**Unit Two**

**Human Capital: Education and Health in Economic Development**

***Pretest***

Dear distance learners, could you define human capital and outline its major components? From your general knowledge and your intuitive understanding, what kind of relationships do you expect to exist between development and human capital of a nation?

**2.1 Education and Health as Joint Investments for Development**

A longer life raises the return to investments in education; better health at any point during working life may in effect lower the rate of depreciation of education capital. On the other hand, greater education capital may improve the return to investments in health, because many health programs rely on basic skills often learned at school, including personal hygiene and sanitation, not to mention basic literacy; education is also needed for the formation and training of health personnel. Finally, an improvement in productive efficiency from investments in education raises the return on a lifesaving investment in health.

**2.2 Improving Health and Education: Why Increasing Income Is Not Sufficient?**

People will spend more on human capital when income is higher. But some evidences show clearly that even if we were able to raise incomes without a large improvement in health and education, we could not count on that income increase being used to adequately invest in children's education and health. The market will not solve this problem automatically, and in many cases, household consumption choices themselves may lead to a surprisingly small link between income and nutrition, especially for children. This small proportional response is due to two factors: Income is spent on other goods besides food, and part of the increased food expenditures is used to increase food variety without necessarily increasing the consumption of calories. If the relationship between income and nutrition is indeed quite low, as some studies suggest, then development policies that emphasize increasing incomes of the poor, without attention to the way these additional resources are expended within the family, may not lead to improved health and successful development more generally, at least not very quickly.

Health status, once attained, also affects school performance, as has shown in studies of many developing countries. Better health and nutrition lead to earlier and longer school enrollment, better school attendance, and more effective learning. Children with low height for their age, an indicator of undernutrition, have been found to lag in school grade attainment in many parts of the world. Thus, to improve the effectiveness of schooling, we must improve the health of children in developing countries. Indeed, advances in statistical methods are showing that the links from health to educational attainment in developing countries are stronger than had been believed until very recently. These effects are large for both boys and girls but especially so for girls.

Finally, there are other important spillover benefits to investment in one's health or education. An educated person provides benefits to people around him or her, such as reading for them or coming up with innovations that benefit the community. As a result, there are significant market failures in education. Moreover, a healthy person is not only less contagious but can also benefit the community in many ways that a sick person cannot. Because of such spillover effects, the market cannot be counted on to deliver the socially efficient levels of health and education. Thus, as the World Health Organization (WHO) concluded in its 2000 World Health Report on health systems, "Ultimate responsibility for the performance of a country's health system lies with government." Developing-country officials are drawing lessons from many studies that show the interrelationships among health, education, and incomes and are devising integrated strategies.

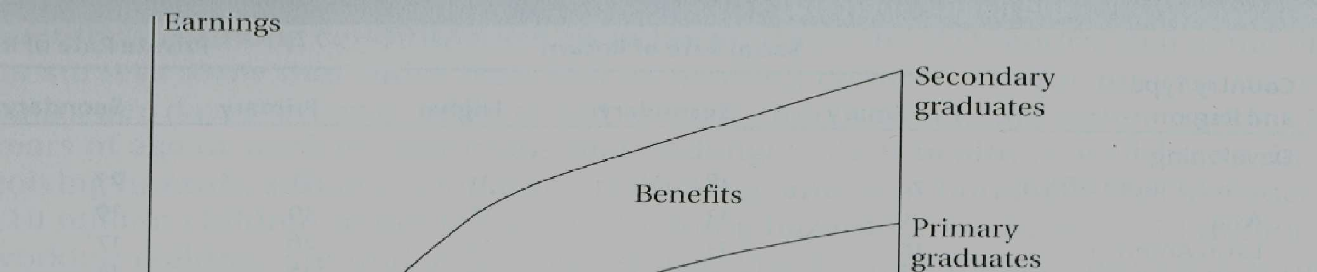
**2.3 Investing in Education and Health: The Human Capital Approach**

