UNIT 5 : HUMAN CAPITAL APPROACHES TO EDUCATION

UNIT STRUCTURE

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5.1 LEARNING OBJECTIVES

After going through this unit, you will be able to

- explain the concept of human capital and discuss its sources
- distinguish between human capital and physical capital
- describe how human capital is formed in India
- understand the theory of human capital of Gary Becker
- discuss the different approaches to human capital

5.2 INTRODUCTION

Human capital is one of the most debated topics in social sciences particularly in economics and education in the last couple of decades. The

concept of human capital came into limelight in 1960s when an American economist Gary S. Becker published a book on human capital with the title 'Human Capital' (Becker 1964). Human capital refers to the fact that human beings invest in themselves by means of education, training and skill development and other activities like improving health condition, which raises their future income by increasing their lifetime earnings. According to Gary S. Becker, human capital as a form of investment by individuals in education up to the point where the returns are equal to the costs of participating in education. Returns are both private to the individual in the form of additional income and to the general society in the form of greater productivity provided by the educated (Becker G. S. 1964). With similar views, Schultz also opined that human capital is the knowledge and skills that people acquire through education and training and that this capital is a product of deliberate investment that yields returns (Schultz T .W.1961). Thus, human capital includes the natural ability, innate and acquired skills, knowledge, experience, talent, inventiveness in an individual. All these characteristics are components of the human capital. The essence of human capital creation lies in the belief that spending money at present shall help in procuring benefits in future. Forms of increasing the value of human capital are expenditure allocated on health, safety, science, research and education.

5.3 DIFFERENCE BETWEEN HUMAN CAPITAL AND PHYSICAL CAPITAL

The subtle definition of capital makes it very difficult to differentiate human capital from physical capital. However, some of the most important differences between human capital and physical capital can be discussed with the following table:

Human Capital	Physical Capital
(i) Human capital refers to investment in education, health, on-the-job training and other activities which increases labour productivity.	(i) Physical capital, on the other hand, refers to investment in factories, machinery, equipments etc. which increases further production.
(ii) Human capital is intangible and cannot be sold in the market.	(ii) Physical capital is tangible and can be sold in the market.
(iii) Human capital is not separable from its owner.	(iii) But, physical capital is separable from its owner.
(iv) Human capital can be coped (adjusted) with new technology.	(iv) But physical capital becomes obsolete when new technology arrives.
(v) Human capital provides both private and social benefits.	(v) But physical capital providesonly private benefits.

5.4 SOURCES OF HUMAN CAPITAL FORMATION

The sources of human capital formation are nothing but the factors through which human capital can be formed or created. There are many sources of human capital. Some of the sources are given below:

- **Investment on education:** Investment on education is the most important source of human capital because expenditure on education by parents increases the future income of their children. The income or salary of highly educated persons is much higher than the uneducated persons.
- **Investment on health:** Like education, health expenditure is also an important source of human capital. The productivity of a healthy person is much higher than the sick person. A sick labourer without access to proper medical facilities is compelled to abstain from work, which leads to productivity loss. Hence, the expenditure on health is an important source of human capital formation.

  On-the-job training: Many employers of business firms impart training to develop the skills of their labour force. The benefit of this type of on-the-job training is much higher than the cost of the training because it enhances the productivity of the labourers.
- **Information cost and migration:** Information cost is another source

of human capital. Now a day, there are many opportunities for a highly skilled labour but there is information cost to gain these better opportunities because the person has to acquire information about the labour markets and other markets. Sometimes, the highly skilled person migrate from his or her home country to a foreign country in search of better jobs particularly from the developing countries (like India) to developed countries (like USA, UK etc).

5.5 HUMAN CAPITAL FORMATION IN INDIA

So far, we have learnt that human capital formation is the outcome of investments in education, health, on-the-job training, migration and information. Of these, education and health are very important sources of human capital formation. In India, human capital formation is slow and appalling because of low investment on education and health compared to the developed countries. Provision of basic education and health care are the responsibilities of the state and centre in a country like India. In India, the ministries of education at the union and state governments, departments of education and various organisations like National Council of Educational Research and Training (NCERT), University Grants Commission (UGC) and All India Council of Technical Education (AICTE) etc. regulate the education sector. Similarly, the ministries of health at the union and state level, departments of health and various organizations like the Indian Council for Medical Research (ICMR) regulate the health sector.

