in theform of indirect investments from Europe to the underdeveloped countries.Such capital as flowed to low income countries in the 1920s in the form ofdirect investments went mainly into production for export. Very little of it wentto manufacturing for the home market. But since the Second World War, overhalf the private investment has been direct. Direct private investment has beenconcentrated mainly in the extraction of raw materials like iron, crude oil,manganese, bauxite, copper, electric energy, etc. Only a small percentage hasgone to manufacturing and distribution. Not until the economy takes off thatdirect investment is made in manufacturing. That is why direct investment inmanufacturing flows to those countries which are somewhat industriallyadvanced and have large domestic market.

Merits of Private Foreign Investment

Private Foreign Investment (PFI) possesses certain advantages which arediscussed as under:

i. PFI not only provides finance but also managerial, administrative and technical personnel, new technology, research and innovations in products and techniques of production which are in short supply in LDCs.

ii. This may, in turn, encourage local enterprise to invest more itself in ancillary industries or in collaboration with foreign enterprise. In fact, foreign enterprise encourages local enterprise in two ways: directly by fostering local enterprise with men, money, and material, and by imparting training and experience to its personnel; and indirectly by creating demand for ancillary or subsidiary services (like transport and training agents) which are uneconomical for private foreign enterprise to provide.

iii. By bringing capital and foreign exchange PFI helps in filling the savings gap and the foreign exchange gap in order to achieve the goal of national economic development in LDCs.

iv. A part of the profits from direct foreign investment is generally ploughed back into the expansion, modernization or development of related industries.

v. PFI adds more value added to output in the recipient country than the return on capital from foreign investment. In this sense, the social returns are greater than the private returns on foreign investment.

vi. PFI also brings revenue to the government of an LDC when it taxes profits of foreign firms or gets royalties from concession agreements.

vii. PFI helps in raising productivity and hence the real wages of local labor. When foreign investment induced industrialization takes place, the real wages of the newly employed

workers are higher than the real wages of workers in the rural sector of the economy. If PFI is in export-oriented industries, it leads to much higher social benefit than it is in import-substitution industries. Because the former have large backward and forward linkage effects. And if export industries are labour intensive, they also provide larger employment opportunities.

viii. Direct foreign investment also places fewer burdens on the balance of payments of an underdeveloped country in the early stage of development. For, the time lag between the starting of new business concerns and the reaping of profits is large. Moreover, profits are likely to be small in the earlier stages of production. Thus the remittance of profits from direct investment brings less pressure on the balance of payments. If PFI mainly flows into agriculture and extractive industries which produce primary goods for export, it further helps in easing the balance of payments position of LDCs. In the case of a developingcountry like India, PFI has a greater salutary effect on the balance of payments since it helps in producing manufactured articles, not only for the domestic market but also for foreign markets.

ix. PFI flowing into a developing country also encourages its entrepreneurs to invest in other LDCs. Firms in India have started investing in Nepal, Uganda, Ethiopia and Kenya and other LDCs while they are still borrowing from abroad.

Notes: India imported wheat under PL480 after independence.

Demerits of Private Foreign Investment

i. The recipientcountry may be required to provide basic facilities like land, power and other public utilities, concessions in the form of tax holiday, development rebate, rebate on undistributed profits, additional depreciation allowance, subsidized inputs, etc. Such facilities and concessions involve cost in absorbing an LDC's resources that could be utilized elsewhere by the government.

ii. To attract PFI, LDCs have to provide sufficient facilities for transferring profits, dividends, interest and principal. If these payments lead to a net capital outflow, they create serious balance of payments difficulties. Thus the indirect costs of debt servicing and balance of payments adjustments create serious foreign exchange crisis, thereby adversely affecting the national economy.

iii. No doubt, PFI increases investment, employment, income and saving in LDCs, but it adversely affects income distribution when it competes with home investment. Capital and other resources may flow to foreign enterprises in preference to domestic enterprises. This may reduce profits in the latter, thereby discouraging local enterprise.

iv. Many foreign concerns operating in LDCs, reserve all senior executive posts for their nationals and pay them very high salaries with many perks which are a huge drain on the resources of the recipient country. At best, they train local nationals for lower and middle level posts having little independent decision making. Moreover, the lavish spending habits of foreign nationals have an undesirable demonstration effect on the nationals of LDCs and create social tensions.

v. PFI brings in highly capital intensive technologies which do not fit in the factor proportions of LDCs. Often obsolete and discarded machines and techniques are imported which involve high social costs in terms of replacement after a few years.

vi. PFI also involves costs in the form of a loss of domestic autonomy when foreign firms interfere in policy-making decisions of the government of an LDC, which favours the

foreign enterprises. Such interference is usually resorted to by the multinational corporations.

13.3 Multinational Corporations

A multinational corporation (MNC) is a company, firm or enterprise with itsheadquarters in a developed country such as the United States, Britain, WestGermany, Japan, etc. and also operates in other countries, both developed anddeveloping. They are engaged in mining, tea, rubber, coffee and cocoa plantations; oil extraction and refining, manufacturing for home production andexports, etc. Their operations also include such services as banking, insurance,shipping, hotels and so on. Thus "like animals in the zoo, MNCs come invarious shapes and sizes, perform distinctive functions differently and theirindividual impact on the environment."

Notes:MNCs spread not only in the LDCs of Asia, Africa and Latin America, but also on the continents of Europe, Australia, New Zealand, and South America.

Sanjay Lal and Streeten define the MNCs from economic, organizational, andmotivational viewpoints. The economic definition lays emphasis on the size,geographical spread, and extent of foreign involvement of the MNC. Accordingto this definition, a typical multinational company is one with net sales of 100million dollars to several thousand million dollars having direct foreigninvestment in manufacturing usually accounting for at least 15 to 20 per centof the company's total investment. Direct foreign investment means at least 25per cent participation in the share capital of the foreign enterprise.

The organizational definition stresses on some organizational aspects of anMNC, besides the economic ones. In this respect a truly MNC is that which "(a)acts as an organizationmaximizing one overall objective. for all its units, (b)treats the whole world (or the parts open to it) as its operational area, and (c) isable to coordinate all its function in any way necessary for achieving (a) and(b).

The motivational definition highlights "corporate philosophy and motivationin laying down criteria for multinationality. Thus, 'True' multinationality isgenerally indicated by lack of nationalism, or a concern with the firm as awhole rather than with any of its constituent units or any country of itsoperations." On this basis, firms are distinguished between ethnocentric(home-oriented), polycentric (host-oriented) and geocentric (world-oriented),on the basis of attitudes revealed by their executives.Lal and Streeten define MNCs in general as very large firms with widespreadoperations which are clearly international in character and have more than fiveforeign subsidiaries or more than 15 per cent of total sales produced abroad and acting in a cohesive manner to achieve maximum profits or growth.

Meritsof MNCs

The advantages flowing from the MNCs to the LDCs are based on the theoriesof direct foreign investment. Such theories are related to oligopolisticinterdependence and monopolistic behavior of the MNCs. Hence they conferthe following advantages on MNCs:

i. MNCs are financially very strong and hence provide large and cheap capital to the LDCs by way of direct investment.
ii. They undertake great risk in investing their funds in LDCs in the face of imperfect infrastructural facilities like power, transport, skilled labor, etc., low market demand and short supply of inputs.
iii. They start new ventures and bestow the advantages of superior management, training, education and entrepreneurial ability in LDCs.
iv. They transfer superior technology to LDCs based on R & D in the parent concerns because they are able to spend huge funds on R & D. This leads to the discovery and introduction of new processes and new and differentiated products in LDCs which tend to raise the standard of living of the people in LDCs.

v. MNCs bring in new techniques of marketing in LDCs through market research at their headquarters. They adopt novel advertising and promotional methods which impart information to buyers and create demand for particular brands and products. This encourages competition.

Demeritsof MNCs

i. MNCs have come to be regarded as agents of exploitation in LDCs because of their invidious operations which are highlighted in their modus operandi.

ii. The US-based MNCs insist on cent per cent ownership in LDCs and they have succeeded in this in Singapore, Mexico, Hongkong, Brazil and Taiwan. With low rates of taxation in these countries, they have been exporting "super profits" to America.

iii. In countries like India, where since the 1960s, the MNCs are allowed to operate as joint ventures with 25 to 40 per cent participation, they enjoy a number of privileges which again tend to increase their profits manifold. Such concessions or privileges are in the form of dividends, payment for installation fee, royalty on the use of patents, payment on know-how fee, payment for imported equipment whose price is 30 to 40 per cent higher than the competitive international price, and tax holiday for a number of years if the concern belongs to the priority sector industry.

iv. Besides, the staffs which comes in the wake of an MNC is paid very high salaries. Some of their top executives get much more than the highest paid executive head of the state in which they serve. Not only this, the MNCs pay to the locally employed labor twice and even three times more than what they might earn in local firms. This not only leads to social inequality but also breeds discontent and unrest among the workers employed in indigenous industry.

v. The MNCs are pre-empting local savings by overpricing the imports and under pricing the exports of LDCs. In cases where there is competition from local entrepreneurs, the MNCs undercut them by charging low prices for their products. As a result, the local firms are squeezed out of business. But if there are very few local firms to compete with, the MNCs buy their majority shares or merge them to exercise control over them.

vi. The MNCs set up their plants in big towns and cities in LDCs where infrastructural facilities are easily available. Thus they accentuate sectoral inequalities and strengthen dualism in such countries.

vii. Besides, the long-term effect of direct and indirect investment by the MNCs on the balance of payments is usually negative as they repatriate huge amounts in the form of royalties, profits, interest, dividend capital, etc.

