CHAPTER II

EDUCATION AND ECONOMIC GROWTH:
A THEORETICAL OVERVIEW

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EDUCATION AND ECONOMIC GROWTH: A THEORETICAL OVERVIEW

This chapter presents the theoretical background of the study. Theories are statements that explain phenomena by specifying certain relationships among variables; a set of interrelated concepts, definitions and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena.

As means, theories have provided a framework to the study, summarised knowledge and put in order the knowledge within the field. They have also helped to clarify and provide meaning to this summarized knowledge comprising of isolated empirical findings. As ends, theories have provided explanations for observed events and relationships for specific phenomena with maximum objectivity.

The research problem having a theoretical framework and emerging from a theory has guided new discoveries and helped to identify the area of investigation. Based on empirical facts and relationships they have been refined and modified as knowledge in the form of facts accumulated, the discovery of pertinent facts being essential in order to determine whether a theory can be confirmed or reformulated.

In the present study discussion of the theoretical aspects of the topic, its principles and features have played an important role and provided enough opportunities for the investigator to familiarise with various components involved in the study.
2.1 ECONOMIC APPROACHES TO EDUCATION: A HISTORICAL OVERVIEW

The importance of education was fully recognized by the classical economists such as Adam Smith, John Stuart Mill, Karl Marx and Alfred Marshall, and has been reconfirmed by recent writers like Schultz, Becker and Sen. From the early days of the development of economic doctrines, economists started enquiry into the nature and causes of the wealth of nations. The mercantilists viewed trade as the only source of Economic Growth and the physiocrats, identified land as the most important factor of economic growth. By the beginning of the twentieth century innovations and entrepreneurship qualities had become the honoured factor in economic growth as propounded by Schumpeter (1934). Ancient philosophers recognized the economic value of education. They believe education to be indispensable for the economic growth of a good society as it made citizens ‘responsible men’. Since education had a higher economic value, Plato argued that a considerable part of a country’s wealth must be invested in education.

The classical economists emphasized the micro relationship between education of an individual and the benefits accruing to him from his education. They ascribed great power to education and highlighted the intrinsic and instrumental role of education in individual and social well-being. Smith (1937), the Father of Economics, placed education at the centre of his thinking. According to him the system of national education indebted for the “superior intelligence and the providential, orderly habits of the people”, was the basis of a good civil government, economic activity and
progress (Vaizey, 1962). Smith favoured mass education with public contribution highlighting the beneficial effects of education for rapid economic progress. Mill (1940) argued for an effective national education of the children of the labouring class. He also upheld the social role of education and argued for public education. Thus the review of the classical economists on education emphasizes the role of education as a key to further development. They favoured mass education and placed education as a social good. Thus at the end of the eighteenth and beginning of the nineteenth century education was considered as a means for bringing about improvements in the purchasing power of the labour force, economic welfare and social peace.

Among the neo-classical economists Marshall (1930) alone showed some attention to the field of education. He in his “Principles of Economics” refers to education as a national investment. According to him the most valuable of all capital is that invested in human beings. He believed in the external economies of education and favoured general education together with technical education. It was treated as a strong source of human capital formation and an effective source to increase the income.

During the Keynesian period greater attention was given to short-run problems of augmenting the effective demand. Keynes and other economists did not pay attention to factors of long-run consequence such as education. The subsequent studies have shown that education is one of the critical inputs in economic development. Consequently a new area of Economics came into existence known as ‘Economics of Education’.
2.2 ECONOMICS OF EDUCATION

Economic analysis of education began only in the last half of the 20th century. “The large body of literature on the role of education in economic development that followed this insight led to a new field of education known as Economics of Education”, Theodore Schultz from the University of Chicago, used the term in 1960 while addressing the American Economic Association. Upto that time education was treated as non productive activity and hence it did not have any significance in the allocation of resources. During the past four decades, a number of economists have showed interest in the economic analysis of education. As a discipline Economics of Education got boost with the human investment revolution in economic thought, initiated by Schultz, who crowned human capital as a crucial factor in development. The important areas that come under the purview of Economics of Education are Education and Economic Growth, Human Capital, Human Resource Development, Cost of Education, Investment in Education, Educational Finance, and Educational Planning.

Today Economics of Education is one of the most rapidly growing branches of Economics as it is the core of the Economics of human resources- a field of enquiry, which has been revolutionizing such traditional subjects as Growth Economics, Labour Economics, International Trade and Public Finance. The pioneering work in the field of Economics of Education emerged in developed countries like the USA, UK, France, Germany and Russia. The nature and scope of the studies in the area has been in a state of constant flux. The most prominent works in the field are of Dension (1962), Machlup (1962), Bowmen (1963), Becker (1964) Kuznets (1964), Vaizey
(1962) Harbison and Myers (1964), Harberger (1965), Blaug (1970), Correa (1963). Now, Economics of Education with its concept of investment in human resources development has transformed large areas of orthodox Economics to emerge as a full-fledged discipline in its own right. This led to the analysis of various aspects of education from the economic point of view.