5.6 GARY BECKER'S THEORY OF HUMAN CAPITAL

As mentioned above, the concept of human capital came into limelight in 1960s. The American economist Gary S. Becker was one of the founders of the concept of human capital. Becker published a book on human capital with the title 'Human Capital' (Becker 1964). According to Becker, expenditure on schooling, health, on-the-job training or skill development and even labour market information is one type of investment, which in-

creases future earnings of the individual. In this theoretical framework, an individual forgo current earnings and incur direct costs in return for higher earnings in future. Becker and other proponents of human capital who encouraged a tremendous amount of empirical work, and who generally supported the implications of the human capital, recognised that high levels of knowledge and skills are essential for the future success of an individual. Thus, spending on education is increasingly considered an investment into a collective future, rather than simplyas individual consumption. However, the economic view of education traditionally has employed the concept of human capital framework developed by Becker. Thus, the effects on earning due to investment in human capital in schooling, health and on-the-job are the main essence of the theory.

On-the-job training

On-the-job training in Becker's theory of human capital was discussed so elaborately because it clearly determines the effect of human capital on earnings, employment and other economic variables. The workers' productivity directly depends on the on-the-job training in a firm. Moreover, it is one of the most important kinds of investment in human capital and its importance is often underrated.

Suppose, the labour and product markets are perfectly competitive and the firms are hiring employees for a specified time period. If the firm is profit maximising and there is no on-the-job training in the firm, the equilibrium condition is that when expenditures on labour or wage (W) total is equal to the marginal products or receipts (MP) in each time period. Symbolically,

$$MP = W \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

If the time period of employment is 'n' years and the market rate of discount (or rate of interest) is 'i' during the time period, then the equation (1) can be expressed as below:

$$\sum_{n=0}^{n} \frac{MP_n}{(1+i)^{n+1}} = \sum_{n=0}^{n} \frac{W_n}{(1+i)^{n+1}}$$

……..(2)

Now, suppose there is on-the-job training in the initial period and the total expenditure on the training is 'k', then the equation (1) will be as follow:

MP0 =W0+ k

where k is expenditure on training.

Therefore, the after the introduction of on-the-job training (k), the equation (2) can be expressed as below:

$$MP_0 + \sum_{n=1}^{n} \frac{MP_n}{(1+i)^n} = W_0 + k + \sum_{n=1}^{n} \frac{W_n}{(1+i)^n}$$

$$=> \; MP_0 + G = W_0 + k$$

…….. (3)

Where

$$G = \sum_{n=1}^{n-1} \frac{MP_n}{(1+i)^n} - \sum_{n=1}^{n-1} \frac{W_n}{(1+i)^n}$$

However, there is an opportunity cost of the training as well as of production because the time of training can be used to produce goods. Hence, if the opportunity cost is added into 'k' and 'MP', suppose it is 'C' and MP/ respectively then the equation (3) can be expressed as,

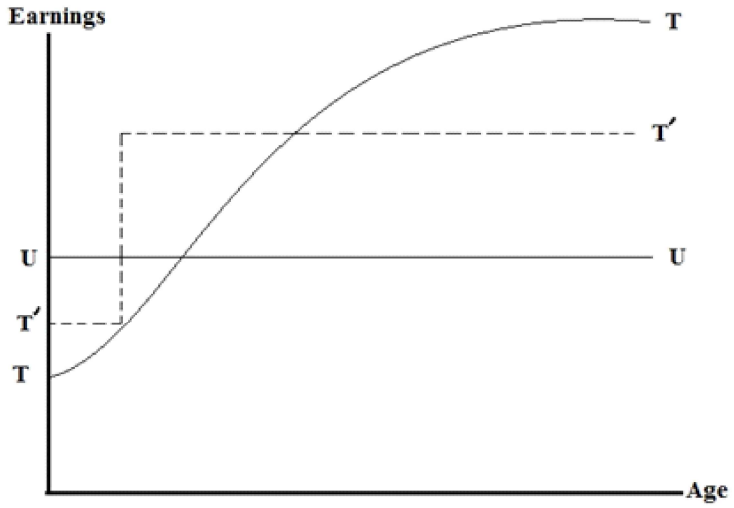
$$MP_0^{'} + G = W_0 + C$$

…… (4)

Thus, in the equation, the term G indicates the excess of future receipts over future costs and it is a measure of return to the firm from training. Hence, the difference between G and C is the return from and cost of training. From the equation (4), it is seen that the marginal product will be equal to wages if G equals C, which means it returns equal costs. It will be greater or less than the wages when the return is smaller or greater than costs.

