

CONCEPTUAL ISSUES IN ECONOMICS OF EDUCATION

Unit Structure

1A.0 Objectives

1A.1 Meaning, definition, scope and importance of Economics of Education.

1A.2 The relationship between education and the economic system. The role of the economic system in (i) financing of education, and (ii) absorbing the educated manpower.

1A.3 Education as an industry

1A.4 Education as consumption and Education as individual, social and national investment.

1A.5 Spill-over and inter-generational effects of education.

1A.6 References

1A.0 OBJECTIVES

At the end of this lecture, you should be able to:

- Define economics of education;
- Differentiate between ordinary economics and economics of education;
- Identify the fundamental problem of economics of education; and
- Explain what an economist of education can do to solve the fundamental problem in the educational system.

1A.1 MEANING, DEFINITION, SCOPE AND IMPORTANCE OF ECONOMICS OF EDUCATION

Economics is a social science that studies how society chooses to allocate its scarce resources, which have alternative uses, to provide goods and services for present and future consumption.

Economics as a social science subject concerns itself with making choices and finding alternatives. It studies how society decides what, how and for whom to produce goods and services. Robbins defined Economics as a social science subject that studies human behaviour as a relationship between ends and scarce means which have alternative uses.

Meaning and Scope of Economics of Education :

Economics of Education as an area of study cannot be said to be a separate field of inquiry that is totally different from the ordinary economics. Economics of Education is the application of Economic principles, concepts, laws to the process of Education. Economics of education studies human behaviour (in terms of human decisions), action(s) and reaction(s)) about schooling (Babalola, 2003). It further looks into how human behaviour affects economic development. Economics of education is one of the branches of ordinary economics, though, it is the study of how educational managers make official or approved choices from scarce available resources which is meant for the realisation of the best possible educational outcomes. Economics of Education employs the use of some elementary concepts commonly used in labour economics, public sector economics, welfare economics, growth theory and development economics. World known classical economists like Adam Smith, Alfred Marshall, John Stuart Mill had discussed education and development extensively, advocating for public investment in education. So, by the 1950s, economists gave attention to issues such as the relationship between education and economic growth; relationship between education and income distribution and also the financing of education.

Economists analyse the production of education in this world where resources such as the capital invested in buildings or technology and the labour of the teacher workforce are necessarily scarce. This scarcity of resources means that policymakers must decide:

1. How much to spend on each stage of education (i.e. what to produce);
2. How to provide educational services in a way that maximises its benefits to society (i.e. how to produce education); and
3. Who should have access to each stage of education (i.e. for whom is education provided).

There are three decision makers or stakeholders in the educational system. These are (1) The society (2) The institutions or providers (suppliers) of education and (3) Individual or households (purchasers of educational services). The twin problem of scarcity and choice face these major stakeholders.

The fundamental problem of economics of education is how the society, institution and the households make use of the limited human and material resources they have, to best satisfy their unlimited wants for education. The solution to the fundamental problem requires the application of certain economic concepts.

The study of economics of education includes private and social rates of returns to education, human capital and signalling theories of education, non-pecuniary benefits of education, education and economic

development, contribution of education to the economy, measuring educational expenditure, manpower planning, educational planning and human resource development, educational cost, cost analysis, educational production, educational effectiveness and efficiency, costs-efficiency and cost-effectiveness, cost-benefit analysis and economics of teacher supply, educational and equity.

Check Your Progress :

1. Define economics of education.
2. Differentiate between ordinary economics and the economics of education.

1A.2 THE RELATIONSHIP BETWEEN EDUCATION AND THE ECONOMIC SYSTEM. THE ROLE OF THE ECONOMIC SYSTEM IN (I) FINANCING OF EDUCATION, AND (II) ABSORBING THE EDUCATED MANPOWER

Economic System : An economic system is the structure of production, allocation of economic inputs, distribution of economic outputs, and consumption of goods and services in an economy. It is a set of institutions and their social relations. Alternatively, it is the set of principles by which problems of economics are addressed, such as the economic problem of scarcity through allocation of finite productive resources. An economic system is composed of people and institutions including their relationships to productive resources, such as through the convention of property. Examples of contemporary economic systems include capitalist system, communist system, socialist system and mixed economy.

1. Capitalist Economic System : A free market is a market without economic intervention and regulation by government except to enforce ownership and contracts. It is the opposite of a controlled market, where the government regulates how the means of production, goods, and services are used, priced, or distributed. This is the contemporary use of the term "free market" by economists and in popular culture; the term has had other uses historically. A free-market economy is an economy where all markets within it are free. This requires protection of property rights, but no coercive regulation, no coercive subsidization, no coercive government-imposed monopolistic monetary system, and no coercive governmental monopolies. Capitalism is a way of organising economic relations based on private control over the means of production, including farms, factories and knowledge. The 'private control' here usually refers to control at the level of an enterprise. The key to capitalist control used to be ownership, but now control usually rests in the hands of top management, who run large corporations which are structured in the form of bureaucracy. Capitalism as a system involves some form of economic competition between enterprises in a market. What drives the capitalist system is the struggle for corporate survival and profit.

Individual capitalists have little choice in their behaviour if they are to prosper. Capitalism influences staffing, research, teaching and academic knowledge. The capitalist cause in relation to higher education advocates making education and academic work relevant to 'practical problems' and 'the national interest. In the capitalist economy, education is governed by market forces.

2. Communist Economic System : Planned economy (or command economy) is an economic system in which the state or workers' councils manage the economy. It is an economic system in which the central government makes all decisions on the production and consumption of goods and services. Its most extensive form is referred to as a command economy, centrally planned economy, or command and control economy. In such economies, central economic planning by the state or government controls all major sectors of the economy and formulates all decisions about the use of resources and the distribution of output. Planners decide what should be produced and direct lower-level enterprises to produce those goods in accordance with national and social objectives. Planned economies are in contrast to unplanned economies, such as a market economy, where production, distribution, pricing, and investment decisions are made by the private owners of the factors of production based upon their individual interests rather than upon a macroeconomic plan.

Communism is distinguished from socialism primarily by the maturity or degree of development of the economic base of the new socio-economic formation—that is, the productive forces and productive relations. It is “socialist society in its developed form,” “the highest stage of socialism”. When the new formation has reached full maturity, socialism is transformed into complete communism. It emphasises common ownership of the means of production and a planned, or command economy.