2.3 ECONOMIC ASPECTS OF EDUCATION

i. Education as Economic Good

Examining the various economic aspects of education, a good is said to be economic good only when its availability is limited and it is capable of allocation. There are two types of economic goods - material goods and non-material goods. Material goods are physical and tangible where as a non-material good is a service rendered that satisfies a human want. Education is a non-material economic good. It is a service rendered to satisfy a human want. It is limited and capable of being allocated to individuals. Education is both a producers' good as well as a consumers' good. Producers’ goods are the goods used in the process of producing other goods where as consumers goods are goods used by a consumer to satisfy his wants. It gives satisfaction to the person who consumes it and it helps in the production of more goods.

ii. Education as Consumption

Some economists view education as a superior consumption good, and has nothing directly to do with production. It is a form of consumption like bread or wine. John Maynard Keynes considered general education in the USA as mere consumption. When learning is merely to spend the leisure time or for pleasure without any economic motive we may term it as
consumption. Learning classical languages, fine arts and games in most of the cases is a consumption activity.

### iii. Education as Investment

Alfred Marshall emphasized the importance of education as a national investment, it is the most valuable of all capital, invested in human beings. Modern economists treat education as a kind of investment, like dam or canal in which we invest to produce more in the future. If it is being sought for its own sake, it is consumption and if it is being taken as an input to increase future earnings, it is investment (Blaug, 1970). Education put in the framework of classical economics, is investment and in the Keynesian analysis is consumption.

### iv. Education as Industry

Education is an industry in the sense that it utilizes money and other valuable resources to develop its output. It is considered as a growth industry, which provides employment and services needed by the total economy as any other industry contributes to the gross national product of the country. Again, education produces only intangibles in the form of non-material goods or services that are valuable but difficult to measure.

### v. Education as Human Capital

Capital is anything that involves costs but yields a stream of income overtime. Education is considered as human Capital as it directly promotes the quality and capability of human beings. It contributes to the intellectual and social capital of a country. Education raises the economic value of
human capital by raising the future earning power and current asset value of human beings.

2.4 ECONOMICS OF HUMAN CAPITAL: HUMAN CAPITAL THEORY

In modern economic thought the concept of education is considered as a unique investment in human capital, in the present for the future. It has been identified as an important parameter for national development. The word ‘capital’ refers to the reproductive power of natural and man made producer goods. The concept of human capital refers to the fact that human beings invest in themselves, by means of education and training or other activities, which raises their future income by increasing their lifetime earnings. Economists use the term ‘investment’ to refer to expenditure on assets that will produce income in the future, and contrast investment expenditure with consumption, which produces immediate satisfaction or benefits, but does not create future income. Assets which will generate income in the future are called capital. Traditionally, economic analysis of investment and capital tended to concentrate on physical capital, namely machinery, equipment or buildings, which would generate income in the future by creating productive capacity. The treatment of human beings as capital component, that is integral to economic growth is not a novel idea. The discipline of economics failed to incorporate fully the human capital component into the stream of economic thought.

A number of classical economists notably among them Adam Smith(1937), pointed out that education helped to increase the productive capacity of workers, in the same way as the purchase of new machinery or
other forms of physical capital, increased the productive capacity of a factory or other enterprise. Thus an analogy was drawn between an investment in physical capital and an investment in human capital. Smith (1937) and Marshall (1930) envisioned education as a fixed capital in human resource and as a national investment. Smith (1937) in his “Wealth of Nations” states that “the acquisition of such talents by the maintenance of the acquirer during his education, study or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person. Those talents as they make a part of his future, so do they like wise of that of the society to which he belongs”. Marshall (1930) observes, “Capital consists in a great part of knowledge and organization; knowledge is the most powerful engine of production.” He emphasized the importance of education as a national investment; it is the most valuable of all capital that is invested in human beings.

The concept of human capital was not fully developed until 1960s when American economist Theodore Schultz analysed educational expenditure as a form of investment (Schultz, 1961). The journal of ‘Political Economy’ in the United States published a supplement on “investment in human beings” in 1962 and Becker published a book with the title ‘Human Capital’(Becker, 1964, 2nd ed. 1975) which developed a theory of human capital formation and analysed the rate of return to investment in education and training. Since that time the concept of human capital has dominated the Economics of Education and has a powerful influence on the analysis of labour markets, wage determination, analysis of economic growth, expenditure on health care and study of emigration.
The concept of education as an investment in human capital came into existence with the presidential address of Theodore Schultz, while addressing the American Economic Association in 1960. A more scientific and coherent theory on ‘Human capital’ was shaped by Schultz (1961, Becker (1964) and Dension (1962). Their approach came to be known as “Human Capital Approach for Development” in Economics. Schultz pointed out that investment in man, like investment in property are ways of establishing additional income streams (Schultz, 1959). Hence he advocated a higher priority for increasing investment in education and developed a human capital concept to quantify the contribution of education to economic growth. Education is an investment in human capital and such investments not only increases individual productivity, but also lays the technical base of the type of labour force necessary for rapid economic growth. Schultz, (1961) vehemently argued against underrating human capital and overrating land and physical capital in the process of economic development. In his Noble Lecture, the “Economics of Being Poor”, he says: The decisive factors of production in improving the welfare of poor people are not space, energy and crop land: the decisive factors are the improvement in population quality and advances in knowledge” Human capital has two dimensions, quantitative and qualitative. The quantity of human capital is measured by the number of people and number of hours worked and the quality of human capital is represented by skill, knowledge and human capabilities.