An analogy is made to conventional investments in physical capital: After an initial investment is made, a stream of higher future income can be generated from both expansion of education and improvements in health. As a result, a rate of return can be deduced and compared with returns to other investments. This is done by estimating the present discounted value of the increased income stream made possible by these investments and then comparing it with their direct and indirect costs. Of course, health and education also contribute directly to well-being, but the human capital approach focuses on their indirect ability to increase utility by increasing incomes. Formally, the income gains can be written as follows, where E is income with education, N is income without the extra education, t is year, and the summation is over expected years of working life:

= ∑***Et* *- Nt***

**(1+i)t**

An analogous formula applies to health, with the direct and indirect cost of resources devoted to health compared with the extra income gained in the future as a result of higher health (such as improved nutritional status).

***Figure 2:1: Financial Trade – Offs in the Decision to Continue in School***

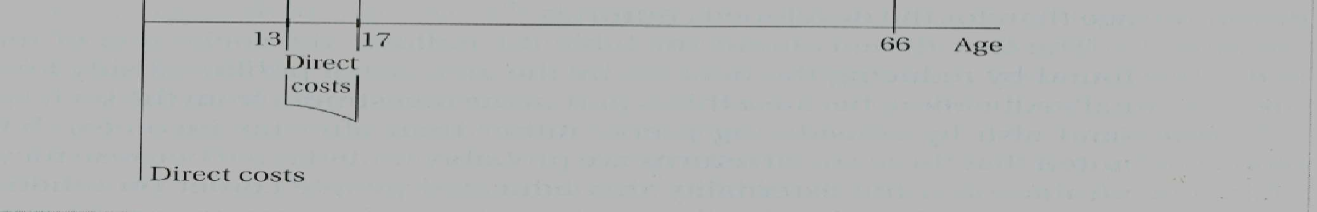


Figure 2.1 provide a schematic representation of the trade-offs involved in the decision to continue in school. It is assumed that the individual works from the time he or she finishes school until he or she is unable to work or dies. This is taken to be the current world life expectancy of 66 years. Two earnings profiles are presented-for those with primary school but no secondary education and for those with a full secondary (but no higher) education. Primary graduates are assumed to begin work at age 13, secondary graduates at age 17. For an individual in a developing country deciding whether to go on from primary to secondary education, four years of income are foregone. This is the indirect cost, as labeled in the diagram. The child may work part time, a possibility ignored here for simplicity, but if so, only part of the indirect-cost area applies.

There is also a direct cost, such as fees, school uniforms, books, and other expenditures that would not have been made if the individual had left school at the end of the primary grades. Over the rest of the person's life, he or she makes more money each year than would have been earned with only a primary education. This differential is labeled "Benefits" in the diagram. Before comparing costs with benefits, note that a dollar today is worth more to an individual than a dollar in the future, so those future income gains must be discounted accordingly. Although a simple analytical formula for the rate of return would rely on unrealistic assumptions, the rate of return will be higher whenever the discount rate is lower, the direct or indirect costs are lower, or the benefits are higher.

**2.4 The Gender Gap: Women and Education**

Young females receive considerably less education than young males in almost every developing country. In a recent year, in 66 out of 108 countries, women's enrollment in primary and secondary education was lower than that of men by at least 10 percentage points. This  **educational gender gap**  is the greatest in the poorest countries and regionally in the Middle East and North Africa. Even though progress has been made recently, a substantial gender gap persists.

Why is female education important? Is it simply a matter of equity? Closing the educational gender gap by expanding educational opportunities for women, a key plank of the Millennium Development Goals is economically desirable for four reasons:

1. The rate of return on women's education is higher than that on men's in most developing countries.
2. Increasing women's education not only increases their productivity on the farm& in the factory but also results in greater labor force participation, later marriage and etc
3. Improved child health and nutrition and more educated mothers ,

**2.5 Consequences of Gender Bias in Health and Education**

Studies from around the developing world consistently show that expansion of basic education of girls earns among the very highest rates of return of any investment-much larger, for example, than most public infrastructure projects. This is one reason why discrimination against girls in education, as well as health, is not just inequitable but very costly from the standpoint of achieving development goals.