3. Socialist Economic System : A socialist economy is based upon the principle of welfare of the people. As opposed to capitalism, a socialist economic system is based upon the principle that economic activities should be undertaken so that people would be able to use goods produced there of, instead of employing the production for profit. Many economic philosophers had previously refused to believe in this system as a legitimate one, but countries with socialist economic system, have proved the importance and success of the element of socialism in the governance of any economy. This has eventually led to the evolution of mixed economies.

4. Mixed Economic System : A mixed economy is an economic system that includes a variety of private and government control, or a mixture of capitalism and socialism. There is not one single definition for a mixed economy, but relevant aspects include: a degree of private economic freedom (including privately owned industry) intermingled with centralized economic planning and government regulation (which may include regulation of the market for environmental concerns,

social welfare or efficiency, or state ownership and management of some of the means of production for national or social objectives).

Relationship between Economic Systems and Education : There is a very close relationship between education and the economic system. For instance, in a socialist economy, the aims of education, curricula and methods of teaching are determined keeping in mind welfare of the society at large with a focus on democratic ideals, secularism, modernization, social reforms and national development. The control of education is exercised by the central and/or the state governments. On the other hand, in a capitalist society, these decisions are taken by the state government whereas in a capitalist economy, these factors are decided by market forces, i.e. by demand and supply.

Role of Economic System in (a) financing of Education and (b) absorbing the educated manpower : The dominant role played by the state in the financing, regulation and provision of primary and secondary education reflects the widely-held belief that education is necessary for personal and societal well-being. The economic organisation of education depends on political as well as market mechanisms to resolve issues that arise because of contrasting views on such matters as income inequality, social mobility and diversity. Today, some capitalists have been owning or directly controlling institutions of higher education. Many corporations do provide funding to higher education. Besides, capitalist also influence higher education in indirect manner. The most important influence of capitalism on higher education is the existence of the capitalist system itself. Because it is a major system of power in society, people and social structures adapt to capitalism. On the other hand, in a communist society, financing of education is done by the State. In the mixed economy, financing of education is shared both by individuals and the State. Similarly, in a capitalist society, educated manpower is absorbed by the economy depending on demand for and supply of the skills and abilities of the individuals i.e. the market forces. On the other hand, in a communist society, the State decides what type of manpower is required and accordingly, education is provided to individuals and thereafter, they are absorbed by the economy. In a mixed economy, the individual depends on market forces for gaining employment.

1A.3 EDUCATION AS AN INDUSTRY

Education as an Industry : Education presumably produces educated individuals who, are expected to have enhanced productivity. Thus, the process by which education transforms (relatively) unproductive individuals into (relatively) productive ones is not to be understood. In other words, it is essential to understand the educational production function. Considering education as an industry also involves the issue of standards and provides a reason to evaluate educational performance using means other than examination results. The transition into the labour market provides a natural alternative indicator of educational success. There are many pathways that individuals can take through education into

work, including further education, higher education, apprenticeship schemes and so on. Individuals with different characteristics have different likelihoods of passing through any one of these pathways, and economists have had considerable success in recent years in modelling this transition. The labour market for teachers is distinct from many occupation-specific labour markets, for a number of reasons. First, teacher training is a lengthy process and thus adjustments in the market take time. Secondly, for various reasons, feminisation of the teaching profession has taken place that has left the market with a large pool of latent supply. Thirdly, government often has an important part to play in both the demand and supply sides of the market. All these features make the market for

educators substantially different from other labour markets, and require careful analysis. Thus, education is termed as an industry as it produces economically productive individuals, it requires human and non-human resources for carrying out this human production function and in today's context, market forces play an important role in the demand and supply of education.

1A.4 EDUCATION AS CONSUMPTION AND EDUCATION AS INDIVIDUAL, SOCIAL AND NATIONAL INVESTMENT

Education as an Investment : The economic view of education traditionally has employed the human capital framework developed by Becker (1964). In this framework, education is viewed primarily as an investment wherein individuals forgo current labour market earnings and incur direct costs in return for higher future wages. The original theoretical work by Becker (1964), Ben Porath (1967) and others spurred a tremendous amount of empirical work, which has generally supported the implications of the human capital model (Freeman 1986). As individuals and nations increasingly recognise that high levels of knowledge and skills are essential to their future success, spending on education is increasingly considered an investment into a collective future, rather than simply as individual consumption. However, investment in education competes for limited public and private resources. The challenge of expanding educational opportunities while maintaining their quality and ensuring their equitable distribution is linked to questions of education finance. Education is seen as an investment because it entails costs in the present and because it increases productive capacity and income (of the educated individual to be sure but also of society in general) in the future. Private returns accrue to individuals, while social returns accrue to the whole society (including the individuals). In most cases, private returns are greater than social returns because governments give more in subsidies than they take away in taxes.

Developed nations around the world invest an average of 6% of their gross domestic product (GDP) in systems of public schooling. The national importance of education is based on the significant positive

influence it has on individual lives and on the welfare of communities. Education is primarily a way to train children in the skills they will need as adults to find good jobs and live well. But education also has broader social and economic benefits for individuals, families, and society at large. These benefits are received even by people whose relationship to the public school system does not extend beyond “taxpayer.” The widespread improvement of social and economic conditions is a direct outcome of an educated population that is able to use information to make good decisions in a better manner and which is collectively trained for work better. A great deal of recent research demonstrates how the benefits of supporting public education extend far beyond each child’s individual academic gains. A population that is better educated has less unemployment, reduced dependence on public assistance programs, and greater tax revenue. Education also plays a key role in the reduction of crime, improved public health, and greater political and civic engagement. Investment in public education results in billions of rupees of social and economic benefits for society at large.

Education as Consumption : At the same time, the human capital framework does not rule out that education may also provide immediate consumption. Indeed, many economists have discussed the consumption value of education. For example, Schultz (1963) identifies current consumption as one of three benefits of education, along with investment and future consumption. For the most part, however, consumption aspects of education have received relatively little attention in the literature. Several trends suggest that consumption may be becoming an increasingly important part of the choice of whether, where, and how to attend college.