According to Schultz, (1963) investment in education is a means of capital formation, the crucial factor in economic development. He observed, “Although it is obvious that people acquire useful skills and knowledge, it is
not obvious that these skills and knowledge are a form of capital, that this capital is in substantial part a product of deliberate investment” (Schultz, 1972) According to him human resources should be explicitly treated as a form of capital. The differences in earnings are usually explained by the differences in the amount of human investment. It is meaningful to treat education, like food, partly as consumption and partly as capital good. In some Western countries, human capital has been growing at a faster rate than non-human capital; the human capital component in the national income is very large as a consequence of human investment. Thus education in a developing economy emerges as a critically important investment in human capital and human resource development.

Economists have long known that people are an important part of wealth of nations. The productive capacity of human beings is larger than all other forms of wealth taken together. Prof. Schultz says that our values and beliefs inhibit us from looking up on human beings as capital goods. So investment in human beings has not incorporated in the formal care of Economics.

The salient features of educational investment are: (i) Educational outlays entail both the features of consumption and investment (ii) Educational investments are generally characterized by a longer gestation period than any alternative competing types of investments (iii) Educational outlays create relatively a long useful life of educational assets. (iv) Educational costs generally include teacher’s salaries, buildings and equipment and other stationeries, but also the opportunity cost of foregone income of the enrolled students.
‘Human resource’ means total qualitative and quantitative human assets of people in a country. Human resource development is the process of increasing the knowledge, the skills and the capacities of all the people in a society (Harbison and Myers, 1964). In other words it is a process of transformation of raw human beings into fit, finished, creative, constructive, intelligent, talented, competitive and productive human resources. The unique features of human resources when comparing to other resources are the following. (1) Active and living resource (2) Resource capable of generation of ideas (3) Unpredictable resource (4) Resource with fluctuating value (5) Non inter-changeable resource (6) Resource with a long gestation period (7) Resource with combined consumption and investment (8) Resource with mobility (9) Resource with variable productivity (10) Non-saleable resource (11) Resource that ends with death, and (12) Resource that requires constant updating.

The human being as such is not a resource, it becomes a resource only if trained, developed and allocated to productive work. The developed human resource is ‘human capital’ or ‘knowledge capital’. The acquisition of knowledge by human beings, through education turns them into human capital. The process of acquiring and increasing the number of persons who have the skills, education and experience, which are critical for the economic development of a country over a period of time, is called ‘human capital formation’ (HCF), Hence HCF is associated with investment in man and his development as a creative and productive human resource. There are various activities that promote the formation of human capital. They are health services, on the job training, formal and non-formal education, study
programmes, migration, modernization of professional and technical education, field outreach and extension programmes, welfare programmes, employment opportunities, guidance and counselling, and manpower planning.

2.4.1 HUMAN CAPITAL VERSUS PHYSICAL CAPITAL

The rates of return that are reviewed by Psacharopoulos shows the average private and social rate of return for primary, secondary, and higher education in less developed, intermediate and economically advanced countries. These rates of return estimates refer to a single years’ and therefore do not show how rates of return change over time, although the average rate of return is calculated from estimates for years that range over a 20 year period. However, there are very few countries for which it is possible to calculate rates of return on a historical time series basis. There exist data on the earnings of workers in the United States classified by educational level since 1939. Estimates of rates of return to secondary and higher education between 1939 and 1976 suggest that the returns to education are falling, although not by a large amount. Data from Colombia also suggest that between 1963 and 1974 the returns to education declined, but still remained profitable.

The results of all these studies confirm that expenditure on education does represent investment in human capital, and that it is a profitable investment, both for the individual and for society, although some critics deny that the earnings of educated workers provide an adequate measure of economic benefits of education. However it is difficult to answer the question of whether human or physical capital represents the more profitable
form of investment. An early attempt to answer this question was called “investment in men versus investment in machines” (Harberger, 1965) and this is still a matter that is of vital concern to economists and planners. Psacharopoulos explained estimates of the returns to physical capital in both developed and developing countries and concluded that (a) the return to both forms of capital are higher in developing countries, which reflects the differences in relative scarcities of capital in either form in developed and developing countries and (b) human capital is a superior investment in developing countries but not in developed countries (Psacharopoulos, 1985).

2.4.2 PRODUCTIVITY OF HUMAN CAPITAL: ALTERNATE VIEWS

The earliest explanations of the concept of human capital suggested that education or training raised the productivity of workers, and hence increased their lifetime earnings by imparting useful knowledge and skills. However, this assumption was soon attacked by critics who refuted that the higher earnings of educated workers simply reflected their superior ability rather than the specific knowledge and skills acquired during the educational process. In addition, it was argued that highly educated workers are more likely to come from higher social class groups in society, and they work in urban rather than rural areas. Many estimates of rates of return to education therefore adjust the observed earning differential of educated people to allow for the influence of other factors on earnings.

