UNIT 1 CONCEPTUAL FOUNDATIONS

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1.0 INTRODUCTION

This is the first Unit of this course, and it seeks to introduce and explain various concepts and definitions that have generally been used in the literature on economics of education. It is worthwhile to note at the outset that almost all the terms, approaches and methodologies that are employed in the analyses of "economic phenomena" are usually applied as analogues in the studies pertaining to economics of education. Of late, this subject of study has emerged as an important branch of "economics".

Because these terms and concepts have obvious implications in the units that follow this one, a clarification and description of them would help you comprehend the contents with greater clarity and depth. After briefly explaining terms like "economics of education", "consumption", "investment", and "production", we shall describe the relation between education and economic growth, and explain how to assess the contribution of the former to the latter. The Unit ends with a discussion on education as both consumption and investment. In making this presentation we assume that not every body has studied "economics" as one of his/her special subjects, and that those who have will bear with us!
1.1 OBJECTIVES

After going through this Unit, you should be able to:

- define economics of education as an area of study;
- state and describe various concepts used in and encompassed by this area of study;
- explain the relationship between education and economic growth, employment, productivity, and quality of labour force and life;
- list and explain various approaches to the assessment of the relationship between education and economic growth; and
- distinguish between education as consumption and education as investment.

1.2 WHY STUDY ECONOMICS OF EDUCATION

The study of the economic aspects of education systems acquired a great deal of significance in the early sixties, when a number of economists expressed the view that human resources, the development of which is largely contingent upon adequate provisions for education and training of people, make significant contributions to economic growth and the quality of life. It has been argued that even though physical capital like land, buildings, factories, etc. are crucial for economic development, they are, still passive resources. As against these, human resources are active and generate stimulative effects on all human activities which are oriented towards the well being of the people in general and the building up of the nation in particular. It is only with the medium of human resources embodied in the form of skill and training that the use of passive physical resources is made possible for human needs.

The distinction between human and material resources in terms of relative significance can also be made from the fact that the strength and vitality of the manpower of a country is mainly responsible for efficient and effective management of the human and material resources that enter into the process of production. In every sphere of production, it is the new knowledge and technology which men/women possess, and not the physical materials, that are increasingly used for both increasing the volume and raising the quality of output, and also in promoting such aspects of growth as profits through proper marketing and distribution of gains of development among all sections of society. Since the impact of the human factor on all the productive activities is so intense and pervasive, the study of approaches to development and enrichment of the quality of manpower especially through education has emerged as an important concern of academic research and analysis. The research efforts and policy issues have, in recent years, focused mainly on such questions as to whether the relevant provision already made for the development of human resources satisfies the economic criteria of resource allocation on the grounds of efficiency and equity. Such questions become immensely significant in a situation where strong competing claims are made on funds by different sectors of the economy. It needs to be noted that a considerable amount of money is devoted to the growth and expansion of education systems. As you see from Table 1.1, in 1995 about 3.5 per cent of GNP was spent on education in India and 2.3 per cent in Bangladesh, which is low because these are low human development countries. Medium human
development counties like Algeria and Egypt spent 9.1 and 6.7 per cent of GNP respectively on education in 1990; and high human development countries like Malaysia and Venezuela spent 5.3 per cent and 5.2 per cent of their GNP on education in 1995. This expenditure is invariably incurred with a view to producing a high calibre manpower that is needed to bring about desirable changes in the socio-economic settings so as to accelerate the pace of national development. The economic analyses of education systems, therefore, provide aid in preparing a dependable perspective national plan and in formulating alternative policies for educational development.

Table 1.1 Public expenditure on education as per cent of GNP

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<td>Low Human Development</td>
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<tr>
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<td>Bangladesh</td>
<td>0.6</td>
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<td>Pakistan</td>
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<td>Medium Human Development</td>
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<td>Algeria</td>
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<td>Egypt</td>
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<td>High Human Development</td>
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<td>Malaysia</td>
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<td>Venezuela</td>
<td>3.7</td>
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Note: na = not available; Source: UNDP (1998)

1.3 CONCEPT AND DEFINITION

Since this Unit is concerned with discussing the conceptual foundations of the field of economics of education, this section and the subsequent sub-sections have been devoted to concepts like consumption, investment, production, growth and development, etc. To begin with, we shall define the expression “economics of education”.

1.3.1 Economics of education defined

Economics of education is an important branch of economic theory and can be variously defined. In one sense, for example, it seeks to study how resources are allocated among educational institutions and activities, and what benefits or returns are obtained by both the individuals and nations. This discipline also encompasses the study of the economics of human resources and of planned education related to specific economic aims while dealing with investment, resources and consumption with regard to educational systems and growth. In essence, it aims at an analysis of the economic value of education on the one hand, and the economic aspects of educational systems on the other. These necessitate an examination of the impact of education on such phenomena as the occupational structure of the labour force, the recruitment and promotion practices of employers, the migration of labour between regions within a country and between different countries, the patterns of international trade, the distribution of personal income, the propensity to save out of current income and, most important of all, the prospects of economic growth. Economics of education may thus be defined as “the study of how men and society choose, with or without the use of money, to employ scarce productive resources, skills, mind, character, etc. especially by formal schooling over a period of time, and distribute them, now and in the future, among various people and groups of society” (Elchann, 1972).
1.3.2 Interdependence of economics and education

The interdependence between education and economics is evident from the fact that the two stand in a symbiotic relation with each other. Whereas education is defined as the acquisition of the art of utilising knowledge for moral and material development, the discipline of economics deals with the study of how individuals choose to deploy resources on various activities for maximising social and economic returns. While the economy of a society provides resources to fulfil the educational aspirations of its members, the education systems, in turn, help in equipping the society and the economy with the required types and levels of manpower which are needed for expediting the process of socio-cultural transformation and economic modernisation. As education and training ensure social and economic vertical mobility, every person seeks to acquire better education and strives to have greater access to the store of knowledge possessed by the mankind. Therefore, the pressure of demand for education everywhere is bound to be as high as that of the strong desire to satisfy such common human wants as food, clothing, shelter, etc. This relationship is in itself an indicator of the social and economic value of education.