1A.5 SPILL-OVER AND INTER-GENERATIONAL EFFECTS OF EDUCATION

There are “spillover” effects from education that transform individual gains into social gains. The personal, individual benefits of a good education have broad benefits for society when improved “human capital” capacity – personal knowledge, skills, and judgment – is taken by the individual into the workplace, the public square, and the home. For example, the entire society benefits when more people are able to find adequate and stable employment. A better educated work force not only leads to more research and innovation, but the benefits of this economic innovation are then spread more widely and powerfully throughout a better educated public. Everyone also benefits when fewer citizens experience alienation or general distrust of others and government. Besides, the children of well-educated parents are less likely to seek public assistance, even when eligible. Each of these examples is directly related to receiving a quality education. In short, effective education improves decision-making abilities that then help individuals stay out of trouble and live better, healthier, and longer lives. As economist Milton Friedman wrote, “the education of my child contributes to other people’s welfare by promoting a stable and democratic

society". This is known as the spill-over effects of education. Several Governments in the world

have adopted this approach and invested heavily in education as an institution with significant responsibility both for individual child development and broader social and economic welfare. Despite the many challenges that public education faces, it is an effective way to prepare large numbers of youth for their own future and for the overall welfare of society. Given the overall efficacy of education, it is also important to determine the level of resources needed to maximize student achievement and the quality of teaching and learning that takes place in any given school. Research has consistently shown that student achievement benefits from small class sizes, qualified teachers, safe school environments, and up- to-date instructional materials and technology. These things cost money, as do the additional programmes and services needed for students with disabilities, and those with socio-economic disadvantages. We often observe university students to have parents who went to university themselves; the same type of observations seems to hold for school drop outs and their parents. This simple observation could be interpreted as a spill-over of schooling attainment from one generation to the next. In order to avoid future generations to drop out of school, it would be enough to ensure that today's generation stays in school. This line of reasoning assumes that the education a parent receives will directly influence the educational achievement of his off-spring. This mechanism works via different channels, ranging from parent imitation to the direct influence of the parents who gear their children towards higher educational careers. We refer to this line of reasoning as the 'nurture' argument.

However, this is not the sole explanation provided for the similarity of educational careers over generations. One might also argue that highly educated parents have highly educated offspring because the parents have passed on their genetically determined innate ability to their children, which enables both generations to attain high levels of schooling. This however would imply that increasing the educational attainment of one generation would in this case not spill over into the following ones - the "nature" explanation. Finally, credit constraints can aspect the education of parents and their children whether we assume that "nature" or "nurture" matters. Low educational attainment is transferred over generations due to low wages that will be earned with low education, constraining the investment into human capital for the next generation and thus creating negative spill-overs between generations and persistence of inequality over generations. Estimating the contribution of the different effects to inter-generational transmission of education is however not straightforward. We can perceive educational attainment of parents and children and the income of parents, but we cannot observe and measure innate ability. If we disregard parental ability however as an influence by running a simple regression of parental education

and income on a child's education we cannot interpret the estimates since parental education and income can both be influenced by ability as well.

Present and Future Consumption : Choice also imposes opportunity cost over time. The use of resources now means that those resources will not be available for future use. A decision must be made, an opportunity cost encountered, as to whether to allocate for present needs or future needs. Today versus tomorrow. Some goods will be consumed today and some in the future. By reducing consumption today, future consumption may be increased. Isn't that one reason you are in school? If you are not working full time, you are not consuming all you could. You are postponing consumption. Why? Because you believe you could get a better job (and one with more pay) if you have more training and education. So you can consume even more later. Thus you postpone current consumption while building up your skills so as to increase consumption later. Again, a barrel of oil pumped from the ground now is a barrel of oil that will not be available for consumption any day in the future. So to use the oil today imposes forgone opportunities in the future.

Check Your Progress :

1. Which are the different economic systems?.
2. Differentiate between education as consumption and as an investment.

1A.6 REFERENCES

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COST OF EDUCATION

Unit Structure

1B.0 Objectives

1B.1 Expenditure v/s cost, Meaning of cost, Meaning of cost of education and Types of educational costs

1B.2 Unit cost of Education: Its estimation. Its applications to different levels, modes and types of education. (Levels: Primary, Secondary and Tertiary Modes: Formal and Distance, Types: i) General i.e. Arts, Science and Commerce, and ii) professional and Technical)

1B.3 External and Internal Efficiency of Education

1B.0 OBJECTIVES

- To understand the concept of unit cost of education
- To identify different types of educational costs
- To understand how to compute unit cost of education
- To understand the concepts of internal and external efficiency of education

1B.1 EXPENDITURE V/S COST, MEANING OF COST, MEANING OF COST OF EDUCATION AND TYPES OF EDUCATIONAL COSTS

There is a tendency to use the terms expenditure and cost interchangeably. However, the terms 'expenditure on education' and 'cost of education' are not the same. Cost of education refers to the amount of money spent to acquire or impart education. On the other hand, information on expenditure on education is more easily accessible and available from budgets and accounts of the Institution at the micro level and the Central and State governments at the macro level. From the point of view of the individuals, costs refer to the amount of money spent during a particular period (generally a year) to acquire education. From the point of view of the state or the institution, it refers to the expenditure incurred on education during a year. The term cost and expenditure are used interchangeably, but more popularly, we use the term 'cost' and refer to cost per student pertaining to a particular level (primary, secondary, higher secondary or university). Similarly, cost per student to the institution/state for a particular course or level is calculated. But cost per student in the institution/state may include expenditure incurred on staff

salaries, equipment and buildings, maintenance costs of apparatus, library books, sports, etc. From the point of view of the individual, cost of acquiring education includes expenditure on books and stationery, school fees, travel cost and in case of students making use of hostels, it will also include rent of hostel accommodation, mess charges, etc, Cost of Education

Meaning of Cost

In economics, in general, the concept of cost comes into play in the production of goods or services. It needs to be noted that: (a) cost may be expressed in terms of money or in non- monetary terms; (b) cost affects a specific economic transactor: producer, seller, buyer, consumer, etc. Thus, when the owner of a factor of production offers that factor to a producer, the cost to the owner is represented by his 'consumption forgone', while the producer incurs a precise and measurable money cost, made up of wages, interest, charges, etc.