13.4 Foreign Aid

Foreign aid (capital) enters a country in the form of private capital and/or public capital. Private foreign capital may take the form of direct and indirect investment.

Did you know?

What is direct investment?

Direct Investment means that the concerns of the investing country exercise de facto or de jure control over the assets created in the capital importing country by means of that investment.

Direct investment may take many forms: the formation in the capital importing country of a subsidiary of a company of the investing country; the formation of a concern in which a company of the investing country has a majority holding; the formation in the capital importing country of a company financed exclusively by the present concern situated in the investing country; setting up a corporation in the investing country for the specific purpose of operating in the other concerns; or the creation of fixed assets in the other country by the nationals of the investing country. Such companies or concerns are known as transnational corporations (TNCs) or multinational corporations (MNCs).

Indirect Investment better known as 'portfolio' or 'rentier ' investment consists mainly of the holdings of transferable securities (issued or guaranteed by the government of the capital importing country), shares or debentures by the nationals of some other country. Such holdings do not amount to a right to control the company. The share-holders are entitled to dividend only. In recent years, multilateral indirect investments have been evolved. The nationals of a country purchase the bonds of the World Bank floated for financing a particular project in some LDCs. Public Foreign Capital may consist of: (a) 'Bilateral hard loans' i.e., giving of loans by the British Government in pounds sterling to the Indian Government; (b) 'Bilateral soft loans' i.e., sale of foodgrains and other farm products to India by the United States under PL 480*; (c) 'Multilateral loans' i.e., contributions to the Aid India Club, the Colombo Plan, etc., by the member countries. Under this category are also included loans made available by the various agencies of the United Nations like IBRD, IFC, IDA, SUNFED, UNDP, etc; (d) Inter-governmental grants.

Foreign Aid refers to public foreign capital on hard and soft terms, in cash or kind, and intergovernmental grants.

Role of Foreign Aid in Economic Development

Public foreign capital is more important for accelerating economic development than private foreign capital. The financial needs of LDCs are so great that private foreign investment can only partially solve the problem of financing. For one thing, it has nothing to do with social expenditures in such spheres as education, public health, medical programmes, technical training and research, etc. Such schemes though indirectly contributing to economic efficiency and productivity of the economy in the long-run yield no direct returns, and could, therefore, be financed with the help of grants received from advanced countries. Further, private foreign investment presupposes the existence of basic public services in LDCs. But investment in them requires large sums and risks which private capital is unable to undertake. So investment in low-yielding and slow-yielding projects could be possible only on the basis of foreign aid. Moreover, unlike private foreign investment, aid can be used by the recipient country in accordance with its development programmes. Therefore, much cannot be expected of private foreign investment.

There is, however, a growing international awareness that "poverty anywhere is a danger to prosperity everywhere and prosperity anywhere must be shared everywhere." Developed countries consider it to be their moral duty to help their less fortunate brethren in underdeveloped countries. But this realization on the part of the developed countries has never been spontaneous. They have always been motivated by international policies in the context of the cold war.

Their aim has been to give aid with "strings" attached. "It was only with the entry of the Soviet Union and other communist countries into the field that Western countries also began displaying some enthusiasm for offering aid to the under-developed countries at the governmental level without strings."

Foreign aid flows to the LDCs in the form of loans, assistance and outright grants from various governmental and international organizations. It is regarded indispensable for the development of LDCs. But there are some economists who dispute this view and hold that foreign aid is not indispensable for their development rather it obstructs it. We study the case for and against foreign aid.

Case for Foreign Aid

a. **To Supplement Domestic Savings:**LDCs are characterized as 'capital-poor' or 'low-saving and low-investing' economies. There is not only an extremely small capital stock but current rate of capital formation is also very low. On an average, gross investment is only 5 to 6 per cent of gross national income in these economies, whereas in advanced countries it is about

15 to 20 per cent. Such a low rate of savings is hardly enough to provide for a rapidly growing population at the rate of 2 to 2.5 per cent per annum, let alone invest in new capital projects. In fact, at the existing rate of savings, they can hardly cover depreciation of capital and even replace existing capital equipment. Efforts to mobilize domestic savings through taxation and public borrowings are barely sufficient to raise the current rate of capital formation via investment. Rather, these measures lead to reduction in consumption standards, and unbearable hardships on the people. The importation of foreign capital helps reduce the shortage of domestic savings through the inflow of capital equipment and raw materials thereby raising the marginal rate of capital formation.

b. **To Overcome Deficiency of Technological Backwardness:**Besides, lowsaving and low-investment imply capital deficiency, and along with it, LDCs suffer from technological backwardness. Technological backwardness is reflected in high average cost of production and low productivity of labor and capital due to unskilled labor and obsolete capital equipment. Above all, it is reflected in high capital-output ratio. Foreign capital overcomes not only capital deficiency but also technology backwardness. It brings sufficient physical and financial capital along with technical know-how, skilled personnel, organizational experience, market information, advanced production techniques, innovations in products, etc. It also trains local labor in new skills. All this accelerates economic development.

c. **To Overcome Deficiency of Overhead Capital:**LDCs woefully lack in economic overhead capital which directly facilitates more investment. The rails, roads, canals, and power projects provide the necessary infrastructure for development. But since they require very large capital investment and have long gestation periods, such countries are unable to undertake them without foreign aid.

d. **To Establish Basic and Key Industries:**Similarly, LDCs are not in a position to start basic and key industries by themselves. It is again through foreign capital that they can establish steel, machine tools, heavy electrical, and chemical plants, etc. Moreover, the use of foreign capital in one industry may encourage local enterprise by reducing costs in other industries which may lead to chain expansion of other related industries. Thus foreign capital helps in industrializing the economy.

e. **To Exploit New Areas and Natural Resources:**Private enterprise in LDCs is reluctant to undertake risky ventures, like the exploitation of untapped natural resources and the exploitation of new areas. Foreign aid assumes all risks and losses that go with the pioneering stage. Thus it opens up inaccessible areas, taps new resources, and helps in augmenting the natural resources of the country, and removing regional imbalances.

f. **To Obtain Social Benefits:**As a corollary to what is indicated above, we may say that the creation of the country's infrastructure, the establishment of new industries, the tapping of new resources, the opening of new areas, all tend to increase employment opportunity within the economy. In other words, the importation of capital creates more employment in the urban sector. This leads to the migration of surplus labor from the rural to the urban sector. The pressure of population on land is reduced and disguised unemployment may disappear. This is the social gain from aid.

g. **To Raise the Standard of Living:**All this implies that foreign aid tends to raise the levels of national productivity, income and employment, which, in turn, lead to higher real wages for labor, lower prices for consumers and rise in their standard of living. When with the inflow of foreign capital, local labor becomes skilled; its marginal productivity is increased, thereby raising total real wages of labor. Secondly, when new industries are started by importing

superior know-how, management, machines and equipment, larger quantities of new and quality products are available to consumers at lower prices.

h. **To Increase State Revenues:**When private foreign investors invest in various industries in LDCs, they get profits and royalties. The government of the capital-receiving country levies taxes on such profits and royalties which increase their revenues.

i. **To Reduce Inflationary Pressures:**The appearance of inflationary pressures is inevitable in a developing country because of the existence of the disequilibrium between demand and supply of domestic products, following the initiation of a large public investment programme. The latter has the impact of rapidly increasing the demand for goods and services relative to their supplies. This leads to inflationary pressures which become strong due to the existence of structural rigidities that inhibit the expansion of food and other consumer goods. Foreign aid helps minimize such inflationary pressures when food and other essential consumer goods through foreign aid raise the levels of consumption which, in turn, enhance the productive efficiency of the community.

j. **To Solve the Problem of Balance of Payments:**Foreign aid overcomes the balance of payments difficulties experienced by an LDC in the process of development. To accelerate the rate of development it needs to import capital goods, components, raw materials, technical know-how, etc. Besides, its import requirement of foodgrains increase rapidly with population pressures. But its exports to developed countries are either stagnant or have a tendency to decline. The gap between imports and exports leads to the balance of payments difficulties. It is through foreign capital that an under-developed country can meet all its import requirements, and at the same time, avoid the balance of payments difficulties. Further, there is the need for additional foreign exchange for servicing external debt. This accentuates the balance of payments problems which can again be remedied by importing capital.

Case Against Foreign Aid

a. **Foreign Aid is not a Necessary Condition for Development:**Prof. Bauer is one of the few Western economists who does not view foreign aid indispensable for the economic development of LDCs. To him, "Foreign aid is plainly neither a generally necessary nor a sufficient condition for emergence from poverty." It is not necessary for economic development because a number of new developed countries began as under-developed and developed without foreign aid. Moreover, many LDCs in the Far East, South-East Asia, East and West Africa, and Latin America have advanced very rapidly over the last half century or so without foreign aid. Nor is foreign aid a sufficient condition for economic development if the population of a country is not interested in material development.

b. **Foreign Aid is Used for Wasteful Projects:**Foreign aid is often used for extremely wasteful projects which make large losses year after year. They absorb more local resources of greater value than their net output when the costs of administration, maintenance and replacement of fixed assets originally donated for the projects are taken into consideration.

c. **Foreign Aid does not Increase Net Investment:**Foreign aid does not always bring about an increase in net investment. As a matter of fact, all LDCs receiving foreign aid impose severe restrictions on the inflow and use of foreign capital. These retard the operation and expansion of private enterprise within the economy. Consequently, both foreign and domestic private enterprises are forced to work below capacity. Thus, foreign aid may reduce rather than increase net investment within the recipient country.

d. **Foreign Aid does not Improve Income Earning Capacity:**Foreign aid has failed to improve the income-earning capacity of LDCs and they are now saddled with large external public debts.