Since ability is one of the main factors that may determine earnings, this is often called the “ability adjustment” or alternatively the “alpha coefficient”, where “alpha” (α) represents the population of the extra earnings of the educated, which is assumed to be due to education
Regression analysis and earnings function suggest that an appropriate value for the alpha coefficient is between 0.66 and 0.80 (Psacharopoulos, 1975).

More recently critics have gone further and have argued that education does not improve productivity by imparting necessary knowledge and skills, but simply acts as a screening device, which enables employers to identify individuals who possess either superior innate ability or certain personal characteristics, such as attitudes towards authority, punctuality, or motivation, which employers value and which are therefore rewarded by means of higher earnings. This argument is called by various names in literature, including the “screening” or “filtering” hypothesis, or alternatively the “certification” or “sheepskin” argument, since it is suggested that education simply confers a certificate, diploma, or “sheepskin”, which enables the holder to obtain a well paid job without directly affecting his or her productivity.

Even if the “strong” version of the screening hypothesis is rejected, it is difficult to see why a cheaper means of identifying workers with desired characteristics has not been developed if education really had no effect on productivity. It is nevertheless true that the idea of education as a screen or filter has been important in influencing recent directions in research in Economics of Education. Screening hypothesis will be seen to have marked a turning point in the “human investment revolution in economic thought”, a turning point to a richer, still more comprehensive view of the sequential life cycle choices of individuals (Blaug, 1972). The reason why the screening hypothesis is important is that it has focused attention on the precise way in which education or other forms of investment in human capital influence
productivity, and has served as a reminder that education does far more than impart knowledge and skills. The reason why employers continue to prefer educated workers is that not only does the possession of an educational qualification indicate that an individual has certain abilities, aptitudes, and attitudes, but the educational process helps to shape and develop those attributes. In other words, it is now increasingly recognized that education affects attitudes, motivation and other personal characteristics, as well as providing knowledge and skills. This means that the concept of investment in human capital is still valid, but it must be extended to include activities which affect personal attributes as well as skills, and it must recognize that such activities increase workers’ productivity in complex ways.

2.4.3 OTHER FORMS OF INVESTMENT IN HUMAN CAPITAL

Other forms of investment in human capital also develop the personal attitudes that help to determine a worker’s productivity. On the job training and work experience and the process of job search, including migration, as well as health care, can all increase capacity, and can therefore be regarded as investment in human capital. Recent researches suggest that all these different forms of human capital formation are interrelated. For example, education, health and improved nutrition interact in their effects on income. Moreover, education and training can increase the profitability of other forms of investment, for example, agricultural extension programmes (Psacharopoulos, 1981).
2.4.4 MEASURING THE RATES OF RETURN TO HUMAN CAPITAL

When economists refer to expenditure on education and training investment in human capital, they are doing more than pointing to analogies between education and investment in physical capital. They are asserting that it is possible to measure the profitability of investment in human capital using the same techniques of cost-benefit analysis and investment appraisal that have been traditionally applied to physical capital.

The profitability or rate of return on investment is a measure of the expected yield of investment in terms of the future benefits, or income stream generated by the capital, compared with the cost of acquiring the capital asset. Cost benefit analysis designed to express all the cost and benefits associated with an investment project in terms of a single figure, the rate of return which shows the rate of interest at which the present discounted value of future income is exactly equal to the present discounted value of costs. This enables different projects to be compared. An optimum investment strategy consists of identifying and investing in projects offering the highest rate of return or profitability.

If money devoted to education, training and health care is regarded as investment in human capital, since it raises the lifetime earnings of workers. The techniques of cost benefit analysis can be used to compare the economic profitability of different types or levels of education. It should also be possible to compare rates of return to investment in human capital and physical capital in order to discover whether it is more profitable to invest in man or machines.
Investment in human capital produces benefits both to the individual and to society as a whole. The individual who takes part in education or vocational training benefits by increased chances of employment and by increased lifetime earnings. These additional earnings after allowance for payment of taxes can be compared with the direct and indirect costs of education that must be borne by the individual. This provides a measure of the private rate of return to investment in education or other form of human capital. Both the costs and benefits of education also affect society as a whole since society benefits from the increased productivity of educated workers. The costs and benefits of society can be compared by means of the social rate of return.

The question of the profitability of different types and levels of education and training, and the question of the relative yield of investment in human capital and physical capital have attracted a considerable amount of research activity since the 1960s, as well as provoked fierce disagreements among economists and educational planners. Psacharopoulos reviewed attempts to measure the social and private rate of return to investment in education in 32 countries (Psacharopoulos, 1973) and more recently has twice updated this survey of research on the returns to education by analyzing the results of cost-benefit analysis of education in 44 and 61 countries respectively (Psacharopoulos, 1981).

Estimates of social and private rates of return to educational investment, based on surveys of the earnings of workers of different educational levels in 44 countries from 1958 to 1978 reveal, four underlying patterns Psacharopoulos (1981). They are (i) The returns to primary
education (whether social or private) are the highest among all educational
levels. (ii) Private returns are in excess of social returns, especially at the
university level. (iii) All rates of return to investment in education are well
above the 10 percent common yardstick of the opportunity cost of
capital. (iv) The returns to education in less developed countries are higher in
relation to the corresponding returns in more advanced countries.