There are, however, a large number of countries, indeed whole regions, where the majority of the population is still deprived of the benefits of the network of education systems. A large number of people are, therefore, still illiterate, and they have not tasted the fruit of knowledge. The occurrence of such a condition is equally a result of and a cause of the economic backwardness of those people, since the educational progress and economic betterment of people are interrelated. The evidence from India shows that poverty and illiteracy are closely correlated and have a considerable dampening effect on each other. Education cannot, however, be developed in a region without a parallel development in its economy. The funds required for the development of education can be made available only on the condition that the country’s economy (i.e., industry, agriculture, transport, communication, and other sectors of the national economy, which generate income and constitute the sole source of wealth for the country and its people) has reached a certain level of development. Moreover, the economic system itself constitutes the main material basis for educational development as it provides the necessary funds for building and equipping educational institutions with adequate infrastructure and facilities which facilitate the teaching and learning processes that constitute education.

As the level of economic activity rises, the national income from various sectors of the economy also increases, the relative fiscal capacity of the country improves, and thereby it becomes feasible to finance the expansion and diversification of national systems of education. On other hand, without advancements in education, training and research, economic development is not possible. This is so because for increasing the quality and quantity of production, workers require a high standard of diversified general, technical and management education as well as vocational training. In modern times, almost all production lines require highly qualified manpower such as engineers, technicians, designers, managers and administrators so as to ensure the efficient and effective management of industrial and commercial enterprises. Besides, with the rapid growth of knowledge and technology, the entrepreneurial standard required of workers will have to be raised so as to
keep pace with the day to day improvements in know-how as well as the changing needs of the economy and society.

We may also study the link between the level of educational advancement and economic development from the policies and practices of several countries all over the world. Such studies reveal that economically developed countries are those which are also educationally and socially advanced, and vice-versa. The relationship between education and economic development is thus mutually reinforcing as one contributes to the development of the other on a reciprocal basis.

Check Your Progress 1

Describe, in about 8 lines, how education and the economy of a nation are dependent on each other.

Notes: a) Space is given below for writing your answer.
     b) Compare your answer with the one given at the end of the Unit.

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1.3.3 Consumption vs. Investment

In economics, consumption is defined as the use of goods and services or their utility in satisfying wants. The motive for consumption is the means as well as the end of all economic activities. The process of consumption may be rapid or slow. For instance, in the case of single use consumer goods like bread, butter, fruit, etc. consumption is rapid since utility is destroyed forthwith, i.e., with the very first use of the item. But in the case of durable consumer goods like radios, watches, clothes, etc. consumption goes on for a long time. Consumption as a concept is not limited to the use of mere goods, it also includes the utilisation of services like those of doctors, teachers, lawyers, etc. But with regard to services, the rendering of a service and the consumption of the service rendered take place at one and the same time, while with regard to the material goods it takes place over a period of time as the consumption of these goods is repeated many a time till their utility is finally exhausted.

Like consumption, investment is also very essential for the growth of an economy which generates consumer goods and services. The excess of production over consumption is generally treated as investment. Normally, the goods and services which are produced are also consumed at about the same time. But if production increases faster than consumption, stocks are likely to be accumulated. Obviously, long term investment is essential for
future production. There are many products which are not produced or are not meant to satisfy the wants of the consumers directly—for example, industries, factories, buildings, etc. They are produced for the future or for the satisfaction of wants over a long period of time. The creation of such capital goods is called investment. All those activities which take place in an economy generate streams of goods and services, a part of which is passed down to the consumer who may either consume the whole or a part of it. In the latter case, the remaining part, which goes to add to the fixed capital or the stock of capital, is known as investment and constitutes the basis for future development.

From the foregoing details, we may conclude that investment denotes those uses of current output which generate higher levels of output in the future; and consumption denotes those uses that are exhausted in the current year. Hence, investment is simply that part of current output which is not used up during the present calendar year—whatever is not consumed in the current year is treated as saving and is available for investment. Let us take the example of a particular family, which has an annual income of Rs. 40,000. Out of this income the family may consume Rs. 30,000. The remaining Rs. 10,000 may either be invested by the family itself, or be saved in a bank to be invested by others. Such investments must be in the form of physical capital like machines, financial capital like shares or human capital like the education of the children in the family. You may notice that investment results in some returns, very often higher than the initial investment. These returns enhance future consumption. Hence, in a way, the choice between consumption and investment is the choice between present consumption and future consumption.

These concepts are applicable to the economics of education also, although with some variance, since the processes of the production of education and economic goods and services differ in more than one sense. Education in itself is consumption as well as investment. The activities of an educated person such as enjoying non-pecuniary (non-monetary) benefits like reading stories and poems, enjoying higher social status, etc. are activities of consumption and the monetary gains from a lifetime's earnings are taken as investment. Also, the absorption of a large number of educated persons by the education system itself for carrying out teaching and research responsibilities refers to consumption whereas the surplus educated manpower constitutes investment which contributes to human capital formation in the economy and forms the basis for raising the level of production. See section 1.6 below for an elaborate discussion on this theme. At this stage, we turn to an altogether different notion — education as production.

1.3.4 Education as production

The output of education systems is considered production by both economists and educationists. The processes of production in an economy and a formal educational system are compared with regard to their structure, decision making processes and the ultimate objectives. In other words, the system of formal education based on a comparable hierarchical structure can be compared with the organisation of the factory system or the functioning of an industrial plant. For example, the industrial plant (where raw materials enter at one point and finished outputs exit at a subsequent point, a sequence of net values being added between the two points) is compared with formal
schooling. In the latter case, the raw materials, i.e., the students enter into the educational process which takes in other inputs such as teachers, books and equipment, and the net value is added to the product, at each stage, in the form of scores and certificates. The analogy identifies the students as the raw materials, the graduates as the output, the directed sequence itself as the production process and, above all, the institution as the decision maker. As far as the industry is concerned, it is seldom difficult to identify its principal output. But to define the output of an education system is not that easy a task. For instance, it is difficult to say as to what the end product of a period of schooling is; it becomes all the more difficult in the case of universities which are ‘multiproduct industries’, the products of which are ‘intangible’. Even if we take the number of degree/diploma holders as the output, it is common knowledge that neither the purpose nor the outcome of a process of education can be so easily defined as is the case in industrial production processes.