In business, cost is usually a monetary valuation of (1) effort, (2) material, (3) resources, (4) time and utilities consumed, (5) risks incurred and (6) opportunity forgone in production and delivery of a good or service. All expenses are costs, but not all costs (such as those incurred in acquisition of an income-generating asset) are expenses.

Meaning of Cost of Education: Something of value, usually an amount of money, given up in exchange for something else, usually goods or services.

The education sector, as the producer of the service of 'education' and like any other sector of activity, theoretically brings into play the same concepts of cost. A closer look at the application of the concept of cost to education, however, reveals three types of difficulty inherent in the very nature of the activity of education, and arising more particularly out of: (a) the definition of the production of education; (b) the identification of the economic transactors concerned with education; (c) the fact that education has the character of a public service.

By analogy with other sectors of activity, it is accepted that the activity of education consists of producing a service which can be explicitly defined by reference to the aims of the education system. For instance, one product of education may be the preservation and enlargement of the sum of human knowledge; another product is measured by the creation and development of a civilization; yet another is measurable by the expansion of the reserves of human resources. For the sake of simplicity, we shall limit ourselves to the view that the production of education consists of either transmitting or ensuring the assimilation of, a body of knowledge, certain ways of behaviour, etc.' In the first case, the output of education is measured mainly by the number of enrolments and in the second by the number of successes, or scholastic performance. The two different definitions imply two different measurements of the quantity of education produced by the same system. In contrast to what happens in every transaction relating to goods or services, the quantity of education supplied by the producer is not equal to the quantity acquired by the

consumer. In estimating total or unit costs, therefore, it is necessary to specify clearly whether the reference is to producer cost or consumer costs; though even this assumes that a distinction can be drawn between the producer and the consumer of education.

The producers may be : the education establishment, the teacher, the public authority (ministry of education) a private agency (in the case of private education) families (who help to bring up children at home), or any other non-formal teaching institution. The consumers are the pupils and students and also families, which are, in a sense, 'buyers' of education for their children. One could thus speak of: (a) the cost to the agencies producing education, essentially education establishments and administrative or supervisory authorities; (b) the cost to the consumers of education, essentially families

Types of Educational Costs:

Costs can be classified into two types :

- (a) Individual or Private Costs
- (b) Institutional or Public or Social Costs
- (c) Direct Costs
- (d) Indirect Costs
- (e) Opportunity Costs

Individual Costs or Private Cost : Individual costs or private costs of education are those costs of education incurred by a learner or by his/her parents/guardians or by the family as a whole. These concern individuals in families and represent costs which the individuals and the families must bear in return for the education received. Individual costs are of two types: direct and indirect. Examples of private costs are as follows : Tuition and examination fees and other such fees, institutional supplies, manuals and books, transport, uniforms and foregone earnings.

(b) **Institutional/Public/Social Costs :** These costs concern society and refer to such costs (or expenditure) as are borne out as a result of all education and training activities in a society at a given point of time. Costs incurred at the institutional level (government, private or mixed) are called institutional costs or public costs of education. Public costs are those that include financing by the government on the basis of taxes, loans and other public revenues. The institutional costs of education are, generally, analysed in terms of (i) variable and fixed costs of education, (ii) recurring and non-recurring costs of education and (iii) current and capital costs of education. Institutional/Public/Social costs are also of two types: direct and indirect.

(c) **Direct Costs:** These are those costs that are directly visible. They include all money expenditure incurred on different items by the student.

Direct costs are expenses that can be separately identified and charged as part of the cost of a product, service, or department. Typical direct costs include items such as instructional and other programme materials printed, fuel, oil and repairs of vehicles used for home-to-school transportation, centralised data processing services, in-house equipment repairs, field trips, expenditure on tuition fees, other fees and charges, purchase of books, stationary, uniforms, hostel expenses and transport.

(d) **Indirect Costs** : Indirect costs are those costs that cannot be directly charged to a particular programme, but are attributed to services, which are necessary to operate the program. Such services include, but are not limited to, accounting, budgeting, payroll preparation, personnel management, purchasing, warehousing and centralised data processing. Some programs cap the allowed indirect cost rates, others have an administrative cap that limits a combination of direct administrative costs and indirect costs, while others do not allow indirect costs at all, requiring that the entire award amount be spent on direct costs. These expenses are not paid directly to your school, but are associated with attending school. You and your family can control some of them.

The real nature of cost could be understood only when we understand the different concepts related to the costs of education. As mentioned earlier, cost is the actual expenditure of money

incurred on, or attributable to, a specific thing or activity. For instance: on a query from a student as to how much cost would be for his/her graduation, the college specifies the cost to be about Rs.

20,000/- per annum, this is called a notional cost. But his/her cost was Rs. 30,000 when he/she completed his/her graduation; this is called the actual cost (which depends upon all kinds of prices incurred during his graduation including private costs).

The following table shows the various components of private and social costs of education ;

	Social costs	Private costs
Direct Costs	<ul style="list-style-type: none"> • Teachers' salaries • Other current expenditure value of scholarships on goods and services etc. • Expenditure on books, etc. • Imputed rent 	<ul style="list-style-type: none"> • Fees • Books • Travel cost
Indirect	<ul style="list-style-type: none"> • Earnings foregone 	<ul style="list-style-type: none"> • Earnings foregone

(e) **Opportunity Cost** : Opportunity cost is a concept you did not see in the definition of economics. But not seeing it doesn't mean that it isn't

there. There is yet more to say about the definition, but this is the logical place to introduce a related concept. Opportunity costs are everywhere, due to scarcity and the necessity of choosing. Opportunity cost is not what you choose when you make a choice -it is what you did not choose in making a choice. Opportunity cost is the value of the forgone alternative - what you gave up when you got something. The opportunity cost of going to college is the money you would have earned if you worked instead. On the one hand, you lose four years of salary while getting your degree; on the other hand, you hope to earn more during your career, due to your education, to offset the lost wages. Thus, opportunity cost is the cost of alternatives foregone.