2.5 EDUCATION AND PRODUCTIVITY

The relationship between education and schooling has been widely
studied both at theoretical and empirical level. The relationship is simple to
state: more educated people enjoy a higher level of earnings than people
with lower levels of education. However, people with the same level of
education do have different earnings depending on their race, gender,
ethnicity, ability and social background. This characteristic of earning
structure seems to hold good regardless of the level of development of the
economy and the institutional setting. Thus it is hardly surprising that many
scholars since the late 1950’s have been studying education and earnings in
an effort to understand fully the economic factors underlying the empirical
observed facts. Theoretical discussion has mainly investigated the possible
reasons for earning differentials among differently educated people.
Empirical studies have attempted to test the different theories and at the
same time to measure to earning differentials due to education.

The economic case for educational investment hinges on the
assumption that education contributes to increased worker productivity
(Schultz 1961). Since productivity differences among workers are difficult
to measure, economists have argued that in competitive Labour / product
markets, marginal productivity equals wages. They have relied on earning differences as a proxy for such productivity increases and have shown that more education does, indeed, appear to be directly related to such earnings differences (Blaug, 1972). Earning based weights have then been used to measure education’s contribution to output and economic growth (Dension, 1964). However, using the earnings proxy assumes away, the issue of whether earnings accurately measure productivity, or whether, more education actually leads to higher productivity.

2.5.1 CONTRIBUTION OF SCHOOLING TO ECONOMIC OUTPUT

The International Encyclopedia of Education (2003) presents five major explanations of why schooling contributes to higher productivity. These are outlined below.

i. Human Capital Explanation

The original human capital discussion of educational investment argued that something happens in school that results in improved economic performance for those who have schooling, and especially for those who complete levels of schooling. In other words, individuals acquire skills from schools that enable them to produce more. These skills are directly related to the characteristics that labour needs so as to use other production inputs, namely capital and land, more efficiently.

ii. Disequilibrium Explanation

This reasoning had shifted by the mid-1970s to what Theodore Schultz called “adjusting to economic disequilibrium” (Schultz 1972). He found that farmers with more education viewed higher gains in income from
the use of other resources (more efficient allocation of reasons) and then went on to argue that farmers with more education also adjust more rapidly to technological changes. They tend to adopt the new technology sooner and are more likely to make the economic changes dictated by the new technology so as to increase their income. This ability to adjust to change and to adopt new ways of doing things, is the result of skills acquired in school, although it should be noted that, in these studies, it was farmers with university education who did significantly better during the process of technological change.

iii. Skills Explanation

A third explanation is that higher productivity skills acquired in school are fundamental for a person to function effectively in modern production organizations (Bowman and Anderson 1965). These skills are the ability to perform basic mathematical operations and the ability to read and write. These are the communicative arts of modern society. For traditional societies the initiation of youth into adult roles enabled those societies, to reproduce their culture and their economic survival. For modern societies, Numeracy and Literacy serve much the same purpose. These skills help people to produce material goods more effectively; especially where following directions and making judgements in work are concerned. Such qualities in the work force improve productivity and therefore economic output.

iv. Organizational Explanation

A broader version of the explanation is that schools as organizations socialize young people into functioning effectively in modern society. This
explanation argues that, by virtue of their very structure and the kind of behaviour they demand from children, schools and classrooms prepare them to function well in employment situations. As “modern institutions”, schools teach children to work in response to modern stimuli and inculcate in them values and norms that are consistent with productive behaviour in factories. Schooled youth become more competent to deal with the requirements of an urban industrialized society and with its institutional organizations. By teaching young people how to be effective in modern organizations, schools help them to respond more quickly, willingly, and predictably to demands from supervisors. In addition, a schooled youth may learn how to work effectively with others in an organizational setting – to be what is known as a “team player” – since that type of behaviour is also rewarded in school.

v. Tenability Explanation

Some studies argue that what is learned in school – whether cognitive skills or certain types of behaviour – is not nearly as important to future productivity as simply succeeding at what school demands. Success may mean learning the skills that school requires the child to learn or completing a particular level of schooling. The very fact of “success” in school symbolizes social approval. It suggests that the young person is more likely to do well in the society beyond the school. This conforms to the argument that education is a “filter,” but even if it is a filter, success in school may centre a sense of probable success on the job. As long as this message is confirmed by experiences after graduating from school, such as being able to earn a livelihood, it makes individuals easy to convince that they can learn new tasks, make appropriate decisions and choices, and assume
responsibility. These are all characteristics of a highly productive person. Some would define these characteristics as “Trainability” or “learnability”. People who are successful in school are those who have shown that they can learn new things and carry them through. According to this argument, more education is related to higher productivity to the degree that it makes a high fraction of children “Successful” in school.