Besides, the shapes of the cost curves (for details on cost, see Unit 3 in this Block) may not be identical either between industry and education or within the varieties in the latter system, between say formal and non-formal education. The unit cost of production (i.e., cost per single product) which is generally used as an indicator of efficiency in industry has its proxy in the field of education — the cost of education per student. The optimum level of inputs for a given output are defined in the field of education in terms of the number of students, teachers, books, buildings, etc. Notice that the student is both an input and an output of the system. Besides, each student is also a decision maker as far as investment for his/her own education is concerned.

To conclude this brief description of a few relevant concepts which are commonly used in a study on the economics of education, let us now examine in the following section the status of the field of economics as it is today. We shall discuss the ways in which education is related to various indicators of economic growth in section 1.5.

### 1.4 ECONOMICS OF EDUCATION TODAY

In the 1960s, economics of education propagated by Schultz (1963) believed that people as producers and consumers invested in themselves to enhance their capabilities, and the largest investment in human capital was schooling. While at the time the relationship between education and productivity was only assumed, today we have sufficient evidence to prove this. The world economy has undergone changes which have put human capital at the centre stage of economic development. Globalisation and technological changes have enhanced the capacity of human capital to acquire higher technical knowledge and to promptly respond to changes. This has further enhanced the status of human capital to be even more crucial in the production process. The early studies of Welch (1970) and Schultz (1975) proved that education helped in adjusting to disequilibrium due to prices, technological or allied changes, and thereby in increasing productivity. Higher schooling was associated with higher wages, but there was no evidence of higher schooling leading to increasing productivity of industrial workers. Schultz’s “human capital theory”, which was largely based on self-employed workers, established the relationship between education and productivity. Gordon et al. (1982) have pointed out that the contemporary “segmentation theory” considered that choices of self-employed individuals as producers and consumers are different from those of employed workers. The latter had no...
choice in decision making which was controlled by the employers, who go by the considerations of control of power and maximisation of profit. While the human capital theory assumed that decision making was technologically fixed, the segmentation theory realistically considered it to be flexible and alterable.

While it is well accepted that schooling increases cognitive knowledge which is essential for the development of skills needed for productive work, there is no empirical evidence of a direct relationship between more schooling and increase in the individual worker’s productivity.

The human capital theory which assumed that skills leading to productivity are the same for self-employed and employed workers, does not hold good today. The self-employed workers and those employed workers who have the freedom to make decisions have a higher capacity to adjust to disequilibrium (as noted above) than the employed workers of assembly line jobs without any freedom of decision making. Therefore, the assumption that additional schooling or education leads to better decision making and higher productivity needs to be extended to include a reality where the employees are provided with such responsibilities by the employers. With the advent of a new international economic order (with increasing specialisation and consciousness of workers’ rights), the fact that the productivity of workers with responsibility for decision making and participation in management is higher than those who only follow orders has become more obvious. In this context, Carnoy (1995) writes, “... relations in the workplace are not only crucial to productivity, but the human capital-productivity relation is wrapped up in the social relations between management and labor” (p.3).

The above discussion suggests two factors contributing to higher productivity of human capital: i) management-labour relations, and ii) innovation networks between firms and other innovative institutions. Therefore, both the quality of human capital (which is favourable to innovation and utilisation of higher technical knowledge) and better organisation of innovation and production are crucial to productivity.

The studies within new economics of education have moved away from the old assembly-line, input-output model of production to models of endogenous innovation and learning-by-doing in which it is assumed that increase in productivity is a self-generating process coming from within the firms or economies, and is specific to the concerned firm or economy. Carnoy (1995) has noted five major areas of economics of education for which this shift has high implications.

- First, the earlier connotation of the economic value of education has been expanded to include the relationship between human potential to produce more output and the organisation of work and innovativeness of the firm in the use of that human capacity to further realise the most out of that capacity. It is, then, not only technological innovations but also other factors like information, workplace and property rights, ideology, political power, extent of willingness to innovate, etc. that determine the contribution of education to productivity and income. Thus, along with or other than increase in cognitive skills due to schooling, it is the relationship between employers, top managers and employees, and the place of autonomy and innovation in the
organisation's scheme of things that determines the role of education in enhancing productivity.

- Second, in the nineties, in the context of the relationship between education and income, a lot of emphasis has been placed on skill mismatch which notes that in an information economy, higher skilled workers get larger payoff than the lower skilled ones. The scenario has changed since then: it is not the demand for more skilled labour but information technology leading to better information flow which has led to higher wages. The spread of new information technology has facilitated entrepreneurs to decentralise locations of production in developing countries which provide skilled workers with lower wages. Mobility of capital and decentralisation of production have been made possible due to improved telecommunication facilities. Hence, besides demand for high skilled labour, it is the effective supply of labour and bargaining power of labour which have led to wage changes. This has implications for the relationship between education and labour market. In the United States, for instance, the rates of return to higher education increased and became stabilised at the rate existing in the sixties, after a decline in the seventies. During the nineties, the share of low-skilled jobs in industries decreased though the share of low-wage jobs increased, and hence the point that the wages of the higher educated are increasing because of differential demand for different levels of skills is not true.

Studies in various parts of the world have shown that the earlier belief that the rate of return to lower levels of schooling is higher than that to higher levels of schooling due to declining marginal rate of return to capital does not hold good. Instead, the expansion of schooling systems has led to a decrease in payoff to lower levels of schooling. Moreover, the bargaining power of labour and overall wage structure in a country determine the rate of return. And, this in turn depends on the place of the country in the international division of labour.

- Third, with regard to the relationship between income distribution and economic development, earlier economists believed that more equal income distribution and maximisation of economic growth do not go together. It was suggested that increasing industrialisation leads to increasing income inequality. Recent studies using time series data of individual countries show that rising levels of education were associated with more equal income distribution. The comparison study between Latin America and four Asian Tigers indicated that incentives to innovations had positive effect on economic development, and more equal income distribution had positive effect on economic growth (Castells, 1989). Countries like Korea, Singapore and Taiwan provide good examples of economic development due to high quality public education and developmentalist public policy.