e. **Arguments to Overcome Balance of Payments Difficulties and to Avoid Inflationary Pressures are not Correct:**The case for foreign aid to overcome balance of payments difficulties and to avoid inflationary pressures is mis-conceived. Foreign aid encourages governments of LDCs to embark on ambitious plans involving large expenditures financed by inflationary monetary and fiscal policies and also to run down their foreign exchange reserves. But inflationary policies, balance of payments difficulties and extensive economic controls engender a widespread feeling of insecurity or even a crisis atmosphere. All these inhibit domestic savings and investment and even lead to a flight of capital. These, in turn, serve as arguments for further foreign aid.

f. **Influences Policies towards Inappropriate Directions:**Foreign aid frequently influences policies into inappropriate directions by promoting unsuitable external models, such as Western-type universities whose graduates cannot get jobs, Western-Style trade unions which are only vehicles for the self-advancement of politicians, and a Western pattern of industry even where it is quite inappropriate such as airlines and steel plants.

g. **Finances Uneconomic Enterprises or Activities:**It is contended that foreign aid helps in increasing food, raw materials for exports and producing import substitutes. But the experience of many LDCs has been that much aid directly or indirectly finances uneconomic enterprises or activities which produce neither food nor raw materials for exports nor import substitutes.

h. **Foreign Aid Politicises Public Life:**Foreign aid often politicizes public life in LDCs and thereby contributes to social and political tensions which ultimately retard material progress. It is on the basis of political pressures that many recipient governments in LDCs restrict the activities of highly productive and economically successful minorities such as Chinese in Indonesia, Asians in Africa, Indians in Burma, Europeans everywhere. Many maltreat and persecute politically ineffective minority groups, especially ethnic minorities. Such policies reduce current and prospective savings, investment and income in such LDCs.

i. **Foreign Aid leads to Dependency:**Foreign aid leads to dependency because the donors insist on aid-tying to the purchase of goods and services at costs much higher than the competitive world prices, and on monetary and fiscal policies detrimental to the national interests of the recipients of aid. For instance, the recipient may be required to keep an overvalued exchange rate, low real interest rates and to neglect export promotion and fiscal restraint.

Tied Vs. Untied Aid

Tied Aid**:**Aid-tying by source is followed by the US Government in giving assistance under PL 480 and Exim Bank loans, and by Britain and Federal Republic of Germany. The US aid programme requires the recipients to spend the aid on US goods and services. All credits are automatically linked to US exports. Any departure from this tying by source means discontinuance of aid. Another method is to treat the aid-flow as part of an over-all trade arrangement, as is done by the Socialist countries. Still another method is to finance only those commodities and/or projects where the donor country possesses a decided advantage in tendering the specified items. This practice is followed by the Federal Republic of Germany. It has been estimated that aid-tying by source tends to push up the cost of the projects by more than 30 per cent to recipient country. Double-tying increases the cost of aid procurement still further. This is obvious from the fact that the aid receiving country is required to pay more than the competitive world market price for its requirements to the donor country. It increases further when as in the case of American supplies,

the recipient country is forced to get machinery, spare parts, raw materials, etc., in the ships of the donor country. This tends to reduce the real value of aid. Besides, aid-tying by source distorts the recipient country's allocation of investment resources. The development programme becomes biased towards these projects that have a high component of the special import content allowed for under the conditions of tied aid. Aid tying by source also limits the choice of technology used in investment projects and may force the recipient country to adopt a highly capital-intensive technique or project which may be inappropriate to a labor surplus economy.

Project aid has been defined "as assistance whose disbursement is tied to capital investment in a separable productive activity." The entire Soviet aid to India has been of this nature.

Merits.

The project approach to aid has a number of advantages both from the donor 's and the recipient's viewpoints :

i. Direct control by the recipient over the selection of projects in certain circumstances
ii. Greater opportunity of influencing, in both their design and implementation, those projects normally financed by donor
iii. Increased case of influencing the recipient's policies in those sectors of the recipient's economy for which project aid has been made available
iv. Incentive for improving the quantity quality of projects
v. Better opportunities for publishing the donor 's aid programme
vi. Increased access to information on sectors of the recipient's economy in which projects are financed
vii. Less adverse effect on the balance of payments of the donor when project aid is combined with source-tying.

Demerits

Project aid has, however, certain disadvantages:

i. Project aid may not be useful to the recipient country, if there is a squeeze on maintenance imports.
ii. Any attempt to exercise micro or project influence by the donor country will make such aid less attractive to the recipient
iii. Project aid leads to inter-governmental bureaucratic frictions created by detailed supervision of project formulation and execution
iv. Aid tied to specific projects also tends to distort the investment priorities of the recipient country which may have to postpone other equally important projects
v. Often, excessive aid tying to particular machinery, equipment, etc., leads to under-utilization of domestic resources like labour, because it creates a bias towards import-intensive projects
vi. Like aid-tying by source, project aid increases the real costs of loans to the recipient country when she has to buy machinery, and spares from the aid-giving country at a high price. According to Jagdish Bhagwati, it amounts to one-fifth of the total tied aid and in specific cases price differentials amounts to 100 per cent or even more.

Untied Aid**:**Untied or programme aid has been defined by Carlin as that "assistance whose disbursement is tied to the recipient's expenditures on a wide variety of items justified in terms of the total needs and development plan of the country rather than any particular project." India receives non-project aid from the UK, and the Federal Republic of Germany in the form of balance of payments assistance, debt relief assistance and for the import for raw materials, components and spares.

Merits

Untied aid has the following merits:

i. It is preferred to tied aid by developing countries because they are free to utilize aid in accordance with their development programmes—in agriculture, industry, transport, and/or in any other infrastructure.

ii. Programme aid also reduces the real costs of aid as the recipient can buy its requirements at competitive rates from the world markets and there are no inter-bureaucratic frictions as under tied aid.

iii. The recipient country can use an appropriate technology in keeping with its factor endowments and allocate its resources in a much better way than under tied aid.

13.5 Trade Vs Aid

Of late, the idea has been gaining ground among the LDCs that trade and not aid is essential for their rapid development. It is contended that the developed countries have failed to meet the aid requirements of the developing economies during the development decades of the 1970s and 1980s. A UNCTAD resolution adopted by a large majority of the developed countries had, in a way, made it obligatory on them to annually contribute to LDCs at least one per cent of their national income net after deducting withdrawals of external capital including amortization and repayment. But they failed to contribute even 0.5 per cent of their national income. This has been especially disheartening when the capacity to absorb more aid has been expanding on the part of the developing nations and their economic performance through aid has also improved much. Gerald M. Meier has aptly observed that, 'the flow of foreign capital from developed countries to LDCs has leveled off, and the external debt servicing problem has intensified; the import surplus supported by foreign capital has, therefore, fallen markedly in recent years, and the net transfer of resources beyond imports based on exports has become relatively insignificant for the majority of LDCs. To the extent this foreign exchange constraint is not removed, an LDC cannot fulfil the import requirements of its development programme. LDC must then undertake policies that will do one or a combination of the following : reduce the country's rate of development, replace imports, expand exports, improve the country's terms of trade, induce a larger inflow of foreign aid. A larger inflow of foreign aid is neither feasible nor desirable for LDCs.

Foreign aid has undoubtedly provided crucial support to the development plans of such countries, but the developed countries are not prepared to supply aid to the extent required by the less developed. On the other hand, LDCs are not anxious to have tied aid at the strict conditions laid down by the donors. Prior to the meeting of UNCTAD I in 1964, the policy of import substitution was much favored by LDCs but it failed to solve their problems. Since then, the various UNCTAD conferences have stressed the outward-looking policies of export promotion and improvement in the terms of trade for LDCs. The UNCTAD has been pleading for preferential tariffs for the manufactured and semi-manufactured exports of LDCs and UNCTAD III succeeded in evolving the Generalized Systems of Preferences (GSP) whereby concessions have been extended to the products of the 88 LDCs to penetrate the markets of OECD (Organization for Economic Co-operation and Development) nations. So India and other developing countries should make tremendous efforts to boost their exports so that in a decade or so they have a trade surplus. Expansion of exports is also essential to pay for the increasing imports. Larger exports are further needed for debt service payments. But a policy that favors trade and not aid can be successful only if there is an increase in domestic savings equal to the rise in export earnings. Trade will substitute for aid when larger export earnings raise national income and this leads to increased savings. In fact, greater trade opportunities are like greater aid flows. Trade helps in transferring real resources for investment when the LDCs are able to charge higher prices for their exports from the developed countries under preferential trading agreements. Developing countries at a high level of development like India, Brazil, etc., are able to utilize their export earnings. for further capital formation but no developed country would be prepared to buy at prices higher than the world market. So the need is to stabilize the price level in developing economies and then trade can substitute aid admirably. However, countries that are in the early phase of development should not think of substituting trade for aid because they can only develop their trade through aid over the long run. Although greater trade possibilities for such countries have some resource element in

them, they are more complementary to aid flows than substitutable for them. Development requires both trade and aid.

13.6 Inflation and Economic Growth

By inflation we meana general rise in prices. To be more correct, inflation is a persistent rise in the general price levelrather than a once-for-all rise in it. On the other hand, deflation represents persistently falling prices.Inflation or persistently rising prices is a major problem in India today. When price level rises dueto inflation, the value of money falls. When there is a persistent rise in price level, the people needmore and more money to buy goods and services. To enable the people to meet their daily needs ofconsumption of goods and services when their prices are rising, their incomes must rise if they haveto maintain their standard of living. For government employees, their dearness allowance is increased.Wages and salaries employed in the organized private sector are also raised, though after some time lag.But people with fixed incomes and those who are self-employed are unable to raise their pricesand suffer a lot due to inflation. The poor suffer the most from persistent rise in prices, especiallyof foodgrains and other essential items. Rate of inflation during the seventies and eighties was veryhigh as compared to the rates of inflation experienced earlier during previous periods. In India, inrecent years, 2010-11, 2011-12 and 2012-13, rate of inflation as measured by consumer price index(CPI) has been in double digit figures. Prior to Jan. 2013, even WPI inflation was quite high whichcompelled Reserve Bank of India to adopt tight monetary policy.