Education of girls has also one of the most cost-effective means of improving local health standards. Studies by the United Nations, the World Bank, and other agencies have concluded that the social benefits alone of increased education of girls is more than sufficient to cover its costs-even before considering the added earning power this education would bring. However, evidence from Pakistan, Bangladesh, and other developing countries shows that we cannot assume that education of girls will increase automatically with increases in family income. Inferior education and health care access for girls shows the interlinked nature of economic incentives and the cultural setting. Empirical studies demonstrate what we might guess from these perverse incentives: Often more strenuous efforts are made to save the life of a son than a daughter, and girls generally receive less schooling than boys.

Greater mother's education generally improves prospects for both her sons' and daughters' health and education. The level of child stunting, a valid indicator of child undernutrition, is much lower with higher education attainment of the mother at every income level. They note that this is almost ten times the projected impact of a 10% increase in per capita income. Coupled with the result that in many countries mothers’ education tends to make a disproportionately larger health difference toward daughters than sons can expect major benefits for girls.

Taken together, evidences show that increases in family income do not automatically result in improved health status or educational attainment. If higher income cannot be expected to necessarily lead to higher health and education, as we will see in subsequent sections, there are no guarantees that higher health or education will lead to higher productivities and incomes. Much depends on the context, on whether gains from income growth and also the benefits of public investments in health and education and other infrastructure are shared equitably. Thus, in the remainder of this unit, we examine issues of education and health systems in turn. Even though health and education will be examined separately, it is important to keep their mutually reinforcing roles in mind.

**2.6 Educational Systems and Development**

Education and employment in particular, revolve around two fundamental economic processes. First, the interaction between economically motivated demands and politically responsive supplies in determining how many school places are provided, who gets access to these places, and what kind of instruction they receive. Second the important distinction between social and private benefits and costs of different levels of education and the implications of these differentials for educational investment strategy.

**2.6.1 Educational Supply and Demand: The Relationship between Employment Opportunities and Educational Demands**

On the demand side, the two principal influences on the amount of schooling desired are (1) a more educated student's prospects of earning considerably more income through future modern-sector employment and (2) the educational costs, both direct and indirect, that a student or family must bear. Most people in less developed nations do not demand education for its intrinsic non-economic benefits but simply because it is the only means of securing modern-sector employment. These derived benefits must in turn be weighed against the costs of education.

On the supply side, the quantity of school places at the primary, secondary, and university levels is determined largely by political processes, often unrelated to economic criteria. Given mounting political pressure throughout the developing world for greater numbers of school places, we can for convenience assume that the public supply of these places is fixed by the level of government educational expenditures. These are in turn influenced by the level of aggregate private demand for education.

Because it is the amount of education that is demanded that largely determines the supply let us look more closely at the economic determinants of this derived demand. The amount of schooling demanded that is sufficient to qualify an individual for modern- sector jobs appears to be related to or determined by the combined influence of four variables: the wage or income differential, the probability of success in finding modern- sector employment, the direct private costs of education, and the indirect or opportunity costs of education.

Although several other important variables, many of them non-economic (e.g., cultural traditions, gender, social status, education of parents, and size of family), certainly influence the amount of education demanded, concentrating on the four variables just identified can give important insights into the relationship between the quantity of education demanded and the supply of employment opportunities.

**2.6.2 Social versus Private Benefits and Costs**

The inevitable attraction of ever-higher levels of education is even more costly than this simple picture suggests (see the following figure). Typically, in developing countries, the social costs of education increase rapidly as students climb the educational ladder.

This widening gap between social and private costs provides an even greater stimulus to the demand for higher education than it does for education at lower levels. But educational opportunities can be accommodated to these distorted demands only at full social cost. As demands are generated progressively through the system, the social cost of accommodation grows much more rapidly than the places provided. More and more resources may be misallocated to educational expansion in terms of social costs, and the

potential for creating new jobs will consequently diminish for lack of public financial resources.