- Fourth, within the framework of the assembly-line model of educational production, economists usually analyse the production function of schools and teaching-learning processes guided by the rules of hierarchical factory production system. However, on the other hand, teaching-learning is a process of interaction, and the quality of this interaction determines the quality of learning. Hence, the production function of education needs to take into account the processes involved
in education/schooling and the complexities involved in that process, and the processes of learning that take place outside educational institutions, i.e. family and society/community. Like production in enterprises, in education systems, participation in decision-making and innovations by teachers, parents and students is very crucial in increasing educational productivity.

- Fifth, while studying economics of education, an assumption is made that private education is more efficient than public education. This is, in fact, very misleading. Even in the case of public education, a large portion of finance is private—in terms of student fees, books, transportation, uniforms, instrumention, and the like. Even some private schools are also public-aided. Therefore, the idea of private education being better than public education is not acceptable to economists today. In this context, Carnoy (1995) notes: "... a public-private partnership, guided by human capital-intensive, politically stable, decentralised, honest, and accountable public bureaucracy is crucially important in guiding and assuring capital formation and equitable investment in public services in a politically democratic market economy..." (p. 6). It has, therefore, become essential for modern economists of education to understand the public-private relationship and its implications for human capital formation.

### 1.5 EDUCATION AND ECONOMIC GROWTH

As we have argued earlier, education is strongly correlated to the economic growth of a nation. The latter should be distinguished from economic development, for this distinction has obvious implications for developing any economic perspective of education.

#### 1.5.1 Economic growth and economic development

The terms economic growth and economic development are used interchangeably at times. However, there is a fundamental distinction between the two. Economic growth refers to the increase in the GNP or per capita income of a country. So long as the national income of a country keeps growing the country is experiencing economic growth. But economic development means much more than mere growth. Economic development implies, besides growth, a fundamental change in the structure of production in an economy. Most important among the structural changes are the rising share of industry (and the falling share of agriculture), increasing urbanisation, etc. The consumption pattern of the people also changes so that they do not have to spend their entire income on basic necessities and food requirements; rather they can devote a good part of their income to durable goods and leisure. One more important component of economic development is the participation of the masses in the production process. The people of the country must be involved in the process of transforming the economy from a backward to a developed one. Foreign contribution, although inevitable, should not be entirely responsible for the growth of the economy. Moreover, the benefits of development should accrue to the whole society, not to the privileged few.

Finally, it may be said that both growth and development involve a rise in per capita income. However, though development is not possible without such a
rise in per capita income it does mean more than such a rise. In other words, development is a more comprehensive concept than growth.

Although it is extremely difficult to determine the precise degree of the contribution made by education to economic growth, the creation and expansion of educational opportunities at all levels have been actively pursued all over the world, in the belief that education does contribute to economic growth by way of:

a) creating a more productive labour force and endowing it with increased knowledge and skills which increase production;
b) providing widespread employment and income-earning opportunities for teachers, school building and construction workers, textbook printers, school uniform manufacturers, etc.;
c) creating a class of educated persons to fill vacancies created by departing expatriates (in the case of countries recently freed from colonial occupation) or otherwise vacant positions in governmental services, public corporations, private businesses and professions; and
d) providing the kind of training and education that would promote literacy, numeracy and basic skills while encouraging modern attitudes on the part of diverse segments of the population.

In the developed countries, it is generally seen that the basic needs of the people are already met. The main concern before them, therefore, is growth. You might be aware of the frequent fear of recession (period of declining economic activities) in developed countries because of its adverse effect on employment and income level. On the other hand, the developing countries face the dual challenges of increasing the size of their GNP as well as improving the quality of life in general. So economic development is mainly seen as a problem of developing countries.

Growth may involve no major changes in inputs nor any transformation in the existing institutions. But development presupposes a process of innovation in which new technologies are generated as a result of which new input and output mixes emerge. In sociological terms, development implies that major social and structural changes occur involving a process of institutional transformation in most sectors including those which are only peripherally linked to the core of the economy. Obviously, this aspect of development is influenced by education, especially in the following ways.

i) First, the spread of education helps in moulding people’s attitudes, behaviour and approach to the emerging realities of the world especially with respect to work ethics, social ethos and universal human values. These, in turn, promote good will among all sections of society. Moreover, the inculcation of the relevant and adequate knowledge of means of gathering and analysing information, and preparing the human resources to suitably respond to challenges confronted by human kind, maximise social mobility and help increase the innovative and risk taking capabilities among people. These, in turn, contribute to an increase in the socio-economic activities which accelerate the pace of national development.

ii) Second, the social and cultural taboos, superstitions and the common belief that the material benefits to be enjoyed by an individual are predetermined by some superhuman force constitute the major cause of
economic backwardness. Through education, these superstitions get eliminated as people become increasingly conscious of their detrimental effects.

Scientific and technological advancements have made it possible to overcome various impediments by providing:

a) reasonable explanation for various natural phenomena, the knowledge of which enables the people to effectively tackle and adjust to emerging situations as well as to respond positively to national policies; and

b) technology for large scale production of goods and commodities so as to satisfy the material wants of most people, and thereby help them develop a favourable attitude to technological developments and to be more self-reliant.

It has, therefore, been feasible to transform the traditional societies into modern ones, the foundations of which are laid on sound scientific and technical knowledge.

From the explanations given above, it is clear that education and training, even to the extent of elementary stage or functional literacy and numeracy, help improve the efficiency and productivity of labour forces of all types and at all levels. Dissemination of knowledge of all types and levels through various methods like on-the-job training, extension programme, etc. increases the ability of labour force to optimally use human and material resources for raising production in every sector of development. Obviously, the linkages between education and economic development are positive and strong and they reinforce the development process of the economy.

In the following five sub-sections, we shall discuss five select indicators of the linkage between education and economic growth. Before going through them, first attempt the following question.

**Check Your Progress 2**

Given below are two situations A and B. Identify which of these represents "economic growth" and which one "economic development".

A: A country where there is improvement in the welfare of the people, reduction in unemployment, an upward movement in the standard of living, the quality of material life and the real income of the individuals.

B: A country, where there is emergence of new technologies for improved agricultural and industrial production, that leads to an increase in the gross national product.