Let us consider a concrete but hypothetical example. Suppose you are working in a leather manufacturing company and by offering your service you are paid Rs. 6,000 a month. Had you not joined the above company, let us suppose that you could have joined a textile firm with a monthly salary of Rs. 3,500. This means that your value in the next best alternative use is Rs. 3,500. From the individual point of view, this is called transfer earning. Note that transfer earning is similar to opportunity cost. From the societal point of view, this is called opportunity cost which is Rs. 3,500 in keeping you employed in the leather manufacturing company. The three cost elements given above (i.e., social cost, private cost and

opportunity cost) can easily be combined to give an estimate of the annual cost per student for each level or type of education. If there were no wastage or repetition, this would be sufficient for a cost- benefit calculation.

1B.2 UNIT COST OF EDUCATION

Unit cost of education means costs per unit i.e. per student, per graduate, per credit, etc. Generally, unit in unit costs means the total number of learners enrolled in a course in a particular year. Sometimes, it is said that the number of learners actually attending the classes should be taken for the purpose of calculation of unit costs and not the total number of learners on roll. Alternatively, unit costs refer to the unit of output i.e. successful learner or graduate. This is called effective costs of education. This type of cost calculation education takes care of wastage in education too. The difference between the effective costs and the normal costs of education reveals the efficiency of the given level of educational system. Thus, we can calculate alternative forms of unit costs of education. These are as follows :

Cost per learner (unit cost of education) = Total expenditure/Total enrolment

Cost per learner actually attending the school = Total expenditure/ No. of student attending classes
 Cost per successful learner = Total expenditure/ Number of pass- out learners (effective unit costs of learner)
 Cost of education per capita = Total expenditure/Total population

- For manpower planning and related purposes, the 'effective unit costs' is important.
- The selection of unit in unit costs analysis depends upon the purpose. As the costs are generally found to be highly sensitive to the number of students, the student is most often considered as the unit. But while calculating costs of classroom equipment, the class forms the right unit.
- Generally, unit costs of education are calculated per year. It is unreasonable to calculate the unit costs for one level by the duration of a five year time period, and for another level/type of 3 year time period.

Determinants of Educational Costs : Knowledge of the major determinants of educational costs is essential for anyone thinking of improving the level of education in the society. The cost of an

educational plan or innovation is often expressed in terms of its total cost to indicate the value of the total resources devoted to it. But for diagnostic and evaluative purposes, unit cost is more meaningful. Unit cost is cost per educational unit, e.g., cost per student, cost per school, cost per teacher, etc. But education has multiple outputs measured variously in terms of student achievement, number of graduates passed, and so on. Hence, while estimating unit cost, due care should be taken to avoid ambiguity.

For example, cost per student may imply:

- a) cost per student enrolled;
- b) cost per student actually attending school; or
- c) cost per student successfully completing a given course.

The problem of deciding on the unit cost has to be solved carefully. Choosing the number of students may not always be the right thing to do because all costs do not vary with the number of the students; for instance, the teachers and their salaries, the number of square meters of building space, etc. Hence, cost per teacher or cost per school should also be considered. Educational costs may be divided into three categories:

- Those related to the students;
- Those related to the teachers; and
- Those related to buildings and equipment.

In a normal growing state, a composite unit including all three could be adopted. Unit costs are likely to rise due to changes in the price level, increase in learner population, rise in the educational standards, demand for education as well as the pressure for raising the level of school-going

age. In making long term forecasts, we have to take note first of the increase in the number of students, teachers and schools and secondly, of the rise in cost per unit. It is essential to break up the expenditure on education, both by the government and private institutions, into different components like recurring expenditure and capital expenditure. Recurring expenditure (or cost) as the name suggests takes place regularly at certain intervals. Capital expenditure or costs, on the other hand, are one time investments. Cost depends on: the level and structure of the teachers' salaries; the average pupil-teacher ratio at each level; the non-salary costs of education; and the capital cost for buildings and other equipments. Of course, each of these factors are themselves determined by a number of other factors like availability of funds, teacher, student enrollment, etc. It is because of the variation in these factors that countries or states and districts within the country differ with regard to their educational priorities and the corresponding expenditure.

Check Your Progress

- 1) Distinguish between cost, as used in economics and education in six sentences.

1B.3 EXTERNAL AND INTERNAL EFFICIENCY OF EDUCATION

If we agree with human capital school and view education as a productive investment in human capital, efficiency will become our first consideration. As Psacharopoulos has pointed out, 'the choice of investments must, therefore, be based on an analysis of the external efficiency of all competing uses of resources, from the point of view of society's objectives, as well as the internal efficiency of resource use.'

There are evidences from all over the world including India that have identified certain behaviour patterns of educational costs. You may note that total cost increases with an increase in the number of students, teachers and institutions. Unit cost, on the other hand, may increase, decrease or remain constant as expansion takes place. In order to study the behaviour of costs of education, we can calculate them along different dimensions: cost by level (like primary, secondary, higher education, etc.); cost by region (like rural and urban); total cost; unit cost; fixed and variable costs; and average and marginal costs. The type of cost analysis will depend upon the purpose for which it is needed. Ideally, the cost per pupil enrolled and the cost per successful student should be the same. This, however, is not usually the case because of the prevalence of dropouts. Therefore, cost per successful student is higher than per student enrolled. The difference is a measure of the efficiency of the system, as the lower the difference the more efficient the system.

In economic terms, the concept of efficiency can easily be defined as the relationship between inputs and outputs, whereby economic efficiency is increased by a gain in units of output per unit of input. This can occur by holding output constant and decreasing

input or by deriving greater production from the same level of input. In relation to education, we may say that various educational outcomes can result from a variety of different combinations of inputs such as teachers, buildings, class-size, curriculum, etc. The problem that confronts economists and educators, however, is how to mix the inputs in the right proportions to achieve the most efficient outcome. But the problem is further compounded when we ask ourselves "What output should we measure?" According to Sheenan, it is very difficult to specify a unit of output "because educational systems so often in practice have no single well defined function, so also they have no single well-defined indicator of output."