2.6 NEXUS BETWEEN EDUCATION AND ECONOMIC GROWTH

Education and Economic Growth of a country are inter-related and interconnected. Education promotes Economic Growth and is in turn influenced and induced by Economic Growth. The attainment of high steady rates of Economic Growth measured by the growth rate of Gross National Product has been important goal for many countries. In attempting to understand the growth process, economists have examined the relative importance of various factors, including education, in the growth process.

The impact of education to growth is presumed to occur through its ability to increase the productivity of an existing labour force in various ways, including both technical training and general education. But exactly how education increases productivity, how important it is, and in what ways it is important are difficult questions that remain unsettled. While a shortage of educated people might limit growth, it is not clear that prompting education will foster more rapid growth. Furthermore, it is not clear what kinds of education are best in assisting growth. general formal education and technical training or informal education related to specific jobs.

It is observed that countries that have higher levels of income also have higher levels of economic attainment, but this cannot be interpreted to
mean that education is a necessary cause of higher levels of output and income. Education is both an investment good and consumption good: As income grows people demand more education, and can afford more education, both for themselves and more importantly for their children. Whether this education contributes to raising productivity is a debatable point. Education may become a kind of screening device used by employers to make decisions. Faced with a large number of applicants for a given job, an employer tends to narrow his or her options by looking seriously at those with the highest levels of education, even though high levels of education are not necessary for the job. As a result the education level required to gain entry into certain jobs tends to more upward overtime with little or no change in basic productivity.

In short, there exists a strong positive relation between human capital improvements and growth. Formal education is a major, but not the sole factor in improving human capital, which includes worker training and experience, as well as health and nutrition. Human Capital variations appear to be a major element in explaining differences in productivity and productivity growth between countries. It is possible to have too much investment in education, just as it is possible to have too much investment in plant and machinery. The higher rates of return to education in developing countries suggest that investment in education makes most sense where the supply of educated labour is relatively scarce. However, developing countries appear to have made too much investment in higher education and too little in primary education. Over investment in education also appears a potential problem in some of the developed countries, such as the United
States, whose current enrollment rates for higher education (60 per cent) are double those of countries like Sweden and Japan. Over investment of this type is a particular problem in countries that subsidize higher education; and where, as a consequence, the private returns to education are substantially higher than the social returns.

2.6.1 CONTRIBUTION OF EDUCATION TO ECONOMIC GROWTH

The contribution of education to economic growth can be divided into two – Direct and Indirect. Direct contribution can be observed in productivity, employment, composition of labour force, division and mobility of labour, etc. Indirect contribution of education in economic development is that it affects thrift, savings, limitations in the size of the family and the formation of the right kind of attitudes and skills.

2.6.1.1 DIRECT CONTRIBUTION

Education plays an important role in increasing productivity. It is supposed that the investment in education of an individual, the current earnings or his lifetime earnings will increase. So also with the possession of education by the people the national output of a country increases.

It is very difficult to calculate the difference in earning to attribute a portion of it to education. The difference in earnings can be due to a good number of factors such as age, caste, family background, on the job training, job opportunities, political affiliations social and cultural circle of the parents, etc. Further the specific contributions of education, the type of education formal, non formal and informal and the contents of education cannot be worked out separately. Due to certain technical shortcomings it is
difficulty to find out a statistical technique, which should clearly indicate the contribution of education to productivity. Goel (1975) remarked “The contribution of education may not be proved statistically, but that does not mean that education does not aid productivity and innovation.” A good, efficient and relevant system of education will always yield positive return to the individual in the form of higher wages and to the society by way of greater productivity so long as it is responding in response to felt needs and requirements of the economy and the state of technology. Through its objective of the preservation and transmission of knowledge education removes some of the obstacles to economic and social development. Knowledge increases the power of reasoning and the ability to analyse related facts and events in their proper sequence, to draw inferences and to apply the conclusions to be given to new situations. Even functional literacy as distinguished from formal education, transforms a closed community into one with access to modern ideas, media of mass communication, the process of social change and the fruits of modernization. Related to productivity aspect education also leads to researches, inventions and innovations. The new knowledge thus created will lead to new techniques and new instruments, which further increases the capital formation process. Education not only increases the productivity of the educated worker, but it also raises the productivity of neighboring labourers by providing an important role model.

In the process of economic development education increases the employment potentialities of people. For rapid economic development the labour force is to be equipped with necessary technical skills for modern
industrial production and should also be imbued with a philosophy conclusive to the acceptance and promotion of economic and technical change. It is essential to develop the human capital as it acts upon the material capital, which leads to a substantial increase in productivity.

In the field of employment human capital works in many ways. With the increase in economic activity the chances of placement in gainful employment also increase. It also leads to technological changes where the changes in the pattern of employment also take place. Most of the manual labour is changed into skilled labour. This being a major change in the work participation rate. Education also affects the composition of labour force. The replacement of child labour by adult labour results in the welfare of the people. The occupational structure of the society can be thoroughly changed. More sophisticated and technical occupations have come up to replace the customary occupations. In the world of occupations a type of revolution takes place when the society transforms from agricultural base to industrial pattern to automation pattern and also automation society is replaced by cybernetic society. Therefore it is essential for the educational system of any nation to cope with the occupational needs of the society. For such type of educational built-up, it is fundamental to have first the basic and foundational education and then to get specialized, technical, mechanical, professional; or vocational education. This leads to the demand for universalisation of foundational education, which again becomes the basic need for economic development.