**Notes:**
(a) Space is given below for writing your answer.
(b) Compare your answer with the one given at the end of the Unit.
1.5.2 Education and gross national product

The first indicator of the linkage of education to economic growth is the increase in the Gross National Product (GNP). Other things remaining equal, education promotes growth in a positive manner. As the income of a country rises, increasingly larger sums of money are spent on educational development with a view to meeting the manpower requirement of all kinds and levels of the different sectors of the economy. We have evidence that suggest that the indicators of educational development like literacy and/or enrollment ratio on the one hand, and GNP or per capita income on the other are positively correlated. This demonstrates that a country chooses to spend more on education as its income rises (Ansari, 1989). Also, keeping in view the emerging socio-economic trends in development and the future needs of manpower of various kinds and at various levels, a country plans ahead and, therefore, makes adequate investment in educational development. Obviously, an increase in GNP should generally lead to higher allocation of resources for education.

The extent of expenditure, from the GNP, devoted to the education system is considered an important indicator of the educational efforts made by a country. Another equally important measure of educational efforts is the proportion of educational expenditure in the aggregate national budget. It is generally true that economically advanced countries, and the different regions within such a country, spend more out of their incomes on educational development than those countries which are economically backward. There are wide variations across countries and regions (see Table 1.1), even among those which have achieved considerable levels of economic development. This is largely attributable to the perceptions of different societies about the relative role of education in economic development.

1.5.3 Employment

The relationship between education and employment is the second indicator of economic growth. Education has come to be seen as an aid to realising the socio-economic objectives of individuals as well as the society. The nature of employment and the earnings therefrom are crucial determinants of the economic gains that accrue to people. In this context, the relationship between education and different aspects of employment like level of earnings, status and employability is assessed to be strong and positive. Earning functions and path analyses of the effects of the individual’s background and characteristics on occupational attainment and earnings have invariably indicated that a large part of the variance is explained by the index of education. The number of years of education is the best single predictor of the eventual occupational status and earnings of an entrant into the labour market.

The amount of schooling received by an individual is largely influenced by the demand for and supply of education. The two major factors which influence the demand for education are:

i) the prospects of earning over a life span of an educated person and/or the expected private and social benefits; and

ii) the education costs — both direct and indirect — which a student and/or his/her family must bear to get him/her educated.
In effect, the demand for education is a “derived demand” for employment opportunities fetching higher wages especially in the modern sectors which assure higher earnings over the entire period of employment. In developing countries, the demand for education is not so much to satisfy intrinsic non-economic wants of people as to enable them to pursue a financially rewarding career over the span of their life time. However, the ability of an individual to enter the modern employment sector and exploit the opportunities for higher earnings is influenced by various factors, some of which are discussed below.

i) There exists a marked wage-differential between jobs in modern sectors which are largely mechanised and the traditional sectors (like farming, urban self-employment, handicrafts etc.) which are basically labour intensive. Entry into the modern sector jobs and earnings thereof depend on the level of completed education whereas the income from earnings in the traditional sectors has no fixed educational requirement. This causes not only inter-personal differentials in earning but also low average earning in the latter sector. The larger the income differentials between the two sectors the greater will be the demand for education and training.

ii) For an individual who successfully completes the necessary schooling, entry into the modern-sector-labour-market provides a higher “probability” of getting a well paid urban job than the one who does not have access to adequate levels of education.

The connection between education and employment is strong indeed. That is why when job opportunities for the uneducated diminish, individuals safeguard their economic status by acquiring primary or secondary, vocational and higher education in order to gain the best employment opportunities available to them. Hence education, employment and earning are not only closely related to one another but to a large extent interdependent.

1.5.4 Quality of labour force

The third indicator of economic growth is the increase in the quality of the labour force caused by education. The term “labour force” refers to the persons who are able to work. A part of the total population in every country is too young or too old to be deployed in gainful employment programmes. For instance, children below 15 years of age and persons above 65 years of age are not treated as part of the working age group. The students pursuing various courses of study are also included in this category. The remaining population, which is available for work, constitutes of labour force of a country. The entire labour force may not, however, be contributing to the gross production as there are those who remain without work or are reluctant to work in the formal sector and are therefore engaged in household jobs. We can say that the total labour force depends upon the proportion of the working male and female population which is fit and willing to work.

The contribution of the working population to the productive process depends not only upon its quantity, i.e., the number of people involved in work but also largely upon its quality, i.e., the kind of work that people do, the amount of effort they put into their work and the efficiency with which they manage their work. Quality of the labour force is largely determined by two major factors:
- physical fitness and positive attitude; and
- the nature and the level of education and training.

A worker who is physically fit and upholds universal, human and moral values will have generally high efficiency. Education and training are considered equally important, or even more so in the case of some lines of production from the point of view of raising the quality of the labour force.

A person who is capable of analysing facts scientifically and applying the acquired knowledge in his/her routine activities would surely have a relatively higher degree of efficiency than those who lack in such qualities. The earning of workers over the span of their working life would accordingly vary. However, the differences in earning alone cannot measure the productivity-raising effects of education and training, unless, of course, the relationship between the volume of output and its determinants, as well as the measure of educational attainment of the labour force, are thoroughly examined. Nevertheless, if additional schooling is provided to individuals, their productivity would increase due to the proper application of newly acquired knowledge and practical skills as well as the creation of conditions conducive to effectively managing the human and material resources. Therefore, the correlation between education as measured by the number of years of schooling and productivity as measured by wage differences among the persons of varying educational qualifications is positive and strong. The quality of the labour force can thus be enhanced by making adequate provision for relevant general and technical education as well as training in improving one's skills.

1.5.5 Productivity

The fourth indicator of economic growth which is also a very significant one is productivity resulting from increased education, training and technical know-how. The concept of productivity refers to a derived ratio of output to input in a production process in a given condition. Whereas the relation between the total outputs and inputs in a particular period of time is called the average productivity, the relation between the incremental output and additional input or a unit of factor of production causing that output is called marginal productivity. Of the various sources and methods of increasing productivity of human resources, socio-economic systems, institutions, education and training etc, are very important as they improve the entrepreneurial capacity of the manpower which raises the productivity and the volume of production, thereby raising per capita income of people.