Internal Efficiency : The internal efficiency of education is improved when more education outputs are produced at given education resources or fewer education resources are used in producing the same amount of education outputs. Thus educational economic analysis is centrally concerned with the production of education outputs and with education costs. Internal efficiency is concerned with the relationship between inputs and outputs within the education system or within individual institutions. As to public subsidization of education, the questions which external efficiency tries to answer are what is the optimal amount of public subsidization invested in education and what is the desired mix of different kinds of subsidized education. While what internal efficiency concerns is how to allocate the given public subsidization among competing uses: training teachers, curriculum reform and improving facilities and so on, and how to provide public subsidization, that is, financing consumers (students, or families) or financing producers. In my opinion, internal efficiency is at least as important as external efficiency. Public subsidization itself is not the objective, and its objective is to foster economic and social development by improving education both in quantity and in quality. If internal efficiency is low, education output may go down, even with increased public subsidizations. Under this circumstance, the more public subsidization, the more wastage. Consequently, the internal goals of educational institutions are harmed, so are the wider objectives of society. In the following, I will argue that internal efficiency is neglected to some extent though it is also very important. This neglect must be corrected, with the face of the changing world: increasing cost of education, growing financial constraints and undiminished thirst for (higher) educational opportunities and so on. It is defined as the total number of pupils who are enrolled in the same class as in a previous year, expressed as a percentage of the total enrolment to the specified class. This indicator measures the extent and patterns of repetition by class, as part of the internal efficiency of education system.

External Efficiency : The external efficiency of education is improved when more education outcomes are produced at given education resources or fewer education resources are used in producing the same amount of education outcomes. External efficiency, is judged by the relation between input and outcome with the objective of social welfare maximization. By external efficiency analysis, we can justify the investment in education

based on certain manpower demands or the higher social rate of return to investment in education than other alternatives. Some evidence showed that in developing countries the average rate of return to human capital investment is higher than the rate of return to physical investment, even though we do not take into account the positive effect of education on the productivity of physical capital. (Psacharopoulos, George and Woodhall, Maureen 1985, p.22) Therefore, government, as a rational investor, should invest in education, since it is more profitable (or beneficial if we consider social externalities) for society. Not only external efficiency consideration affects the amount of public subsidization, external efficiency is also important for government to decide which levels or which kinds of education should enjoy the priorities in public subsidization. For example, it is widely argued that the *social* rate of return to primary education is higher than that of secondary and higher education, so it should be paid more attention than the latter two. It measures the incongruity between the characteristics of graduates and the job market. The most common indicators of external efficiency in education are estimates of the private and social rates of return to expenditures on education at the different levels or types (e.g., academic vs. vocational) of education. Unfortunately, at this point there is no good country level indicator of the appropriate levels of access and quality of education. There are several reasons for this external inefficiency such as underinvestment in secondary education, increased use of market signals for planning and annual budgeting decisions, excess "social demand" for higher education and insufficient resource recovery, inaccurate selection criteria, and inadequate educational financing methods.

There are four principal sources of inefficiency. The first is the leakage of resources between the central government and the school through misuse of grants, non-appointment of teachers etc. The second is the leakage of resources within the school, mainly attributable to student, teacher and headmaster absenteeism and student drop-out. The third is the non-recruitment of teachers as well as deploying teachers to do tasks other than teaching. The fourth is the allocation of resources within government schools, where class sizes are largest in the early grades and smallest in the later grades. Teachers are the most valuable resource in improving educational outcomes.



COST BENEFIT ANALYSIS IN EDUCATION

Unit Structure

2A.0 Objectives

2A.1 Meaning of cost-benefit analysis. Its purpose and problems

2A.2 Profiles of age-education earnings. Calculation private marginal and benefit cost ratio.

2A.3 Interpretations and evaluation of rates of return on investment in education.

2A.4 Cost Effectiveness Analysis in Education. Difference between Cost-benefit and Cost –Effectiveness Analysis.

2A.5 Concept of Cost Consciousness in Education.

2A.0 OBJECTIVE

After going through the topic the learner will able to.....

- To understand the meaning, purpose and problems of cost benefit analysis
- To analyse the age –education-earnings
- To interpret and evaluate the rates of return in education
- To differentiate between cost-benefit, cost-effectiveness and cost-consciousness

2A.1 MEANING, PURPOSE AND PROBLEMS OF COST BENEFIT ANALYSIS

Meaning :

A cost benefit analysis is done to determine **how well, or how poorly, a planned action** will turn out. Although a cost benefit analysis can be used for almost anything, it is most commonly done on **financial questions**. Since the cost benefit analysis relies on the addition of positive factors and the subtraction of negative ones to determine a net result, it is also known as running the numbers.

Cost Benefit Analysis: Definition:

A cost benefit analysis finds, quantifies and adds all the positive factors. These are the benefits. It then identifies, quantifies and subtracts

all the negatives, the costs. The difference between the two indicates whether the planned action is advisable. The real trick to doing a cost benefit analysis well is making sure you include all the costs and all the benefits and properly quantify them.

Example : Cost Benefit Analysis

As the Production Manager, you are proposing the purchase of a Rs. 1 Million stamping machine to increase output. Before you can present the proposal to the Vice President, you need some facts to support your suggestion, so you decide to run the numbers and do a cost benefit analysis.

You itemize the benefits. With the new machine, you can produce 100 more units per hour. The three workers currently doing the stamping by hand can be replaced. The units will be higher quality because they will be more uniform. You are convinced these outweigh the costs.

There is a cost to purchase the machine and it will consume some electricity. Any other costs would be insignificant.

You calculate the selling price of the 100 additional units per hour multiplied by the number of production hours per month. Add to that two percent for the units that aren't rejected because of the quality of the machine output. You also add the monthly salaries of the three workers. That is a pretty good total benefit.

Then you calculate the monthly cost of the machine, by dividing the purchase price by 12 months per year and divide that by the 10 years the machine should last. The manufacturer's specs tell you what the power consumption of the machine is and you can get power cost numbers from accounting so you figure the cost of electricity to run the machine and add the purchase cost to get a total cost figure.

You subtract your total cost figure from your total benefit value and your analysis shows a healthy profit. All you have to do now is present it to the VP, right? Wrong. You have got the right idea, but you left out a lot of detail.