Causes of Inflation

Depending upon the specificcauses, two types of inflation have been distinguished i.e, Demand-pull inflation and Cost-pushinflation.

Demand Pull Inflation: This represents a situation where the basic factor at work is the increase in aggregate demandfor output either from the households or the entrepreneurs or government organized. The result isthat the pressure of demand is such that it cannot be met by the currently available supply of output.If, for example, in a situation of full employment, the government expenditure or private investmentgoes up, this is bound to generate an inflationary pressure in the economy. Keynes explained thatinflation arises when there occurs an inflationary gap in the economy which comes to exist whenaggregate demand for goods and services exceeds aggregate supply at full-employment level ofoutput. Basically, inflation is caused by a situation whereby the pressure of aggregate demand forgoods and services exceeds the available supply of output (both being counted at the prices rulingat the beginning of a period). In such a situation, the rise in price level is the natural consequence.Now, this imbalance between aggregate demand and supply may be the result of more than oneforce at work. As we know, aggregate demand is the sum of consumers' spending on consumer goodsand services, government spending on goods and services and net investment being contemplatedby the entrepreneurs. When aggregate demand for all purposes—consumption, investment andgovernment expenditure—exceeds the supply of goods at current prices, there is a rise in price level.Since inflation is a continuous increase in the price level, not a onetime rise in it, sustained inflationrequires continuous increase in aggregate demand.

Cost Push Inflation: We can visualize situations where even though there is no increase in aggregate demand, pricesmay still rise. This may happen if there is initial increase in costs independent of any increase inaggregate demand. The four main autonomous increases in costs which generate cost-push inflationhave been suggested:

i. Oil Price Shock:In the seventies the supply shocks causing increase in marginal cost ofproduction became more prominent in bringing about cost-push inflation. During the seventies,rise in prices of energy inputs (hike in crude oil price made by OPEC resulting in rise in prices ofpetroleum products). The sharp rise in world oil prices during 1973-75 and again in 1979-80 producedsignificant supply shocks resulting in cost-push inflation.

ii. Farm Price Shock:Cost-push inflation can also come about from increase in prices of otherraw materials, especially farm products, in economies such as that of India where they are of greaterimportance. In India when monsoon is not adequate or comes very late or when weather conditionsare quite unfavorable, they reduce the supply of agricultural

products and raise their prices. Thesefarm products are raw materials for various industries such as sugar industry, other agro-processingindustries, cotton textile industry, jute industry and as a result when prices of farm products risethey lead to rise in prices of goods which use the farm products as raw materials. This is farm price shock causing cost-push inflation. Even rise in food prices or what is called food inflation is causedby supply-side factors such as inadequate rainfall or untimely monsoon and other adverse weatherconditions and inadequate availability of fertilizers which lead to reduction in output of food grainsis the example of cost-push or supply-side inflation.

iii. Import Price Shock:These days currencies of most countries of the world are flexible, thatis, determined by demand for and supply of a currency and they can appreciate or depreciate everymonth in terms of the US dollar. For example, when the Indian rupee depreciates, more rupees arerequired to buy one US dollar and therefore in terms of rupees, imports become costlier. The Indianswho import raw materials for industries such as petroleum products, coal, machines and otherequipment, oilseeds, fertilizers, Indian consumers who import gold, cars and other final productshave to pay higher prices in terms of rupees when Indian rupee depreciates against US dollar. This raises the cost of production of the producers who in turn raise the prices of final products producedby them. This inflation is the result of import price shock. Thus depreciation of rupee causescost-push inflation. For example, in the month of June 2013, there was sharp depreciation of theIndian rupee. The value of rupee fell by about 9.5 per cent in this single month from about' 56 toa US dollar in the first week of June 2013 to around ` 61 to a dollar in the last week of June 2013.

iv. Wage-Push Inflation:It has been suggested that the growth of powerful trade unions isresponsible for the spread of inflation, especially in the industrialized countries. When trade unions push for higher wages which are not justifiable either on grounds of a prior rise in productivity or of cost of living they produce a cost-push effect.The employers in a situation of high demand andemployment are more agreeable to concede to thesewage claims because they hope to pass on these risesin costs to the consumers in the form of hike in prices.If this happens we have cost-push inflation.

Moderate inflation is associated with economic growth, while high inflation can signal an overheated economy.

13.7 Human Capital Formation and its Utilization

The term human capital formation refers to the "process of acquiring andincreasing the number of persons who have the skills, education andexperience which are critical for the economic and the political developmentof a country. Human capital formation is thus associated with investment inman and his development as a creative and productive resource." Accordingto Schultz, there are five ways of developing human resources: "

i. Health facilities and services, broadly conceived to include all expenditures that affect the life expectancy strength and stamina, and the vigor and vitality of the people.
ii. On-the-job training, including old type apprenticeships organized by firms.
iii. Formally organized education at the elementary, secondary and higher levels.
iv. Study programmes for adults that are not organized by firms, includingextension programmes notably in agriculture.
v. Migration of individuals and families to adjust to changing job opportunities.

To this list may be added the import of technical assistance,expertise and consultants. In its wider sense, investment in human capital meansexpenditure on health, education and social services in

general; and in itsnarrower sense, it implies expenditure on education and training. It has becomeconventional to talk about investment in human resources in its narrower sensebecause expenditure on education and training is capable of measurement ascompared to the expenditure on social services.

The notion of investment in human capital is of recent origin. In the process ofeconomic growth, it is customary to attach more importance to theaccumulation of physical capital. Now it is increasingly recognized that thegrowth of tangible capital stock depends to a considerable extent on humancapital formation which is the "process of increasing knowledge, the skills andthe capacities of all people of the country."Studies made by Schultz,Harbison, Denison, Kendrick, Abramowitz, Becker, Bowman, Kuznets and ahost of other economists reveal that one of the important factors responsiblefor the rapid growth of the American economy has been the relativelyincreasing outlays on education. They tell us that a dollar invested on educationbrings a greater increase in national income than a dollar spent on dams,roads, factories or other tangible capital goods. In Prof. Galbraith's words,"We now get the larger part of our industrial growth not from more capitalinvestment but from investment in men and improvements brought about byimproved men." Even earlier economists like Adam Smith, Veblen andMarshall stressed the importance of human capital in production. Adam Smithincluded in a country's stock of fixed capital 'the acquired and useful abilitiesof all the inhabitants.' To Veblen technological knowledge and skills formedthe community's 'immaterial equipment or intangible assets' without whichphysical capital could not be utilized productively. Marshall regardededucation "as a national investment "and" the most valuable of all capital is thatinvested in human beings." Economists are, therefore, of the view that it is thelack of investment in human capital that has been responsible for the slowgrowth of the LDCs. Unless such economies spread education, knowledge, andknow-how, and raise the level of skills and physical efficiency of the people,the productivity of physical capital is reduced.

Underdeveloped countries are faced with two diverse manpower problems.They lack the critical skills needed for the industrial sector and have a surplus labor force. The existence of surplus labor is to a considerable extent due tothe shortage of critical skills. So these diverse problems are interrelated.Human capital formation aims at solving these problems by creating thenecessary skills in man as a productive resource and providing him gainfulemployment.

The need for investment in human capital formation in such economies ismore obvious from the fact that despite the massive import of physical capitalthey have not been able to accelerate their growth rates because of the existenceof undeveloped human resources. Of course, some growth is possible from theincrease in the conventional capital even though the available labor force islacking in skills and knowledge. But the growth rate will be seriously limitedwithout the latter. Human capital is, therefore, "needed to staff new andexpanding government services, to introduce new system of land use and newmethods of agriculture, to develop new means of communication, to carryforward industrialization, and to build the educational system. In other words,innovation or the process of change from static or traditional society, requiresvery large doses of strategic human capital."

Physical capital becomes more productive if the country possesses sufficienthuman capital. Underdeveloped countries are strongly committed to theprogrammes of constructing roads, dams, power houses, factories pertainingto light and heavy industries, hospitals, schools, colleges, and a host of otheractivities associated with development planning. For this, they need engineers,technicians, technical supervisors, managerial and administrative personnel,scientists, doctors, nurses, veterinarians, agronomists, accountants,statisticians, economists, secretaries, stenographers, etc. If there is a dearth ofthis varied type of human capital, physical capital cannot be productivelyutilized. As a result, machines breakdown and wear out soon, materials andcomponents are wasted and the quality of production falls.

Moreover, underdeveloped countries import physical capital for developmentbut they are unable to utilize it fully due to the lack of the "critical skills"required for its operation. Though technical know-how and skills usually comewith foreign capital, yet it is insufficient to meet the diverse and variedrequirements of such economies. Thus the failure of human capital to grow atthe rate of physical capital has been responsible for the low absorptive capacityof the latter in underdeveloped countries. Hence the need for investment inhuman capital becomes of paramount importance in such countries.