This impact of training on earnings can be depicted with the help of the following figure (Figure 5.1).

Figure 5.1: Relation between Earnings and Age



In this figure, the relation between earnings and age has been shown. The UU line shows earning of untrained individuals, which is a straight line because untrained individuals earn the same amount of wage throughout their life. But, for trained individuals, the relation between earning and age can be depicted with the TT curve because for these individuals the curve is below the UU and it sharply rise above UU line after the completion of training and the individual earns higher income in the future. This impact of

earnings on age is shown with the help of dashed TT line for the trained individuals.

Moreover, according to Becker there are two types of on-the-job training- general training and specific training. General training is the type of training which is useful in many firms besides those providing it. For example, a doctor trained at one hospital may find his skills useful at another hospital. Thus, the training of a doctor is a general training. General training increases the marginal productivity of the trainees by exactly the same amount in the firms providing the training as well as in other firms. On the other hand, specific training is the type of training that increases productivity more in the firms providing it and less or no productivity in other firms. For example, training of the military (army, police etc.) is useful in the defence services but less or totally not useful in other sectors.

Schooling

According to Becker, a school is an institution which specialises in the production of training whereas a firms offers training in conjunction with the production of goods. Thus, schooling provides general training, which increases the productivity of the trainees or students, which in turns raise their earnings in future and make them contribute to economic growth. Thus, schooling has the same kind of implications as in case of general on-the-job training. Moreover, schooling also steepens the age-earning relation. Moreover, like schooling, investment in information and other knowledge also increases the real income. Information about price changes and wage rates offered by different firms enables an individual to get the highest paid job. In addition, information about the political stability and social system and their effects of different parties or social arrangements can also raise real income.

Investment on health

Investment on health is also one of the important determinants of im-

proved human capital as considered by Becker. Now a day, better emotional and physical health is considered important determinants of earnings in all parts of the world because it has a significant influence on earnings. But health like knowledge can be improved in many ways. A decline in the death rate at working ages may increase earnings by extending the period during which earnings are received. In addition, a better diet adds strength and stamina thus enhances earning capacity of individuals. The better working condition with clean and hygienic workplace, coffee breaks and so on can affect the morale and productivity of the workers.

5.7 APPROACHES TO HUMAN CAPITAL

In principle, there are two approaches to understand the nature and importance of human capital-microeconomic approach and macroeconomic approach. However, both the approaches perceive human capital as one of the factors of production, which in turn leads to economic growth.

5.7.1 Microeconomic Approach

The microeconomic approach to human capital recognizes human capital as one of the factors of production. In microeconomic view, there are two basic approaches- business approach and managerial approach. According to the business approach, human capital is considered one of the factors of production which includes material, property, and human labour-all of which also cost to the company. However, the human capital is intangible and functions indirectly. It is the qualitative aspect of human labour as the factor of production. On the other hand, the managerial approach sees human capital as a business resource or asset and the knowledge capital, which forms part of the market value of the company. This approach also sees human capital as one of the factors of production and sources of economic growth.

5.7.2 Macroeconomic Approach

According to Becker, economic growth cannot be explained by the growth of physical capital and technological innovation alone. Investing in people (human capital) is the main source of economic growth in a modern economy. The macroeconomic approach sees human capital as one of factors of production and sources of the economic growth and it is achieved through extensive and intensive use of factors of production. Thus, we come across extensive and intensive economic growth.