Purpose of Cost –Benefit Analysis:

The principles of cost-benefit analysis (CBA) are simple:

1. **Appraisal of a project:** It is an economic technique for project appraisal, widely used in business as well as government spending projects (for example should a business invest in a new information system)
2. **Incorporates externalities into the equation:** It can, if required, include wider social/environmental impacts as well as 'private' economic costs and benefits so that externalities are incorporated into the decision process. In this way, COBA can be used to estimate the social welfare effects of an investment.

3. **Time matters!** COBA can take account of the **economics of time** – known as **discounting**. This is important when looking at environmental impacts of a project in the years ahead.

The Main Stages in the Cost Benefit Analysis Approach

At the heart of any investment appraisal decision is this basic question – **does a planned project lead to a net increase in social welfare?**

O Stage 1(a) **Calculation of social costs & social benefits**. This would include calculation of:

O **Tangible Benefits and Costs** (i.e. direct costs and benefits)

O **Intangible Benefits and Costs** (i.e. indirect costs and benefits – externalities)

O *This process is very important – it involves trying to identify all of the **significant** costs & benefits*

O Stage 1(b) - **Sensitivity analysis of events occurring** – this relates to an important question - If you estimate that a possible benefit (or cost) is £x million, how likely is that outcome? If you are reasonably sure that a benefit or cost will 'occur' – what is the scale of uncertainty about the actual values of the costs and benefits?

O Stage 2-**Discounting the future value of benefits** - costs and benefits accrue over time. Individuals normally prefer to enjoy the benefits now rather than later – so the value of future benefits has to be discounted

O Stage 3: - **Comparing the costs and benefits** to determine the net social rate of return

O Stage 4: - **Comparing net rate of return** from different projects– the government may have limited funds at its disposal and therefore faces a choice about which projects should be given the go-ahead.

Check your progress

1. What do you mean by Cost Benefit Analysis?

2A.2 PROFILES OF AGE –EDUCATION-EARNINGS

For a long time the returns on educational investment were higher at lower levels of schooling. The scarcity of human capital in low-income countries provided a significant premium to investing in education. The high returns on primary education provide an added justification for making education a priority in developing countries. Over time, on average, the rate of return to education has fallen. This decline coincides with a significant increase in average years of schooling for the population as a whole. During the last 12 years, average returns on

schooling have declined by 0.6 percentage points (Psacharopoulos and Patrinos 2004). At the same time, average schooling levels have increased. Therefore, and according to theory, everything else being the same, an increase in the supply of education has led to a slight decrease in the returns on schooling. That is, if there are no “shocks” – such as changes in technology – that increase the demand for schooling, then an increase in overall schooling levels should lead to a decrease in the returns to schooling. Over the recent decades, we have seen the returns to schooling decline in many low-income countries, while the technological revolution has increased demand for skilled labor in some developed countries and the returns to schooling have increased. Amidst the fluctuations, there has been a downward trend in the returns to schooling since the 1980s. The proportion of the population with secondary schooling and above has risen markedly over the decades while the proportion of the population with only primary has declined. This means that primary education has become almost universal; subsequently the returns to primary schooling have declined the most over time. For secondary education, both rate of returns and the proportion of population have risen together until the 1980s when the proportion of the secondary education population appears to be inversely related to the private rate of return to secondary education. Estimates such as these have been used extensively in policy fora to argue that more needed to be invested in education, especially basic education. For example, in the campaigns for “Education for All,” analysts have used these rates of return as a call to action. While education is seen by many as a basic human right, these economic arguments are seen as essential to releasing the national resources to invest in schools and universities. In the 2002 Education for All Global Monitoring Report it is stated that “available estimates of rates of return for developing countries consistently show that both private and social returns to primary schooling are higher than at secondary and tertiary levels. Their magnitudes are generally greater than typical returns to capital in other economic sectors” (UNESCO 2002: 34). The Global Campaign for Education (2005: 3) argues that: “education, especially for girls, empowers families to break the cycle of poverty for good. Young women with a primary education are twice as likely to stay safe from AIDS, and their earnings will be 10-20 percent higher for every year of schooling completed. Evidence gathered over 30 years shows that educating women is the single most powerful weapon against malnutrition – more effective even than improving food supply. Without universal primary education, the other Millennium Development Goals – stopping AIDS, halving the number of people living in poverty, ending unnecessary hunger and child death, amongst others – are not going to be achieved.”

CALCULATION COST RATIO:

A **benefit-cost ratio** (BCR) is an indicator, used in the formal discipline of cost-benefit analysis, that attempts to summarize the overall value for money of a project or proposal. A BCR is the ratio of the benefits of a project or proposal, expressed in monetary terms, relative to

its costs, also expressed in monetary terms. All benefits and costs should be expressed in discounted present values.

For example, For, Sarva Shaiksha Abhiyaan, how much money is needed, how much to be given to each section, how to distribute it and what kind of items is required for the project etc are all calculated to ensure that the project becomes successful.

BENEFIT COST RATIO FORMULA:

To create a benefit cost ratio example we'll use Widget Corp. as our fictitious business. Widget Corporation's top account executive has an idea for a new widget that will revolutionize the widget industry. The total cost to plan, develop and produce the widget is \$55,000. Once the production line has been set up, the revolutionary widget sells like hotcakes and produces record net profits for Widget Corp. of \$500,000 for the year. Using the formula listed above, we can figure the benefit cost ratio.

$$500,000/55,000 = 9.09$$

The final outcome of \$9.09 is the dollar representation of a

\$9.09 return for every \$1.00 invested in the revolutionary widget. After one year of sales, the revolutionary widget paid for itself almost ten times.

BENEFIT COST RATIO ANALYSIS:- Using the benefit cost ratio allows businesses and governments to make decisions on the negatives and positives of investing in different projects. In other words, using benefit cost ratio analysis allows an entity to decide whether or not the benefits of a given project or proposal outweigh the actual costs that go into the creation of the project or proposal.

Benefit cost ratio is simple enough to figure out, however, there are benefit cost ratio calculators available that take into consideration other factors that make the calculation a bit more complex. Factors such as actual employee production or production line breakdowns can cause the benefit cost ratio to change dramatically and so they must be accounted for when delving into the details of a particular proposal or project.

Businesses and governments can benefit greatly by figuring out the cost of a project versus its returns. For this reason alone, the benefit cost ratio is an important formula to be used in the decision making process for any project that might be presented.