LDCs are characterized by economic backwardness which manifests itself in"low labor efficiency, factor immobility, and limitedspecialization in occupationsand in trade, a deficient supply of entrepreneurship and customary values andtraditional social institutions that minimize the

incentives for economic change.The slow growth in knowledge is an especially severe restraint on progress.The economic quality of the population remains low when there is littleknowledge of what natural resources are available, the alternative productiontechniques that are possible, the necessary skills, the existing market conditionsand opportunities, and the institutions that might be created to favor economizing effort and economic rationality." To remove economicbackwardness and instill the capacities and motivations to progress, it isnecessary to increase the knowledge and skills of the people. In fact, without animprovement in the quality of human factor no progress is possible in anunderdeveloped country. As aptly emphasized by Schultz, "It is as if we had amap of resources which did not include a mighty river and its tributaries. Theparticular river is fed by schooling, learning on-the-job, advances in health,and the growing stock of information of the economy."Investment in human capital is also required to raise the general livingstandards of the people in LDCs. This is possible when education and trainingmake fuller and rational utilization of surplus manpower by providing largerand better job opportunities in both rural and urban areas. These, in turn, raiseincome and living standards of the people.

Problems of Human Capital Formation

The concept of human capital formation in the context of investment ineducation poses a number of problems. How much is the total stock of humancapital required? At what stage of development is it needed the most? Whatshould be its rate of accumulation? What type of education should be imparted,to what extent, and at what time? And how should the return from educationalinvestment be measured?

It is difficult to assess the total stock of human capital required in anunderdeveloped country. In fact, this problem is associated with the next one,of determining the stage when it is needed the most. The growth of westernEuropean countries and the USA has been based more on investment inphysical capital than in human capital in their earlier phases of development.But in the case of underdeveloped countries the need for human capital in theform of educated persons in different vocations is greater to provide themissing components in the initial stages of their development. As they installcomplex equipment and methods of production, persons with critical skills aremore important than mere arts graduates. There is greater need forentrepreneurs, business executives, administrators, scientists, engineers,doctors, etc. But it is difficult to increase their supply because "their basicfunction is to change the economic organization of the country in moreproductive directions instead of being fitted into a given framework."

It is not possible to spell out in concrete terms the growth rate of human capitalformation, as is commonly the case with physical capital accumulation.However, it can be said in general terms that the rate of accumulation of humancapital should exceed not only the growth rate of labor force but also thegrowth rate of economy. According to Harbison, in most countries the rate ofincrease in scientific and engineering personnel should be at least three timesthat of the labor force, and atleast twice in the case of clerical personnel,craftsmen, top managerial and administrative personnel. On the other hand, theratio of the annual increase in human capital to the annual increase in thenational income may be as high as three to one, or even higher in the case ofthose countries where foreigners are to be replaced by citizens of thedeveloping countries. But there is no empirical evidence to prove the differentgrowth rates of human capital needed by underdeveloped countries at thevarious stages of development.

So far as the pattern of investment in education is concerned, almost all theunderdeveloped countries of Asia, Africa and Latin America accord a highpriority to primary education which is often free and compulsory. But it leadsto considerable wastage and stagnation and puts a severe strain on the physicalfacilities and teaching personnel of educational institutions. Secondaryeducation is, on the other hand. Accorded a low priority. It is, however, peoplewith secondary education who provide the critical skills needed the most foreconomic development. Emphasizing the importance of secondary education,Lewis regards persons with a secondary education as "the officers and non-commissioned officers of an economic and a social system. A smallpercentage goes on to university education, but the numbers required from theuniversity are so small that the average country of up to five million inhabitantscould manage tolerably well without a university of its own. The middle andupper ranks of business consist almost entirely of secondary school products,and these products are also the backbone of public administration. But LDCslay more emphasis in providing primary education on a mass scale.

Underdeveloped countries in their enthusiasm to spread higher education havebeen opening too many universities without trying to improve the standard ofeducation. No restrictions are placed on higher education with the result thatthe proportion of failures at the higher secondary and

university levels is veryhigh. Mass failures and the general lowering of academic standards tend tolower the efficiency of undergraduates and "graduates employed both in theprivate and the public sector do not promise well for the formation of adynamic leadership for economic development." This leads to wastage ofhuman resources.

Moreover, there being little manpower planning in such economies, no effortsare made to match the demand and supply of different types of critical skills.As a result, "few countries can go on absorbing poorly trained universitygraduates at a faster rate than their general economic growth. Sooner or laterwith their present pattern of educational expansion, many developing countrieswill have to contend with one of the most explosive problems of discontent andfrustration, that of graduate unemployment." Considering the high cost ofeducation, the educated unemployed are a huge waste of human and materialresources. Besides the defective educational system, other factors responsiblefor this are the lack of employment bureaux, low wage and salary structure,unwillingness to accept a job in rural areas or one considered below theoccupational hierarchy or status, and dropouts.

Criteria For Investment in Human Capital

One of the most ticklish problems is that of estimating the productivity ofinvestment in human capital formation, especially in education. Economistshave suggested the following criteria.

The Rate of Return Criterion: Education as an investment has two components: future consumption component and future earnings component. Investment in skills and knowledge increases future, earnings, while the satisfaction derived from education is the consumption component. "As an enduring consumer component, education is the source of future utilities which in no way enters into measured national income." Thus in calculating the return on investment in education, future earnings component is considered discounted for interest to measure their present value. The method used is based on a comparison of the average life time earnings of more educated persons with that of persons with less education employed in similar professions. For example, Becker estimated that the rate of return on total investment on college education in the USA for white urban males was 12.5 per cent in 1940 and 10 per cent in 1950. It was, however, 9 per cent after deducting taxes for both 1940 and 1950.8 This estimate included direct cost to the student, earnings forgone during the period of studies, and college's share of the cost.

Difficulties

Such estimates involve several difficulties.

i. First, they measure only the direct material benefit and exclude altogether the external economies of education—the direct and indirect benefits accruing to the country from improvements in the levels of the people.

ii. Second, this criterion is based on a number of arbitrary assumptions such as the person's income during his life time, the earnings from different occupations, future wage rates and future employment, levels.

iii. Third, the decisions to invest in education and training are not governed by the rate of return criterion alone but by social welfare.

iv. Fourth, what people earn is not exclusively due to university education, rather it is the result of natural ability, experience, social status, family connection, on-the-job training, etc.

1. The Criterion of Contribution of Education to Gross National Income: According to this criterion, investment on education is determined by its contribution to increase in gross national income or physical capital formation over a period of time. Schultz analysed the contribution of education to growth in national income in the US from 1900 to 1956 and came to the conclusion that the resources allocated to education rose about 6.5 times: (a) relative to consumer income in dollars; (b) relative to the gross formation of physical capital in dollars. In other words, the income elasticity of the demand for education was

about 3.5 times over the period, and alternatively, investment in education contributed 3.5 times more to the increase in gross national income than investment in physical capital. Schultz has also calculated the total stock of educational capital at different points in time. He added together the possible earned income forgone (or the opportunity cost) by those enrolled in schools, colleges, and universities and the expenditure for formal education of all types with allowance for depreciation. The total stock of educational capital in the labor force of the US rose from $ 63 billion in 1900 to $ 535 billion in 1957, and the ratio of the stock of educational capital to the stock of physical capital rose from 22 per cent in 1900 to 42 per cent in 1957.Similar estimates have been made by P.R. Panchmukhi in India following Schultz's method. His estimates of educational capital reveal that the total cost of formal education in India rose from Rs 341 crores in 1950-51 to Rs 769 crores in 1959-60.

2. The Residual Factor Criterion: Solow, Kendrick, Denison, Jorgenson and Griliches, Kuznets, and other economists have tried to measure what proportion of the increase in the GNP, over a period of time, could be attributed to the measurable inputs of capital and labor, and what proportion of the increase in the GNP could be ascribed to other factors, frequently grouped as 'residual'. The most important of these residual factors are: education, research, training, the economies of scale and other factors affecting human productivity. Denison's estimates for the United States for 1929-57 reveal that the contribution of education to the growth of total real national income was 23 per cent. So far as the contribution of the "residual" factor is concerned, it accounted for 31 per cent of total growth of national income. This was due to the impact of the advance of knowledge (20 per cent) and the economies of scale resulting from the growth of national markets (11 per cent). On the other hand, Solow in his study of the United States for the period 1909-49 attributed 90 per cent of the average growth rate of output per head to the "residual factor," falling under the general heading of technical change.

Summary

1. The idea is that savings gap and foreign exchange gap are two separate and independent constraints on the attainment of a target rate of growth in LDCs. Chenery sees foreign aid as a way of filling these two gaps in order to achieve the target growth rate of the economy.
2. Direct private investment has been concentrated mainly in the extraction of raw materials like iron, crude oil, manganese, bauxite, copper, electric energy, etc.
3. Public foreign capital is more important for accelerating economic development than private foreign capital. The financial needs of LDCs are so great that private foreign investment can only partially solve the problem of financing.
4. When there is a persistent rise in price level, the people need more and more money to buy goods and services. To enable the people to meet their daily needs of consumption of goods and services when their prices are rising, their incomes must rise if they have to maintain their standard of living. For government employees, their dearness allowance is increased.
5. Keynes explained that inflation arises when there occurs an inflationary gap in the economy which comes to exist when aggregate demand for goods and services exceeds aggregate supply at full-employment level of output.