The acquired knowledge and skill, which add to the productive capacity of an individual (from both the individual and social point of view) are termed as human capital. The money spent on human resources development therefore yields definite returns to the beneficiaries — individuals and society. Likewise, the expenditure on research influences productivity by way of innovation and upgradation of technology devising new policies for and approaches to production and exploring fresh opportunities for investment and creation of employment. These in consequence generate income for people. While the cost of elementary education is very low as compared to other levels of education, the rates of return for elementary education are generally estimated to be high for almost every country (Psacharopoulos, 1973) (also see Unit 3 of this Block). Similarly, technical, vocational, and management education and on-the-job training contribute significantly to
productivity. In a country like India where the primary sector is very large, development of agricultural education and other courses pertaining to water management, application of fertilizers, insecticides, new variety of seeds, application of multiple cropping pattern, etc., have greatly contributed to the increase in productivity and agricultural production. Thus, education and training contribute significantly to improving the productive capacity of human resources, and thereby raising the quality of life in general.

1.5.6 Work satisfaction and life satisfaction

The fifth significant indicator of economic growth is satisfaction in one’s life and in the field of work. These non-monetary returns, which accrue to the beneficiaries of education over their life cycle refer to the consumption benefits of education. As such, these include not only the non-monetary satisfaction enjoyed by the students while at school, but also the contributions made by education to such aspects of day-to-day life as help an educated person to utilise his/her leisure most satisfactorily for a happy and prosperous life.

Some of the notable consumption benefits are as follows.

i) Education is closely correlated to good health: for example, the children of educated parents are generally healthier. Further, it has been also observed that the mother’s education significantly affects a child’s I.Q. which could be helpful in further education.

ii) Those consumers who have higher levels of education are supposed to rationalise their spending patterns among consumption items in such a way that their total utility is maximised and the real income is maintained at a high level.

iii) Education contributes a lot to the management of household affairs especially by employing labour and time-saving devices. For instance, the rapid swing automatic washing machines, wash and wear clothing, and paying monthly bills by the cheque require less time than the corresponding earlier alternatives. But they do require a knowledge of repair management plus some accounting skills. Thus, for adjusting savings, teaching children, or even for life cycle planning, more education is required without which effective utilisation of new advances in technology is not possible.

iv) Educated women are found to be more efficient in market search and household management. As a result of rational purchasing behaviour and effective management of household affairs, a considerable amount of savings is generated.

v) Lastly, education facilitates socialisation and thus promotes the concept of community service which, in consequence, maximises social welfare.

In brief, the consumption benefits of education accrue in the form of a family’s better health, higher return on savings, better management of household affairs and increased socialisation and social welfare. And all these together contribute to a happy and prosperous life.
Check Your Progress 3

List the five indicators of the contribution of education to economic growth, and describe, in about 8 lines, the contribution of education to productivity.

Notes: a) Space is given below for writing your answer.
   b) Compare your answer with the one given at the end of this Unit.

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1.6 APPROACHES TO ASSESSMENT

Having discussed in some detail the relationship between education and economic growth, we now turn to approaches and methodologies which are generally employed by the planners and researchers for assessing the contributions of education to economic growth and social development. In all, we have chosen four approaches for our discussion here. They are:

i) simple correlation approach;
ii) residual approach;
iii) returns to education approach; and
iv) forecasting manpower needs approach.

Let us elaborate on each of them in the following sub-sections.

1.6.1 Simple correlation approach

The theoretical expectation that education and training contribute to economic growth requires to be quantified so as to assess the nature and the extent of the relationship between the variables characterising educational and economic activities. Such calculations and information are very useful for policy makers and planners, who are necessarily concerned about the cause and effect relationship between two or more variables, especially from the point of view of preparing development plans determining the appropriate allocation of funds. The approach which is generally used to study such
aspects is known as the correlation method which, when employed, indicates the nature and strength of the relationship between the chosen variables. Such a relationship can be studied when the data pertaining to the two theoretically related variables are fitted in a functional form of the type:

\[ Y = a + bX \]

Where \( Y \) and \( X \) are variables, \( a \) is a constant and \( b \) is a correlation coefficient. For instance, we can correlate the level of literacy or enrolment ratio and the GNP per capita. Such a correlation reveals that the association between the two variables is positive and significant.

For example, the data given in Table 1.2 on the relationship between literacy and per capita income in selected states in India indicates a correlation coefficient of 0.756 which is very positive and significant; and that per capita state domestic product in 1991 was higher in the case of states (like Maharashtra, Gujarat, Punjab) with higher literacy rates, and lower in the case of states with lower literacy rates (like Bihar and Madhya Pradesh).

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>States</th>
<th>Literacy rate (per cent)</th>
<th>Per capita state domestic product (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Andhra Pradesh</td>
<td>44.09</td>
<td>4728</td>
</tr>
<tr>
<td>2.</td>
<td>Assam</td>
<td>52.89</td>
<td>4281</td>
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<tr>
<td>3.</td>
<td>Bihar</td>
<td>38.48</td>
<td>2665</td>
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<tr>
<td>4.</td>
<td>Gujarat</td>
<td>61.29</td>
<td>5913</td>
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<td>5.</td>
<td>Haryana</td>
<td>55.85</td>
<td>7508</td>
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<tr>
<td>6.</td>
<td>Jammu &amp; Kashmir</td>
<td>-</td>
<td>3625</td>
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<td>7.</td>
<td>Karnataka</td>
<td>56.04</td>
<td>4598</td>
</tr>
<tr>
<td>8.</td>
<td>Madhya Pradesh</td>
<td>44.20</td>
<td>4049</td>
</tr>
<tr>
<td>9.</td>
<td>Maharashtra</td>
<td>64.87</td>
<td>7444</td>
</tr>
<tr>
<td>10.</td>
<td>Orissa</td>
<td>49.09</td>
<td>3077</td>
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<tr>
<td>11.</td>
<td>Punjab</td>
<td>58.51</td>
<td>8318</td>
</tr>
<tr>
<td>12.</td>
<td>Uttar Pradesh</td>
<td>41.60</td>
<td>3590</td>
</tr>
<tr>
<td>13.</td>
<td>West Bengal</td>
<td>57.70</td>
<td>4673</td>
</tr>
</tbody>
</table>

Correlation Coefficient \( r = 0.756 \)

Source: (i) Economic Survey 1997-98, Govt. of India.