***Figure 2.2: Private versus Social Benefits and Costs of Education: An illustration***

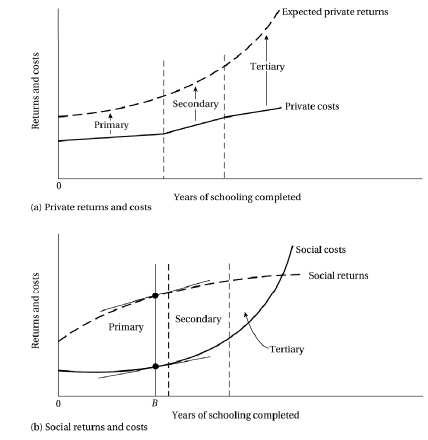


Figure 2.1 provides an illustration of this divergence between private and social benefits and costs. It also demonstrates how this divergence can lead to a misallocation of resources when private interests supersede social investment criteria. In Figure 2.2a, expected private returns and actual private costs are plotted against years of completed schooling. As a student completes more and more years of schooling, expected private returns grow at a much faster rate than private costs, for reasons explained earlier. To maximize the difference between expected benefits and costs (and thereby the private rate of return to investment in education), the optimal strategy for a student would be to secure as much schooling as possible.

Now consider Figure 2.2b, where social returns and social costs are plotted against years of schooling. The social benefits curve rises sharply at first, reflecting the improved levels of productivity of, say, small farmers and the self-employed that result from receipt of a basic education and the attainment of literacy, arithmetic skills, and elementary vocational skills. Thereafter, the marginal social benefit of additional years of schooling rises more slowly, and the social returns curve begins to level off. By contrast, the social cost curve shows a slow rate of growth for early years of schooling (basic education) and then a much more rapid growth for higher levels of education. This rapid increase in the marginal social costs of post-primary education is the result of both the much more expensive capital and recurrent costs of higher education (buildings and equipment) and, more important, of the fact that much post-primary education in developing countries is heavily subsidized.

It follows from Figure 2.2b that the optimal strategy from a social viewpoint, the one that maximizes the net social rate of return to educational investment, would be one that focuses on providing all students with at least B years of schooling. Beyond B years, marginal social costs exceed marginal social benefits, so additional public educational investment in new, higher-level school places will yield a negative net social rate of return.

Figure 2.2 therefore illustrates the inherent conflict between optimal private and social investment strategies-a conflict that will continue to exist as long as private and social valuations of investment in education continue to diverge as students climb the educational ladder. To a large degree, the problem of divergent social versus private benefits and costs has been artificially created by inappropriate public and private policies with regard to wage differentials, educational selectivity, and the pricing of educational services. As a result, private calculations of the value of education exceed its social value, which must take account of unemployment. As long as artificial and nonmarket incentives in the form of disproportionate expected benefits and subsidized costs continue to exist and place a premium on the number of years one spends getting an education, the individual will decide that it is in his or her best private interests to pursue a lengthy formal education process even though he or she may be aware that modern- sector jobs are becoming scarcer and unemployment rates are rising. Unless these various price signals are made to conform more closely to social realities, the misallocation of national resources will persist and possibly increase.

What is needed is a properly functioning reward and cost structure that develops and allocates human resources in accordance with requirements and opportunities in various segments of the economy. Where this is absent, two obvious misallocations of human resources are likely to occur.

First, with the output of the educational system at higher levels greatly in excess of what the economy can absorb, many students will emerge seeking jobs for which they may be educationally qualified but which have been preempted by others with even more education. They become temporarily unemployed for as long as it takes for their aspirations and status requirements, partly perhaps instilled in them by the educational system itself, to adjust to the existing realities of unemployment in the modern sector.