Keywords

- Foreign Investment

- Multinational Corporations
- Foreign Aid
- Human Capital
- Saving And Investment Gap

Self Assessment

1. Which of the following are constraints in the attainment of target growth rate of LDCs according to two gap model?

A. Saving gap
B. Foreign exchange gap
C. Employment gap
D. Both a and b

2. Which of the following can be helpful to fill the foreign exchange gap according to Chenery?

A. Foreign aid
B. Imports
C. Loans
D. None of the above

3. Which of the following are advantages of private foreign investment?

A. It supply new technology in LDCs
B. It helps in filling the savings gap and the foreign exchange gap
C. Profits from direct foreign investment is generally ploughed back into the expansion and development of related industries.
D. All of the above

4. MNCs are creating employment opportunities for the people in LDCs.

A. True
B. False

5. MNCs are increasing income inequalities in LDCs.

A. True
B. False

6. Loan provided by world bank to India is included in the category of

A. Multilateral loans
B. Bilateral loans
C. Unilateral loans
D. Both b and c

7. Foreign aid helpful in

A. Overcoming the deficiency of technological backwardness
B. Overcoming the deficiency of overhead capital
C. Exploiting natural resources
D. All of the above

8. Assistance given under PL 480 is
A. Tied aid
B. Untied aid
C. Simple aid
D. Aid

9. Which of the following are demerits of tied aid?
A. Project aid may not be useful to the recipient country, if there is a squeeze on maintenance imports
B. Project aid leads to inter-governmental bureaucratic frictions created by detailed supervision of project formulation and execution
C. Both a and b
D. None of the above

10. Which of the following are merits of untied aid?
A. Countries are free to utilize aid in accordance with their development programmes
B. It reduces the real costs of aid as the recipient can buy its requirements at competitive rates from the world markets
C. The recipient country can use an appropriate technology in keeping with its factor endowments and allocate its resources in a much better way than under tied aid.
D. All of the above

11. Which of the following are ways to develop human resources?
A. On-the-job training
B. Formally organised education at the elementary, secondary and higher levels
C. Study programmes for adults that are not organised by firms
D. All of the above

12. Which of the following are problems of manpower in developing countries?
A. Lack of skills
B. Surplus labour
C. Both a and b
D. None of the above

13. Which of the following are causes of inflation?
A. Demand pull inflation
B. Cost push inflation
C. Both a and b

D. None of the above

14. When the prices of the products are increasing due to supply shocks that is known as
A. Demand pull inflation
B. Cost push inflation
C. Increase in prices
D. None of the above

15. Which of the following are included in cost push inflation?
A. Oil price shocks
B. Import price shocks
C. Increase in demand
D. Both a and b

Answers forSelf Assessment

1.	D	2.	A	3.	D	4.	A	5.	A
6.	A	7.	D	8.	A	9.	C	10.	D
11.	D	12.	C	13.	C	14.	B	15.	D

Review Questions

1. Critically examine the two gap model.
2. Make an assessment on the role of foreign investment in economic development.
3. Discuss the role of MNCs in economic development of LDCs.
4. Write a note on inflation and economic development.
5. Discuss the role of human capital in economic development of the country.

Further Readings

Economics of Development and Planning- ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development- Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Unit 14: Proximate Causes of Growth

CONTENTS

Objectives

After studying this unit the students will be able to:

- Learn about proximate cause of growth
- Learn about human capital
- Describe the Ben Porath model

Introduction

There is a very long lineof research trying to empirically assess the determinants of growth – an area that is still very vibrant.In order to organize what this literature has to say, it is useful to start by distinguishing between whatAcemoglu (2009) calls proximate and fundamental causes of economic growth.

There are three basic empirical tools to assess the importance of proximate causes of growth (factoraccumulation, productivity): growth accounting, regression-based approaches, and calibration. Webriefly go over the advantages and pitfalls, and the message they deliver. Factor accumulation hassignificant explanatory power, but in the end productivity matters a lot.

Did you know?

What is productivity?

Productivity is production per unit.

The natural starting point for this investigation is our workhorse, the Neoclassical Growth Model(NGM). The basic question, to which we have already alluded, is: how well does the NGM do inexplaining differences in income levels and in growth rates?Several methods have been devised and used to assess this question, and they can be broadlygrouped into three classes: growth accounting, growth regressions, and calibration. Let us address eachof these.

Growth accounting: This is another founding contribution of Robert Solow to the study of economic growth. Right afterpublishing his "Contribution to the Theory of Economic Growth" in 1956, he published another articlein 1957 (Solow 1957) noting that an aggregate production function such as

$$Y(t) = A(t)\,F\left(K_t, L_t\right) \quad (1)$$

Whencombined with competitive factor markets, immediately yields a framework that lets us accountfor the (proximate) sources of economic growth. Take the derivative of the log of the production functionwith respect to time,

$$\frac{\dot{Y}}{Y} = \frac{\dot{A}}{A} + \frac{AF_K}{Y}\dot{K} + \frac{AF_L}{Y}\dot{L} \Rightarrow$$

$$\frac{\dot{Y}}{Y} = \frac{\dot{A}}{A} + \frac{AF_K K}{Y}\frac{\dot{K}}{K} + \frac{AF_L L}{Y}\frac{\dot{L}}{L} \Rightarrow$$

$$g_Y = g_A + \alpha_K g_K + \alpha_L g_L, \qquad (2)$$

WheregX is the growth rate of variable X, and $\alpha X \equiv AFXXY$ is the elasticity of output with respect to factorX. This is an identity, but adding the assumption of competitive factor markets (i.e. factors are paidtheir marginal productivity) means that αX is also the share of output that factor X obtains as paymentfor its services. Equation (2) then enables us to estimate the contributions of factor accumulation andtechnological progress (often referred to as total factor productivity (TFP)) to economic growth.This is how it works in practice: from national accounts and other data sources, one can estimate thevalues of gY, gK, gL, αK, and αL; from (2) one can then back out the estimate for gA. (For this reason,gA is widely referred to as the Solow residual.) Solow actually computed this for the U.S. economy, andreached the conclusion that the bulk of economic growth, about 2/3, could be attributed to the residual.Technological progress, and not factor accumulation, seems to be the key to economic growth.Now, here is where a caveat is needed: gA is calculated as a residual, not directly from measures oftechnological progress. It is the measure of our ignorance. More precisely, any underestimate of theincrease in K or L (say, because it is hard to adjust for the increased quality of labor input), will resultin an overestimate of gA. As a result, a lot of effort has been devoted to better measure the contributionof the different factors of production.

Did you know?

What is production function?

Production function shows the relation between inputs and output.

In any event, this approach has been used over and over again. A particularly famous examplewas Alwyn Young's research in the early 1990s (1995), where he tried to understand the sources ofthe fantastic growth performance of the East Asian "tigers", Hong Kong, Singapore, South Korea, and Taiwan. Most observers thought that this meant that they must have achieved amazing rates oftechnological progress, but Young showed that their pace of factor accumulation had been astonishing.Rising rates of labor force participation (increasing L), skyrocketing rises in investment rates(from 10% of GDP in 1960 to 47% of GDP in 1984, in Singapore, for instance!) (Increasing K), andincreasing educational achievement (increasing H). Once all of this is accounted for, their Solow residuals were not particularly outliers compared to the rest of the world. (This was particularly thecase for Singapore, and not so much for Hong Kong.) Why is this important? Well, we know fromthe NGM that factor accumulation cannot sustain growth in the long run! This seemed to predictthat the tigers' performance would soon hit the snag of decreasing returns. Paul Krugman started tobecome famous beyond the circles of economics by explicitly predicting as much in a famous article in1994 (Krugman 1994), which was interpreted by many as having predicted the 1997 East Asian crisis.Of course, the tigers resumed growing fast soon after that crisis – have they since then picked up withproductivity growth?

Using calibration to explain income differences

Amajor issue in growth empirics is to assess the relative importanceof factor accumulation and productivity in explaining differences in growth rates and income levels.A different empirical approach to this question is calibration, in which differences in productivity arecalculated using imputed parameter values that come from microeconomic evidence.

As it is closelyrelated to the methodology of growth accounting, we discuss it here.One of the main contributions in this line of work is a paper by Hall and Jones (1999). In theirapproach, they consider a Cobb-Douglas production function for country i,

$$Y_i = K_i^{\alpha} \left(A_i H_i\right)^{1-\alpha} \quad (3)$$

where Ki is the stock of physical capital, Hi is the amount of human capital-augmented labour andAi is a labor-augmenting measure of productivity. If we know α, Ki and Hi, and given that we canobserve Y, we can back out productivity Ai:

$$A_i = \frac{Y_i^{\frac{1}{1-\alpha}}}{K_i^{\frac{\alpha}{1-\alpha}} H_i}. \quad (4)$$

But how are we to know those?

For human capital-augmented labor, we start by assuming that labor Li is homogeneous withina country, and each unit of it has been trained with Ei years of schooling. Human capital-augmented labor is given by

$$H_i = e^{\phi(E_i)} L_i. \quad (5)$$

The function ϕ .E/ reflects the efficiency of a unit of labor with E years of schooling relative to onewith no schooling .ϕ .0/ = 0/ : ϕ' .E/ is the return to schooling estimated in a Mincerian wage regression(i.e. a regression of log wages on schooling and demographic controls, at the individual level). Assuch, we can run a Mincerian regression to obtain Hi.

How about physical capital? We can compute it from data on past investment, using what is calledthe perpetual inventory method. If we have a depreciation rate δ, it follows that

$$K_{i,t} = (1-\delta)K_{i,t-1} + I_{i,t-1}. \quad (6)$$

It also follows that

$$K_{i,t} = (1-\delta)^t K_{i,0} + \sum_{s=0}^{t} I_{i,s}(1-\delta)^{t-s-1}. \quad (7)$$

If we have a complete series of investment, we can calculate this for any point in time. (We assume δ =0:06 for all countries). Since we don't, we assume that, before the start of our data series, investmenthad been growing at the same rate that we observe in the sample. By doing that, we can compute theKi;0 and obtain our value for the capital stock.

14.1 The Ben Porath Model of Human Capital Accumulation

One of the most important ideas in labor economics is to think of the set ofmarketable skills of workers as a form of capital in which workers make a varietyof investments. This perspective is important in understanding both investment incentives, and the structure of wages and earnings.