Education contributes to economic productivity by way of forming right kind of attitude towards work and life. In India there is a craze for
“white collar jobs”. The increase in education with lowering of standards and failure to keep a balance between educational and economic development in the country created situations such as lack of job satisfaction, unemployment and under employment. According to a study conducted by Directorate General of Employment, and Training, on the pattern of graduate employment, based on a sample survey of graduates of India, 24.4 per cent of commerce graduates were underemployed in clerical and related jobs which were mostly meant for matriculates. This adds to the frustration and difference on the part of workers as they are placed against lower category of jobs than their educational qualification. Therefore the creation and development of proper values among the students is essential for bringing up proper economic development in the country.

Emphasizing division of labour, Goel (1975) remarked “By promoting division of labour and specialization, education brings about optimum combination of the factors of production. In any public or private sector undertaking body we find specialists dealing with accounts auditing, sales advertising, production, supervision and management, just as we find specialists within each group or line of economic activity; a situation that will be inconceivable were it not for the wide spread influence of education in modern communities. This implies that labour can no longer be treated as a homogenous commodity, as was done by the classical economists, since every unit of labour is different from the other unit by training, skills and specialization. The fact that education enables us to bring about an optimum combination of the factors of production has great significance for a country like India, above population is in excess of the natural resources and has
therefore, to be used relatively more in any combinations of the factors of production”.

Education accelerates the process of labour mobility, among different geographical areas, which contributes to economic development, labour concentration, in the process of industrialization, is to shift the population from area to another area. The heavy industry when installed employs persons from far-flung area. This is done by the illiterate labour also, but mostly with the higher level the mobility of labour increases, which helps to improve the economic welfare of all.

2.6.1.2 INDIRECT CONTRIBUTION

In an educated society the size of the families are planned on the basis of several considerations. In order to have a smaller family and higher standard of living, people marry late and accept family planning measures. This keeps the population under control and the economic development process is accelerated. An educated society generally has a lower rate of population growth. This is because education often leads to higher income, greater liberation and empowerment of women, more uninhibited access to family planning measures thereby resulting in smaller families. While education leads to a lower population growth rate a decline in the fertility rate in turn reduces future stresses on the educational system. With a declining or slowly growing school-age population, a country can increase spending to provide more years of schooling on better quality education. This is a spill over benefit of education.

Education is associated with better health outcomes and there is a strong correlation between literacy and life expectancy or longevity. At
home, education has a greater effect on family welfare. Studies in demography, economics, medicine and anthropology have found a strong link between schooling and decrease in the incidence of mortality rate. Survey of 25 developing countries shows that all factors being equal, one to three years of schooling can reduce child mortality rates by 15 percent. Further, these results show that an added year of education for a mother is associated with a reduction of five to ten per cent in child mortality. It is observed that the educated parents have healthier children in general. Greater schooling also appears to lead to better hygiene, improved nutritional practices and greater effectiveness in caring for the family health. Studies have shown that children of educated parents have a lower risk of infection because they are more likely to be immunized, have better hygiene in household and better nutrition. Education may also persuade various family members to spend more on food and medical care than on drinking and gambling. There is a particularly close correlation between parental education and infant mortality. Almost all empirical studies suggest that child immunization rates increase and infant morality rates drop sharply as parent’s education increases, particularly the education of mothers. In addition, historical evidence indicates that as primary education becomes universal, the extent of child labour also declines dramatically. Several empirical studies have established a close and positive relationship between improvements in education and health.

The role of education in reducing absolute poverty is decisive. Many research studies carried out in 1980’s concluded that rising levels of education in a society were often accompanied by a sharp decline in absolute
poverty. When poverty levels were correlated with such variables as mean years of schooling, adult literacy, and gross enrolment rates, it was clearly established that absolute poverty declines as education increases. The poverty reduction impact of education is the highest in rural areas. It is these broader influences of education, beyond merely the economic rates of return, which make investment in education such a critical decision for every society.

Investment in human capital remains a controversial issue. Attempts to measure the rate of return to investment in education have been attacked by critics who argue that education does not increase the productive capacity of workers but singly acts as a “screening device” which enables employers to identify individuals with higher innate ability or personal characteristics which make them more productive.

2.6.2 ASSESSING THE CONTRIBUTION OF EDUCATION TO ECONOMIC GROWTH

For a long time economists have been trying to find out a suitable method to determine the contribution of education to economic growth. One of the hallmarks of the burgeoning literature is the variety of approaches that have been developed. The variety of stacks taken can be regarded as a tribute to the inventiveness of the profession, as an index of the complexity of the problems or as an indicator of the fact that we simply do not know as yet how best to proceed (Bowman, 1962).