Second, those who adjust their sights downward and secure modern-sector employment normally have to take jobs for which they are overeducated in terms of the number of years spent in school. Those who fail to get modern-sector jobs at all swell the ranks of the permanently unemployed or become self-employed in the informal sector. They are thus denied the opportunity to contribute productively to the society that invested so heavily in their education. This combination of the overpaid and, in many cases, overeducated employed and the impoverished and unproductive educated unemployed reflect a serious misallocation of scarce national resources. The resources allocated to the expansion of the educational system might alternatively have been spent on needed rural public works projects or on increasing the quality of basic primary education in rural areas. Such investment would provide emergency employment opportunities for recent graduates as well as for people with less education.

It seems clear that the expansion of educational opportunities at all levels has contributed

to aggregate economic growth by (1) creating a more productive labor force and endowing it with increased knowledge and skills; (2) providing widespread employment and income-earning opportunities for teachers, school and construction workers, textbook and paper printers, school uniform manufacturers, and related workers; (3) creating a class of educated leaders to fill vacancies left by departing expatriates or otherwise vacant positions in governmental services, public corporations, private businesses, and professions; and (4) providing the kind of training and education that would promote literacy and basic skills while encouraging "modern" attitudes on the part of diverse segments of the population. Even if alternative investments in the economy could have generated greater growth, this would not detract from the important contributions, non-economic as well as economic, that education can make and has made to promoting aggregate economic growth. That an educated and skilled labor force is a necessary condition of sustained economic growth cannot be denied. However, any evaluation of the role of education in the process of economic development should go beyond the analysis of the single statistic of aggregate growth. We must also consider the structure and pattern of that economic growth and its distribution implications that benefits.

**2.6.3 Distribution of Education**

The preceding analysis of forces operating for over education in developing countries should not lead us to despair over the possibility of fostering development through greater education. Countries that have developed successfully have generally ensured that educational benefits are more broadly available in the economy to the poor as well as the rich, in the rural areas as well as the urban. Thus, we turn attention to examining the distribution of educational benefits in developing countries.

The implication is that governments should spend more to upgrade existing schools and less to expand the number of school places-that is, they should deepen the investment in human capital rather than extend it to more people. Unfortunately, this raises serious equity questions, and their findings remain controversial. A balanced policy would be to emphasize the extension of quality primary education to all before embarking on rapid expansion of the quantity of secondary schools.

**2.6.4 Education, Inequality, and Poverty**

The educational systems of many developing nations sometimes act to increase rather than to decrease income inequalities.

The basic reason for this perverse effect of formal education on income distribution is the positive correlation between level of education and level of lifetime earnings. This correlation holds especially for workers who are able to complete secondary and university education where income differentials over workers who have completed only part or all of their primary education can be on the order of 300% to 800%. And as levels of earned income are clearly dependent on years of completed schooling, it follows that large income inequalities will be reinforced if students from the middle- and upper- income brackets are represented disproportionately in secondary and university enrollments. In short, if for financial or other reasons the poor are effectively denied access to secondary and higher educational opportunities, the educational system can actually perpetuate and even increase inequality in developing countries.

There are two fundamental economic reasons why one might suspect that many developing countries educational systems are inherently inegalitarian, in the sense that poor students have less chance of completing any given educational cycle than more affluent students. First, the private costs of primary education are higher for poor students than for more affluent students. Second, the expected benefits of primary education are lower for poor students. Together, the higher costs and lower expected benefits of education mean that a poor family's rate of return from investment in a child's education is lower than it is for other families. The poor are therefore more likely to drop out during the early years of schooling.

**2.7 Health Systems and Development**

**2.7.1 Health and Productivity**

The devastating effects of poor health on child mortality are clear enough. But do poor health conditions in developing countries also harm the productivity of adults? Careful statistical methods have shown that a large part of the effect of health on raising earnings is due to productivity differences: It is not just the reverse causality that higher wages are used in part to purchase better health. For example, Nobel laureate Robert Fogel has found that citizens of developed countries are substantially taller today than they were two centuries ago and has argued that tallness is a useful index of the health and general well-being of a population. Increases in height also have been found in developing countries in recent decades as health conditions have improved. In most cases, rapid increases in average height earlier in the twentieth century gave way to smaller increases by mid-century.