Loosely speaking, human capital corresponds to any stock of knowledge or characteristicsthe worker has (either innate or acquired) that contributes to his or her"productivity". This definition is broad, and this has both advantages and disadvantages.

The advantages are clear: it enables us to think of not only the yearsof schooling, but also of a variety of other characteristics as part of human capitalinvestments. These include school quality, training, attitudes towards work, etc. Usingthis type of reasoning, we can make some progress towards understanding someof the differences in earnings across workers that are not accounted by schoolingdifferences alone.

The disadvantages are also related. At some level, we can push this notion ofhuman capital too far, and think of every difference in remuneration that we observein the labor market as due to human capital.

Example: If I am paid less than another Ph.D., that must be because I have lower "skills" in some other dimension that's not being measured by my years of schooling–this is the famous (or infamous) unobserved heterogeneity issue.

The presumption that all pay differences are relatedto skills (even if these skills are unobserved to the economists in the standard datasets) is not a bad place to start when we want to impose a conceptual structure on empirical wage distributions, but there are many notable exceptions, some of which will be discussed later. Here it is useful to mention three:

i. **Compensating differentials**: A worker may be paid less in money, because he is receiving part of his compensation in terms of other (hard-to-observe) characteristics of the job, which may include lower effort requirements, more pleasant working conditions, better amenities etc.
ii. **Labour market imperfections:**Two workers with the same human capital may be paid different wages because jobs differ in terms of their productivity and pay, and one of them ended up matching with the high productivity job, while the other has matched with the low productivity one.
iii. **Taste-based discrimination:**Employers may pay a lower wage to a worker because of the worker's gender or race due to their prejudices.

In interpreting wage differences, and therefore in thinking of human capital investmentsand the incentives for investment, it is important to strike the right balancebetween assigning earning differences to unobserved heterogeneity, compensatingwage differentials and labour market imperfections.

14.2 The Ben Porath model Dynamics

The baseline Ben-Porath model enriches the models we have seen so far by allowinghuman capital investments and non-trivial labour supply decisions throughoutthe lifetime of the individual.It also acts as a bridge to models of investment inhuman capital on-the-job.

Starting point for models of investment in skills on the job.

$$\text{Let } s(t) \in [0,1] \text{ for all } t \geq 0.$$

Suppose

$$\dot{h}(t) = \phi(s(t)\,h(t)) - \delta_h h(t) \tag{8}$$

Here dh > 0 captures depreciation of human capital. Why?

The individual starts with an initial value of human capital h (0) > 0.

The function φ: R+ → R+ is strictly increasing, continuouslydifferentiable and strictly concave.

Let us also impose the following Inada-type conditions

$$\lim_{x \to 0} \phi'(x) = \infty \text{ and } \lim_{x \to h(0)} \phi'(x) = 0.$$

Finally, suppose that w (t) = 0 for all t, that T = ∞ that there is a flow rate of death v> 0, and that w (t) = 1 for all t.

Again using Theorem 1, maximization problem:

$$\max \int_0^{\infty} \exp(-(r+\nu))\,(1-s(t))\,h(t)\,dt$$

Subject to (8).

This problem can be solved by setting up the current-valueHamiltonian, which in this case takes the form

$$\mathcal{H}(h, s, \mu) = (1 - s(t))\, h(t) + \mu(t)\, (\phi(s(t)\, h(t)) - \delta_h h(t)$$

Necessary conditions:

$$\mathcal{H}_s = -h(t) + \mu(t)\, h(t)\, \phi'(s(t)\, h(t)) = 0$$
$$\mathcal{H}_h = (1 - s(t)) + \mu(t)\, (s(t)\, \phi'(s(t)\, h(t)) - \delta_h)$$
$$= (r + \nu)\, \mu(t) - \dot{\mu}(t)$$
$$\lim_{t \to \infty} \exp(-(r + \nu)\, t)\, \mu(t)\, h(t) = 0.$$

To solve for the optimal path of human capital investments, let usadopt the following transformation of variables:

$$x(t) \equiv s(t)\, h(t)$$

Instead of s (t) (or μ (t)) and h (t), we will study the dynamics of theoptimal path in x (t) and h (t)

Therefore:

$$1 = \mu(t)\, \phi'(x(t)) \qquad (9)$$

And

$$\frac{\dot{\mu}(t)}{\mu(t)} = r + \nu + \delta_h - s(t)\, \phi'(x(t)) - \frac{1 - s(t)}{\mu(t)}$$

Substituting for μ (t) from (9):

$$\frac{\dot{\mu}(t)}{\mu(t)} = r + \nu + \delta_h - \phi'(x(t)) \qquad (10)$$

The steady-state (stationary) solution: ˙μ (t) = 0 and ˙h (t) = 0 = →

$$x^* = \phi'^{-1}(r + \nu + \delta_h) \qquad (11)$$

Therefore x*≡ s* h* will be higher when the interest rate is low,when the life expectancy of the individual is high, and when the rateof depreciation of human capital is low.

To determine s* and h* separately, we set ˙h (t) = 0 in the humancapital accumulation equation (8):

$$h^* = \frac{\phi(x^*)}{\delta_h} = \frac{\phi(\phi'^{-1}(r + \nu + \delta_h))}{\delta_h} \qquad (12)$$

Since φ-1 is strictly decreasing and φ (.) is strictly increasing, thisequation implies that the steady-state solution for the human capitalstock is uniquely determined and is decreasing in r, v and δh.

More interesting than the stationary (steady-state) solution are thedynamics.

Differentiate (9) with respect to time to obtain

$$\frac{\dot{\mu}(t)}{\mu(t)} = \varepsilon_{\phi'}(x)\frac{\dot{x}(t)}{x(t)}$$

Where

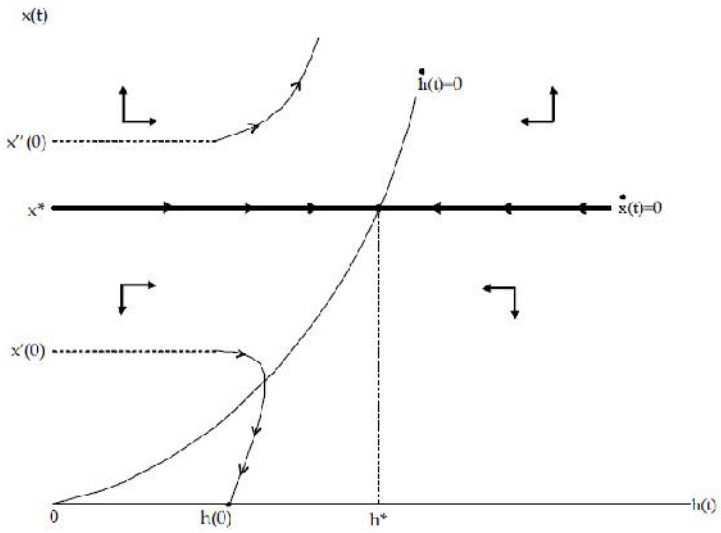
$$\varepsilon_{\phi'}(x) = -\frac{x\phi''(x)}{\phi'(x)} > 0$$

Combining this equation with (10), we obtain

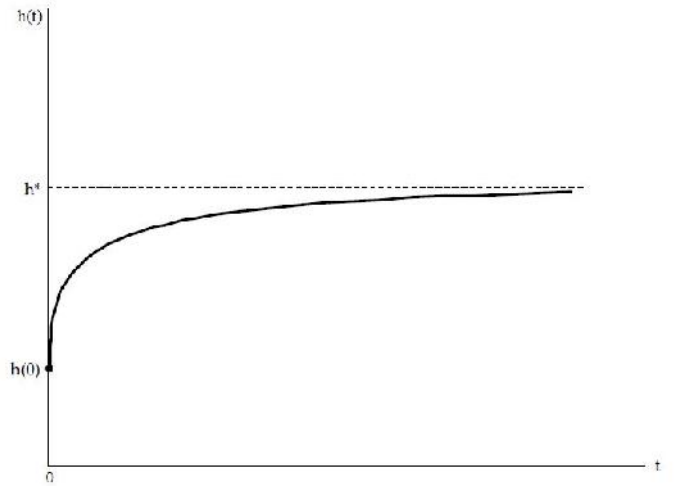
$$\frac{\dot{x}(t)}{x(t)} = \frac{1}{\varepsilon_{\phi'}(x(t))}\left(r + v + \delta_h - \phi'(x(t))\right) \tag{13}$$

Together with the ˙h equation, two differential equations in twovariables, x and h.

Solution



Time path of human capital:



Smooth and Monotonic.

In the original Ben-Porath model, which involves the use of otherinputs in the production of human capital and fnite horizons, theconstraint for s (t) ≤ 1 typically binds early on in the life of theindividual, and the interval during which s (t) = 1 can be interpretedas full-time schooling.

After full-time schooling, the individual starts working (i.e., s (t) < 1).But even on-the-job, the individual continues to accumulate humancapital (i.e., s (t) > 0), which can be interpreted as spending time in training programs or allocating some of his time on the job tolearning rather than production.

Empirical Implications

i. This model also provides us with a useful way of thinking of the lifecycle of the individual, which starts with higher investments in schooling.
ii. Then there is a period of full-timework (where s (t) is high), but this is still accompanied by investment in human capital and thus increasing earnings. The increase in earnings takes place at a slower rate as the individual ages.
iii. Earnings may also start falling at the very end of workers careers, though this does not happen in the version presented here (how would you modify it to make sure that earnings may fall in equilibrium?).
iv. The available evidence is consistent with the broad patterns suggested by the model.But, this evidence comes from cross-sectional age-experience profiles, so caution.
v. Perhaps more worrisome for interpretation: the increase in earnings may reflect not the accumulation of human capital due to investment, but either:
vi. Simple age effects; individuals become more productive as they getolder. Or simple experience effects: individuals become more productive as theyget more experienced- this is independent of whether they choose toinvest or not.
vii. Difficultto distinguish between the Ben-Porath model and the secondexplanation. But there is some evidence that could be useful todistinguish between age effects vs. experience effects (automatic ordue to investment).