All the 13 States considered here covered more than 80 per cent of the total Indian population in the respective census years.

The analysis of data, using the time series, and cross-sectional data pertaining to measurable factors which influence and, in turn, are influenced by development activities, help gauge the performance of educational activities both over time and across the different regions, and lends perspective for policy formation.

**1.6.2 Residual approach**

The residual approach is used to measure the extent to which different factors are responsible for contributing to economic growth. The rate of increase in the aggregate output is compared, under this approach, with the aggregate input. The sources of the economic growth are identified to the extent possible in measurable inputs like capital and labour. The unexplained or residual part is attributed to an unspecified input, i.e., education and advances
in technology. The results obtained on application of this approach have been largely responsible for generating interest in investment in human resources and also in recognising the fact that educational expenditure needs to be regarded as an investment owing to its crucial role in determining economic growth.

There are a number of alternating techniques that can be adopted under this approach. For instance, it is possible to proceed by calculating an input series for the labour input, a separate input series for the capital input at constant prices and then combining these two input series into an overall arithmetic index of inputs. Next, the rate of increase in this aggregate input series is compared with the rate of increase in the aggregate output series, and, by simply subtracting the former from the latter, it is possible to obtain a measure of the contribution of the "residual" or "third factor". The size of the "residual factor" certainly does serve as a mandate to explore in detail the economic effects of activities often neglected in growth accounting exercises.

1.6.3 Returns to education approach

The returns to education approach is another method of studying the economic consequences of education. In this approach, the lifetime earnings of persons who have had schooling at different levels are compared with the lifetime earnings of persons who have had relatively less education. The difference in lifetime earnings is then expressed as an annual percentage rate of return on the costs involved in obtaining education.

It is helpful to distinguish the two broad categories of returns to education:

(i) the personal profit orientation; and
(ii) the national productivity orientation.

The personal profit orientation refers to the difference in the net earnings of persons with varying amounts of education as evidence of the amount of personal financial gain that can be associated with the attainment of a given level of education. The national productivity orientation refers to education related earning differentials as partial evidence of the effects of education on the output of the country. This is based on the premise that in a market economy, differences in earnings reflect relative variations in productivity. These two approaches are also known as private and social rate of returns to education respectively. (We will elaborate more on these two types of returns in Unit 3 of this Block.)

The rate of returns approach has been considered an important approach because it helps in relating educational benefits to educational costs in a way that holds out the hope of providing useful information concerning the adequacy of the overall level of investment in education and the extent to which economic benefits accrue directly to private individuals. But the application of this approach is fraught with many difficulties for conceptual and statistical reasons. For the measurement of returns to education, it is essential to get reliable data of the cost as well as the yield of education. The estimation of this yield is more difficult because the returns to education can be monetary, non-monetary, private as well as social. However, this approach has contributed vastly in the assessment of the contributions of education to an economy since it is possible to obtain results in such a form as permits comparisons of costs with benefits. It may be noted here that this approach is
susceptible to further refinement, and there are reasons to believe that further research will remedy some of the present difficulties in this approach.

1.6.4 Forecasting human resource needs approach

The objectives of all forecasts of human resource needs is to work out the future needs of the economy for persons with various kinds and levels of training. Such forecasts can be expressed in terms of broad groupings of people. A variety of methods have been used in arriving at human resource projections. For example, employers are asked to specify how many persons with certain kinds of qualification may be needed in a given number of years in the future, which are then added up to arrive at the aggregate figure for the total requirement of human resource with the specific expertise. Further, the calculated ratios of trained human resource for total employment are also projected into the future on the basis of demographic information.

The importance of this approach has been well recognised because it offers definite guidelines framed in the terms in which decisions must actually be made. Whereas the returns to education approach reveals whether the given level of spending on education is too much or too little on education, manpower studies indicate that 'X' number of new student places in the field 'Y' could be created by the year 'Z'. This type of information is obviously much more useful to the policy maker and planner.

This approach has, however, been widely criticised because it has been viewed that the human resource projections have not succeeded in taking account of the flexible possibilities of substitution between capital and labour, and between highly trained human resource and not so highly trained human resource. Moreover, this approach is not really directed at assessing the economic contribution of education. On the basis of the criticism raised it could be said that human resource forecasting ought not to be viewed as an alternative method of working out the investment requirements of the education sector, but as a way of obtaining information which can be analysed usefully for effective planning and management of education system.

**Check Your Progress 4**

**Notes:**

a) Space is given below each of the questions for writing your answers.

b) Compare your answers with those given at the end of this Unit.

i) Describe, in about 8 lines, the residual approach used to measure the contribution of education to economic growth.

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ii) State, in about 6 lines, in what way is it useful for decision making in education.

The four approaches presented above have direct application in the assessment of the contribution of education to economic growth. Another significant criterion is 'equality' in the provision of education and/or schooling. In a democracy, increase in GNP, income per capita and standard of living can be justified only when education is accessible to all without any barriers. The following sub-section deals with this issue.

1.6.5 Equality of educational opportunity

One of the important objectives of educational planning is to equalise opportunities for education among the people of a country irrespective of their caste, creed, colour and socio-economic status. It is imperative for a country like India, which is pursuing such aims as establishing a welfare state through democratic polity, to ensure even distribution of the benefits of development. The social costs of re-distribution of resources from the rich to the poor, especially in a country which has had a feudal system in the past, is generally regarded to be much more than what a country would wish to afford in normal conditions. This task is, however, facilitated by the provision of adequate education to the deprived sections of society.

In order to ensure upliftment of the under-privileged sections of society, it is important that any person who is desirous and capable of learning should not be deprived of education due to any impediments arising from his/her socio-cultural and economic status. Accordingly, every democratic society plans its education system in such a way that every person has access to education. For instance, the Constitution of India provides for free and compulsory education to all up to the age of 14 years. In view of this national commitment, the Government of India extends financial support to the students of poor families; provides various concessions to various types of students at all levels of education; and admission to educational institutions is offered to all without any discrimination on the basis of caste, creed and socio-economic status. The national efforts in this direction have, however, not yielded desirable results. This has largely been due to the paucity of resources which has come in the way of providing educational facilities commensurate with the requirements and the socio-cultural and economic impediments faced by the people in taking advantage of the existing facilities. In this context, the Kothari Education Commission of 1966 has observed that the inequalities of educational opportunities are mainly due to:
Economics of Education

- uneven distribution of educational institutions;
- mass poverty;
- varying standards of schools and colleges;
- difference in home environments; and
- disparities in sex and class structure.