Four main approaches are used to measure the economic contribution of education. They are:
(i) Simple Correlation Approach

(ii) Residual Approach

(iii) Rate of Returns Approach

(iv) Forecasting Manpower Needs Approach

(i) Simple Correlation Approach

Under this approach, the correlations of some overall indices of educational and economic activities are found out to show the relationship between education and GNP. The most widely used indices of educational activity are the ratio of literates to total population, enrolment ratio to specific age group, and per capita expenditure on education. Economists like Edding and Svennilson have correlated enrolment ratios and GNP per capita and have found that there is a positive correlation. In this method the educational and economic growth of several countries may be compared and useful lessons can be derived (inter-country comparison). It is also possible to correlate educational expansion with economic growth over a period of time (inter-temporal correlation). Another method is to compute the educational level of workers in a firm, provision for research and development and profitability of the firm compared with other firms in the industry (inter-firm and inter-industry correlation). The correlation approach is the simplest approach to view educational and economic progress. But one of the fundamental objections to this approach is that the Education - GNP correlation does not tell us anything about the casual relationship between them. This is mainly due to the time problem in estimating returns from education. Generally the returns from education takes time and again it may
continue for a long period. Hence this approach is misleading (Sheehan, 1973).

ii. Residual Approach

In this approach total increase in economic output of a country, over a given period of time is taken into consideration. The increase is then attributed to the measurable inputs such as capital and labour. That is the residual is reckoned as the contribution of education. The residual portion also includes economies of scale, improvement in the health of the working class, changes in product mix, improvements in the quality of capital assets and reorganization of the economic order.

Following this approach Correa (1962) and Dension (1964) worked on the growth of U.S economy for 68 years, between 1889 and 1957. He observed that while the combined output index increased by 3.5 percent per annum the combined input index increased at an average rate of 1.9 per cent per annum. This left the residual increase of 1.6 percent per annum. The contribution of residual can be expressed as percentage of the increase in total output also. Here it is possible to attribute 80 per cent of the increased output per unit of labour input to the residual with only about 20 per cent being attributed to increase in the stock of physical capital.

The study conducted by Correa (1962) to find out the contribution of education to increase in GNP in the U.S. showed that 31 per cent of the increase of private non-farm GNP between 1909 and 1949 is attributable to labour capital inputs, 5.3 per cent to increments in education of the labour force, 4.4 per cent to improved working capacity due to health improvement and 59.3 per cent to technological progress.
Economists found residual factor as an effective determinant of economic growth although the exact nature and composition of this residual is not commonly agreed upon. A good deal of economists worked in this context and established a positive association of the residual factor with economic growth. But the residual approach has its own limitations. The inter–relationship between capital formation technology and the growth of knowledge may include some capital assets also. Their contribution is important than education. In this approach, there is no distinction between formal an informal education and the differences. However the effort has the merit of drawing the attention of economists and policy makers to the contribution of education to national output.

iii. Rate of Returns Approach

The Rate of Returns Approach concentrates the life time earning profiles of persons with different levels of education. The difference in life time earning can be expressed as annual percentage rate of return on the cost involved in obtaining the education. There are two types of rates of return (1) Private rate of return and (2) Social rates of return. In the calculation of private rate of return, earnings are taken exclusive of income tax and in social rates of return; earnings are reckoned inclusive of income tax.

There are two types of estimation regarding the rate of return investment in education. One method is to calculate the returns to the individuals’ investment in education by comparing the costs incurred by the individual and the returns received by him as a result of his education. The resulting rate is termed as private rate of return. The second method is to derive the social rate of return by taking expenditure on education as a social
investment and to calculate the cost incurred by and the returns accruing to society (Vaizey, 1973) Various studies, Schultz (1961), Becker (1964), Psacharopoulos (1973) have estimated the social and private rates of return to investment in education and revealed that rate of return varies according to the levels of education between countries. They also maintained that the returns of education in less developed countries are higher than the returns in more advanced countries. Blaug (1970) in his rate of return analysis of education found that private rate of return are almost always higher than the corresponding social rates of return. A number of studies were undertaken in India too on the rate of return on education. All major studies highlight the social and economic value of education.

There are certain difficulties in using this method. It is difficult to predict the future income of a person and also to find out the consumption component of his education. The income of a person is increased by various factors such as intelligence, ambition, family connections, differences in the level of education attained, etc. In spite of its limitations this approach permits comparison of costs with benefits and also to examine the effect of ability differentials on earning differentials.

iv. Forecasting Manpower Needs Approach

In this approach the ratios among various categories of workers in countries at different levels of development are studied to find out the correlation between education and training on the one hand and economic growth on the other. Manpower forecasting for the future is essential to eliminate the imbalance between demand for and supply of trained labour. It is a sound policy to plan the output of educational institutions to cater to
the actual needs of the employing agencies so that there will be neither unemployed persons nor vacant posts. It is helpful to reflect on how much resources are devoted to education and training. Most of the countries adopted this method to plan educational programmes based on their manpower needs in the future. It is however, very difficult to have projections of manpower for future developmental activities due to the delicate problems involved in it, yet it can be predicted in a more or less scientific way, the advice becomes very useful to the practical policy makers. On the other hand, if the projections are not well planned or does not come to be true, the position becomes more embarrassing.

From the theoretical overview, it can be concluded that education plays an important role in the development of human resources which in turn lead to economic growth. The details of the related studies are given in chapter three titled “Review of Related Literature”.