14.3 The Nelson-Phelps Model of Skill-Technology Complementarity

The standard approach in labor economics views human capital as a set ofskills/characteristics that increase a worker's productivity. This is a useful startingplace, and for most practical purposes quite sufficient. Nevertheless, it may beuseful to distinguish between some complementary/alternative ways of thinking ofhuman capital. Here is a possible classification:

i. The Becker view: human capital is directly useful in the production process. More explicitly, human capital increases a worker's productivity in all tasks, though possibly differentially in different tasks, organizations, and situations. In this view, although the role of human capital in the production process may be quite complex, there is a sense in which we can think of it as represented (representable) by a one-dimensional object, such as the stock of knowledge or skills, and this stock is directly part of the production function.

ii. The Gardener view: according to this view, we should not think of human capital as one-dimensional, since there are many dimensions or types of skills. A simple version of this approach would emphasize mental vs. physical abilities as different skills. Let us dub this the Gardener view after the work by the social psychologist Howard Gardener, who contributed to the development of multiple-intelligences theory, in particular emphasizing how many geniuses/famous personalities were very "unskilled" in some other dimensions.

iii. The Schultz/Nelson-Phelps view: human capital is viewed mostly as the capacity to adapt. According to this approach, human capital is especially useful in dealing with "disequilibrium" situations, or more generally, with situations in which there is a changing environment, and workers have to adapt to this.

iv. The Bowles-Gintis view: "human capital" is the capacity to work in organizations, obey orders, in short, adapt to life in a hierarchical/capitalist society. According to this view, the main role of schools is to instill in individuals the "correct" ideology and approach towards life.

v. The Spence view: observable measures of human capital are more a signal of ability than characteristics independently useful in the production process.

Despite their differences, the first three views are quite similar, in that "humancapital" will be valued in the market because it increases firms' profits. This isstraightforward in the Becker and Schultz views, but also similar in the Gardenerview. In fact, in many applications, labour economists' view of human capital wouldbe a mixture of these three approaches. Even the Bowles-Gintis view has very similarimplications. Here, firms would pay higher wages to educated workers because theseworkers will be more useful to the firm as they will obey orders better and will bemore reliable members of the firm's hierarchy. The Spence view is different fromthe others, however, in that observable measures of human capital may be rewardedbecause they are signals about some other characteristics of workers. We will discussdifferent implications of these views below.

Task: How human capital increase the profitability of the firms?

Sources of Human Capital Differences

It is useful to think of the possible sources of human capital differences beforediscussing the incentives to invest in human capital:

i. Innate ability: workers can have different amounts of skills/human capital because of innate differences. Research in biology/social biology has documented that there is some component of IQ which is genetic in origin (there is a heated debate about the exact importance of this component, and some economists have also taken part in this). The relevance of this observation for labor economics is twofold: (i) there is likely to be heterogeneity in human capital even when individuals have access to the same investment opportunities and the same economic constraints; (ii) in empirical applications, we have to find a way of dealing with this source of differences in human capital, especially when it's likely to be correlated with othervariables of interest.

ii. Schooling: this has been the focus of much research, since it is the most easily observable component of human capital investments. It has to be borne in mind, however, that the R2 of

earnings regressions that control for schooling is relatively small, suggesting that schooling differences account for a relatively small fraction of the differences in earnings. Therefore, there is much more to human capital than schooling. Nevertheless, the analysis of schooling is likely to be very informative if we presume that the same forces that affect schooling investments are also likely to affect non-schooling investments. So we can infer from the patterns of schooling investments what may be happening to non-schooling investments, which are more difficult to observe.

iii. School quality and non-schooling investments: a pair of identical twins who grew up in the same environment until the age of 6, and then completed the same years of schooling may nevertheless have different amounts of human capital. This could be because they attended different schools with varying qualities, but it could also be the case even if they went to the same school. In this latter case, for one reason or another, they may have chosen to make different investments in other components of their human capital (one may have worked harder, or studied especially for some subjects, or because of a variety of choices/circumstances, one may have become more assertive, better at communicating, etc.). Many economists believe that these "unobserved" skills are very important in understanding the structure of wages (and the changes in the structure of wages). The problem is that we do not have good data on these components of human capital. Nevertheless, we will see different ways of inferring what's happening to these dimensions of human capital below.

iv. Training: this is the component of human capital that workers acquire after schooling, often associated with some set of skills useful for a particular industry, or useful with a particular set of technologies. At some level, training is very similar to schooling in that the worker, at least to some degree, controls how much to invest. But it is also much more complex, since it is difficult for a worker to make training investments by himself. The firm also needs to invest in the training of the workers, and often ends up bearing a large fraction of the costs of these training investments. The role of the firm is even greater once we take into account that training has a significant "matching" component in the sense that it is most useful for the worker to invest in a set of specific technologies that the firm will be using in the future. So training is often a joint investment by firms and workers, complicating the analysis.

v. Pre-labour market influences: there is increasing recognition among economists that peer group effects to which individuals are exposed before they join the labor market may also affect their human capital significantly. At some level, the analysis of these pre-labor market influences may be "sociological". But it also has an element of investment. For example, an altruistic parent deciding where to live is also deciding whether her offspring will be exposed to good or less good pre-labor market influences. Therefore, some of the same issues that arise in thinking about the theory of schooling and training will apply in this context too.

Task: Why do firms give training to the workers?

Summary

1. There are three basic empirical tools to assess the importance of proximate causes of growth (factor accumulation, productivity): growth accounting, regression-based approaches, and calibration.
2. Factor accumulation has significant explanatory power, but in the end productivity matters a lot.
3. A major issue in growth empirics is to assess the relative importance of factor accumulation and productivity in explaining differences in growth rates and income levels. A different empirical approach to this question is calibration, in which differences in productivity are calculated using imputed parameter values that come from microeconomic evidence.
4. In the original Ben-Porath model, which involves the use of other inputs in the production of human capital and finite horizons, the constraint for $s(t) \leq 1$ typically binds early on in the life of the individual, and the interval during which $s(t) = 1$ can be interpreted as full-time schooling.
5. School quality and non-schooling investments: a pair of identical twins who grew up in the same environment until the age of 6, and then completed the same years of schooling may nevertheless have different amounts of human capital. This could be because they attended different schools with varying qualities, but it could also be the case even if they went to the same school.

Keywords

- Labour market imperfection
- Schooling
- Training
- Human capital
- Skilled workers

Self Assessment

1. Which of the following are empirical tools to assess the importance of proximate causes of growth?

A. Factor accumulation
B. Productivity
C. Both a andb
D. None of the above

2. Which of the following is correct for perfectly competitive factor market?

A. Factors are paid equal to their marginal product
B. Factors are more than their marginal product
C. Factors are paid less than their marginal product
D. None of the above

3. Which of the following are east Asian Tigers?

A. Hongkong

B. Singapore
C. Taiwan
D. All of the above

4. Technical progress is cause of economic growth.
A. True
B. False

5. Two workers with the same human capital may be paid different wages because jobs differ in terms of their productivity.
A. True
B. False

6. Which of the following are implications of Ben Porath model?
A. Earnings may also start falling at the very end of workers careers, though this does not happen in the version presented here.
B. The increase in earnings may reflect not the accumulation of human capital due to investment
C. Individuals become more productive as they get more experienced
D. All of the above

7. Human capital is especially useful in dealing with "disequilibrium" situations, or more generally, with situations in which there is a changing environment, and workers have to adapt to this. This was the viewpoint of
A. Nelson-Phelps
B. Gardner
C. Backer
D. None of the above

8. All workers are getting the same wages.
A. True
B. False

9. Human capital will be valued in market because
A. It increases the profits
B. It increases the population size
C. It reduces the population size
D. It reduces the density of population

10. Which of the following are sources of human capital differences?
A. Schooling
B. Training
C. Pre-labour market imperfection

D. All of the above

11. Firms would pay higher wages to the workers who are
A. Educated
B. Skilled
C. Unskilled
D. Both a and b

12. Firms invest in training of the workers.
A. True
B. False

13. Which of the following is true for human capital?
A. There is likely to be heterogeneity in human capital
B. All people are equally skilled
C. Educated people are not skilled
D. Rural people are not skilled

14. Which of the following can increase the efficiency of the workers?
A. Training
B. Education
C. Both a and b
D. Market

15. Why firms provide training to the workers?
A. For increasing profitability
B. For reducing the cost of production because workers become more efficient after training
C. To increase cost of production
D. Both a and b

Answers forSelf Assessment

1.	C	2.	A	3.	D	4.	A	5.	A
6.	D	7.	A	8.	B	9.	A	10.	D
11.	D	12.	A	13.	A	14.	C	15.	D

Review Questions

1. Critically examine the Nelson Phelps model.
2. Critically examine the Ben Porath model.
3. Write a note on proximate causes of growth.
4. Critically examine the models of human capital.

5. Differentiate between Ben Porath modelof human capital and Nelson Phelps model.

Further Readings

Economics of Development and Planning - ML Taneja and RM Myer, Vishal Publishing Co., 2015

Development Economics - Debraj Ray, Oxford University Press

Economic Development - Michael P. Todaro & Stephen C. Smith, Pearson, 2012

Address: N.H.-9, Delhi Road, Moradabad - 244001, Uttar Pradesh

Admission Helpline No. : 1800-270-1490

Contact No. :+ 91 9520 942111

Email : university@tmu.ac.in