Besides, inequalities of educational opportunity also arise due to the lack of educational facilities to assist disabled students. And, therefore, the handicapped children from such places cannot have the same opportunity as those handicapped children who have access to special schools. Similarly, there are also geographical or regional imbalances in the provision of educational facilities. At present, there are glaring imbalances in educational development in different parts of the country. Learners from rural areas and urban slums with poor and illiterate parents do not have the same opportunities as their counterparts from rich families and/or economically advanced regions. The inequality in educational opportunities for male and female learners has also been considerable. This is attributable, in addition to the problem mentioned above, to social taboos which discourage education for females. The barriers to equality of educational opportunity ought to be eliminated by taking appropriate steps like extension of educational institutions with adequate facilities, improving the level of retention by way of providing financial assistance to needy learners, etc. It is clear that effective planning and successful implementation of programmes designed especially for educationally disadvantaged classes can ensure equality of educational opportunity.

1.7 EDUCATION AS CONSUMPTION AND INVESTMENT

Goods and services can be broadly classified under two classes:

- those from among which consumers satisfy their immediate wants are called consumption; and
- those which are used in production to generate income over a long term are called investment.

Education can be termed as either consumption or investment, or even both depending upon how it is being used. Education can be considered private consumption, because people value it in itself, and spend their money on it. It can also be considered as public consumption to the extent that the state decides to spend a portion of its income on education rather than on any other programme with a view to deriving certain immediately visible benefits. Expenditure on education may also be treated as investment since people invest in themselves or in their children or the States do it for their subjects in a planned way to derive benefits in the future.

In a sense, there should be no problem in deciding as to whether education is consumption or investment. Since expenditures on education are made by households out of their earnings or by the Government acting on behalf of households out of taxes collected from them, formal education is clearly consumption. On-the-job training, on the other hand, is clearly investment because it is an expenditure incurred by either business enterprises or by the Government and industry. Similarly, the maintenance and improvement of skills may be seen as investment in human beings, but the resources devoted
to maintaining and increasing the stock of human beings remain those of consumption.

Obviously, education is both investment and consumption always and everywhere. It is so because education of a particular type in one country may act to increase future output while another type within the same country may not do so. Besides, a given quantum of education, say a year's schooling for someone, invariably shows elements of both consumption and investment. For example, let us say that a household decides to acquire an additional year of schooling for one of its younger members. This is consumption. But it turns out that the additional schooling renders the member of the household more productive once he/she enters the labour force. This result makes education an investment. From a social point of view, however, it remains, in part, an investment. Thus, it could be said that the perception of education as consumption and investment changes, depending upon the angle from which we look at it. Much, however, depends on the perception of the decision makers especially about the economic consequence of the decisions taken by them.

Check Your Progress 5

Describe, in about 6 lines, education as “consumption” and as “investment”.

Notes:  
a) Space is given below for writing your answer.

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1.8 LET US SUM UP

This Unit has attempted to introduce you to the field of “economics of education” and the terms/concepts used in the field. Economics of education as a field of study deals with rational decision making in the investment of scarce resources — money, manpower, skills, etc. — in education/development of human resources, and rational and equitable distribution of resources for education among various sections of the society. Therefore, both the economy and the system of education are dependent on each other.

You have seen that education may be treated as either consumption or investment or both. It is consumption when it is acquired for its own sake, and it becomes investment when it leads to the development of human resources. Education is also treated as production, because like other industries, in the educational industry, the learners enter into the system, go through many processes, and emerge from it as output with higher knowledge and skills, to be used by the employment market like a finished product.
Education, besides other factors, substantially contributes to the economic growth of a nation. The indicators through which education is seen making this contribution are increases in: GNP, employment opportunities, quality of the labour force, productivity, and satisfaction at work and in life. In this connection, you studied four important approaches to measuring the contribution of education to economic growth — simple correlation approach, residual approach, returns to education approach, and forecasting manpower needs approach. You have seen, at the end of the Unit, that though education can be treated as either consumption or investment, every nation tries to consider it an investment and to allocate more funds/inputs for the development of human resources.

1.9 CHECK YOUR PROGRESS: THE KEY

1. The economy of the nation provides financial resources for the functioning of the system of education, and the latter, in turn, develops human resource and provides for socio-economic progress and the transformation of the nation’s economy. Poverty and illiteracy and, therefore, a sound economy and educational progress, are closely related. For instance, the industrially developed countries have among their populations highly skilled and educated people and vice versa.

2. Situation A refers to "economic growth", while situation B refers to "economic development".

3. The five indicators are:
   a) Gross National Product
   b) Employment
   c) Productivity
   d) Consumption benefits
   e) Quality of labour force.

   Increase in both education and training leads to higher average and marginal productivity. The former helps improve the entrepreneurial capacity of human capital which, in turn, increases the volume of production and so the per capita income of people in general. Likewise, investment in research also contributes to new discoveries and innovations in technology, methods of production, investment decisions, etc. which help increase productivity.

4. i) A number of inputs are responsible for given output(s) which lead(s) to economic growth. In the residual approach, both the input series and output series are prepared and compared with each other. Contribution of each input like labour, capital, etc. is determined and so is the output. The excess in output is attributed to the input, which is unaccounted for, observed in the education and training of the labour force.

   ii) The residual approach, by identifying the contribution of the given types and levels of education and training to output/economic growth, provides reasons for increasing investment in human resources in
general, and in those who belong to the identified type and level of education, in particular.

5. Education is treated as consumption when it is acquired for the sake of pleasure or pursued with the intention of getting a degree. In this sense, formal education is considered consumption. For instance, the education of women improves their prospects in the job market. Here education is a consumption good. Education, in terms of on-the-job training, pre-service training, development and maintenance of skills, is clearly an investment in human resources.