The existing evidences show that health and nutrition do affect employment, productivity, and wages and very substantially so among the poorest of the poor. This evidence magnifies the policy priority of health in development; not only is health a major goal in itself, but it has a significant impact on income levels as well. After their exhaustive review of the literature and its complex statistical and data problems, Strauss and Thomas conclude that "the balance of evidence points to a positive effect of elevated nutrient intakes on wages, at least among those who are malnourished."

**2.7.2 Health Systems Policy**

In 2000, the WHO released its first detailed report comparing health systems around the world. The report indicated great variability in the performance of health systems at each income level. The study used five performance indicators to measure health systems in the 191 WHO member states: (1) the overall level of health of the population; (2) health inequalities within the population; (3) health-system responsiveness (a combination of patient satisfaction and system performance); (4) the distribution of responsiveness within the population (how well people of varying economic status find that they are served by the health system); and (5) the distribution, or fairness, of the health system's financial burden within the population.

Formal public health measures have played a very important role in developing countries. Ministries of health, sometimes complemented by the services of non- governmental organizations, have played vital roles in extending vaccines to remote rural areas, greatly reducing once lethal diseases such as smallpox. But like educational systems, public health operations have often favored the wealthy and well connected. Partly as a result, health systems often use public funds inefficiently. In effect, subsidies turn out to be focused on expensive curative measures for older (and generally richer) patients, such as those with heart disease or cancer, who are influential enough to get into the right hospitals. Too often ignored or at best underfunded are cost-effective preventive health campaigns and basic medical care for those not currently attended to by any health professionals? Doctors trained with public subsidies often choose to practice a specialty in affluent areas of the cities or emigrate to developed countries. And as the World Bank concluded, "In some countries a single teaching hospital can absorb 20 percent or more of the budget of the ministry of health, even though almost all cost - effective interventions are best delivered at lower-level facilities."

In addition to its direct positive effect on national health standards, basic health is also an effective means to achieve goals of poverty reduction. Although both parents may be employed and self-employed long hours, parents are too weak, unhealthy, and unskilled to be productive enough to support their family, the children have to work. But if the children work, they cannot get the education they need, so when they grow up, they will have to send their own children to work. Thus, the bad equilibrium of child labor examined earlier in the chapter may extend across the generations, as a family is effectively locked into a vicious cycle of poverty. Calculations of benefits of health investments need to keep these long-term spillovers in mind.

An effective government role in health systems is critical for at least three important reasons. First, health is central to poverty alleviation, because people are often uninformed about health, a situation compounded by poverty. Second, households spend too little on health because they may neglect externalities (such as, literally, contagion problems). Third, the market would invest too little in health infrastructure and research and development and technology transfer to developing countries due to market failures. Government has different roles in different countries, but as the WHO concluded, "The careful and responsible management of the well-being of the population-stewardship-is the very essence of good government. The health of people is always a national priority: government responsibility for it is continuous and permanent."

**2.8 Policies for Health, Education, and Income Generation**

Similarly, one of the most effective investments we could make in health may be to improve the quality of education. In fact, a number of prominent poverty programs in developing countries now explicitly integrate incentives for the development of health and education human capital among low income families. Integrated strategies seek linking highly successful micro credit systems with health and education.

Integrating program on education, health and nutrition is another good strategy to refer to. In this integrated strategy, there is cash transfer to poor family, family clink visit, and other in-kind nutritional supplement, and other health benefits for pregnant and lactating women and their children under a specified age. Some of the benefits can be made conditional on child’s regular school attendance. In this manner it is possible to integrated health, education and benefit packages to the households.

**Post Test**

1. Examine the possible relationships between human capital and income
2. What are the causes and costs of low educational attainment by women in the contemporary developing countries? Why a lot of controversies even within the contemporary developing countries. Explain.
3. It is said that investment on a girl is much more productive than investing on a boy. Do you agree with this statement? Explain by taking concrete example.
4. Discuss the relationship between education and inequality in developing countries context.
5. Discuss health systems in developing countries.