Extensive economic growth is the result of increasing the quantity of used production factors, which are land, labour and capital. Though we know that there are four factors of production, the fourth factor of production is entrepreneurship or organisation, which combines all the three factors land, labour and capital for final production. In economics, these factors of production have different meanings. Firstly, land as a factor of production includes all components of the natural environment. This source is often used for marking natural sources but some economists tend to connect this factor with capital. It was the decisive factor of production to achieve growth in the period before the Industrial Revolution. Secondly, labour means the total labour force employed in a firm. Thus, labour is another source of economic growth, which is achieved through the increase of the labour force. It is influenced by demographic trends, amount of labour force, scientific and technical progress level, the social division of labour and labour productivity in various sectors. Presently, modern technologies require fully skilled workers for the operation and maintenance. Therefore, it is necessary to increase the labour force qualification. Thirdly, capital is a rare resource. Capital consists of those durable goods that are in turn used as productive inputs for further production. Thus, the term capital is very wide and includes buildings, machinery, equipment and technology. It also includes human capital and hence capi-

tal is a source of economic growth. However, in the 1980s of the 20th century, the economists demerged capital on physical and human capital due to the inevitable importance of human capital.

Unlike the extensive economic growth, intensive economic growth is caused by the increase in production per unit of input. This type of economic growth is influenced by the quality, efficiency and manner of combining production factors. The intensive growth factors include the technical progress and increase of the total factors productivity. The intensive growth factors include the technical progress and enhancement of the total factors of productivity. The determinants of aggregate productivity factors are the level of work, organisation, technology, technical support, the level of education, motivation of employees to increase their performance and also the natural and soil conditions. In the current period, which is characterised by rapid and extensive introduction of technical innovations, education is the most important factor. It contributes to the technological progress, factors of productivity growth, increasing value of the human capital and overall economic growth. New knowledge and skills must be adapted to the current needs and possibilities of concrete firms and economies in an innovative and creative way. Economists Th. Schultz and E. Denison emphasised that investments in education contribute to economic growth.

5.8 PROBLEMS OF HUMAN CAPITAL FORMATION

The growth of Europe and America has been based more on investment in physical capital than on human capital in their earlier phases of development. However, in the case of underdeveloped countries like India, the need for human capital in the form of educated persons in different vocations is greater to provide the missing components in the initial stage of their development. The major problems in human capital formation in India are:

- Rapidly growing population
- High rate of unemployment
- Shortage of persons with the critical skills and knowledge required for effective national development
- Inadequate or underdeveloped organizations and institutions for mobilising human effort
- Lack of incentives for persons to engage in particular activities which are vitally important for national development
- Lack of manpower planning
- Lowering of academic standards



5.9 LETS US SUM UP

- The concept of Human Capital came into limelight after the publication of the book 'Human Capital' by Becker in 1964.
- The concept of human capital has dominated the economics of education. Human capital has influenced the analysis of labour markets, wage determination and other branches of economics including the economics of growth, economics of health and study of migration.
- There are many differences between human capital and physical capital in terms of tangibility and social benefits etc.
- The sources of human capital formation are investment on education, health and on-the-job training. Moreover, information cost and migration are also the other sources of human capital.
- In India, human capital formation is supervised and managed by many central and state level institute and organisations like UGC, AICTE, ICMR, etc.
- The theory of human capital developed by Becker was discussed in details. According to Becker, investment on on-the-job training, education, health and information are the main determinants of human capital.
- There are two approaches to human capital-microeconomic approach and macroeconomic approach.

- However, the investment in human capital remains a controversial issue. The assumption is that higher human capital increases the earning capacity. However, the increase in the lifetime incomes was criticised by a host of economists. They argued that the higher earnings of the 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 rich family and higher social class in society and they tend to work in urban area rather than rural areas.
- The major problems in human capital formation in India are vast population, high rate of unemployment, lack of manpower planning etc.



5.10 FURTHER READING

1. Becker, G.S. (1964). *Human Capital.* Columbia University Press, New York
2. Becker, G.S. (1975). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. New York: National Bureau of Economic and Social Research.
3. Cohn, E. (1980). *The Economics of Education.* Ballinger, Cambridge, Massachusetts.
4. Schultz, T. (1963). *The Economic Value of Education*. New York: Columbia University Press.
5. Blaug, M. (1970). *An Introduction to the Economics of Education.* London: Allen Lane.



5.11 MODEL QUESTIONS

Q 1. Define the term human capital.

Q 2. What are the differences between human capital and physical capital?

Q 3. What are the sources of human capital? Explain.

Q 4. Write an essay on human capital formation in a country like India.

Q 5. Explain Gary Becker's theory of human capital.

Q 6. Explain the Microeconomic Approach to human capital.

Q 7. Explain the Macroeconomic Approach to human capital.

Q 8. Mention the problems of human capital formation in India.

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