Check your progress

1. What factors impact Benefit Cost Ratio?

2A.3 INTERPRETATIONS AND EVALUATION OF RATES OF RETURN IN EDUCATION

In finance, **rate of return (ROR)**, also known as **return on investment (ROI)**, **rate of profit** or sometimes just **return**, is the ratio of money gained or lost (whether realized or unrealized) on an investment relative to the amount of money invested. The amount of money gained or lost may be referred to as interest, profit/loss, gain/loss, or net income/loss. The money invested may be referred to as the asset, capital, principal, or the cost basis of the investment. ROI is usually expressed as a percentage.

CALCULATION:

The initial value of an investment, V_i , does not always have a clearly defined monetary value, but for purposes of measuring ROI, *the expected value must be clearly stated* along with the rationale for this initial value. Similarly, the final value of an investment, V_f , also does not always have a clearly defined monetary value, but for purposes of measuring ROI, *the final value must be clearly stated* along with the rationale for this final value.

The rate of return can be calculated over a single period, or expressed as an average over multiple periods of time.

Single-period

Arithmetic return

The **arithmetic return** is:

$$= r_{arith} = \frac{V_f - V_i}{V_i}$$

r_{arith} is sometimes referred to as the **yield**.

Observing that education is the key to reaping the benefits of the demographic dividend in the form of a young population, Finance Minister Pranab Mukherjee Monday announced a 24 percent hike in the budget allocation for education.

"For education, I propose an allocation of Rs.52,057 crore, with an increase of 24 percent over the current year," Mukherjee informed the Lok Sabha while presenting the budget.

"Our demographic dividend, a relatively younger population compared to developed countries, is as much of an opportunity as it is a challenge. Over 70 percent of India will be of working age by 2025. In this context universalising access to secondary education, increasing percentage of our scholars in higher education and providing skills training is necessary," he said.

The allocation for Right to Education was meanwhile hiked by 40 percent.

"The operational norms of Sarva Shiksha Abhiyaan have been revised to implement the right of children to free and compulsory education which came into force from April 1, 2010. For the year 2011-12, I propose to allocate Rs.21,000 crore which is 40 percent higher than Rs.15,000 crore allocated in Budget 2010-11," he said.

The finance minister also said that vocationalisation of secondary education will be implemented from 2011-12 as a centrally sponsored scheme to improve employability of youth.

The minister also announced a scheme for scholarship for Scheduled Castes and Scheduled Tribes students in classes 9 and 10.

"Empowerment flows from education. While the Scheduled Castes and Scheduled Tribes students have access to post-matric scholarship, there was so far a lack of pre-matric scholarship scheme.

"In 2011-12, I propose to introduce a scholarship scheme for needy students belonging to Scheduled Castes and Scheduled Tribes studying in class 9th and 10th. This would benefit about 40 lakh students," the minister said.

Mukherjee also said that the proposed National Knowledge Network, which aims at connecting 1,500 institutes of higher learning and research across the country will connect 190 institutes by March this year while the rest will be brought into the network by March 2012.

The minister also informed that the National Skill Development Council (NSDC) is well on course to achieve its mandate of creating 15 crore skilled workforce two years ahead of 2022, the stipulated target year.

"It has already sanctioned 26 projects with a total funding of Rs.658 crore. These projects alone are expected to create more than four crore skilled workforce over the next ten years.

"In the current year, skill training has so far been provided to 20,000 persons. Of these, 75 percent have found placements. I will provide an additional Rs.500 crore to the National Skill Development Fund during the next year," he said.

Among other allocations in the education sector, the finance minister announced grants of Rs.50 crore each for Aligarh Muslim University's upcoming campuses at Murshidabad in West Bengal and Malappuram in Kerala and Rs.100 crore as a one-time grant to Kerala Veterinary Animal Science University.

Also, Rs.10 crore each was allocated for setting up the Kolkata and Allahabad centres of the Wardha-based Mahatma Gandhi Antarrashtriya Hindi Vishwavidyalaya.

The Indian Institute of Technology, Kharagpur will get Rs.200 crore as a one-time grant.

The minister also sanctioned Rs.20 crore to the Indian Institute of Management, Kolkata for setting up a financial research and training laboratory and Rs.200 crore for the Maulana Azad Education Foundation.

The Delhi School of Economics and Madras School of

Economics have also been allotted Rs.10 crore each.

Now we have to do calculation and find out that that what would this investment will yield and at what rate? This would ensure the rate on investment.

Check your Progress

1. Calculate the rate of return in SSA as announced by the Finance Minister by the end of 2025.

2A.4 COST EFFECTIVENESS ANALYSIS IN EDUCATION

Cost-effectiveness evaluation is a comparison of the cost of implementing a new information system or upgrading an existing one to the costs that would be involved in retaining the existing way of doing things (i.e. the legacy system or the non-computerized approach). a new system does not always represent an improvement. for example, upgrading an old character-based user interface to a graphical user interface may not provide a more usable interface and may not save time or cost.

Any educational intervention has an outcome and a cost. A measure of the **cost effectiveness** is obtained by measuring **costs** against **outcomes**.

Uses

Analysing cost effectiveness of an intervention can involve evaluating various options, for example:

1. Reviewing a number of alternatives all of which are within the realm of cost feasibility;
2. Considering which supplemental programs ought to be used to improve an educational outcome;
3. Trying to identify which program has the best average outcome per student relative to the per-student cost.

DIFFERENCE BETWEEN COST BENEFIT AND COST EFFECTIVENESS IN EDUCATION

Cost-benefit analysis is a term that refers both to:

- helping to appraise, or assess, the case for a project, programme or policy proposal;
- an approach to making economic decisions of any kind.

Under both definitions the process involves, whether explicitly or implicitly, weighing the total expected costs against the total expected benefits of one or more actions in order to choose the best or most profitable option. The formal process is often referred to as either CBA (Cost-Benefit Analysis) or BCA (Benefit- Cost Analysis).

The process involves monetary value of initial and ongoing expenses vs. expected return. constructing plausible measures of the costs and benefits of specific actions is often very difficult. in practice, analysts try to estimate costs and benefits either by using survey methods or by drawing inferences from market behavior. For example, a product manager may compare manufacturing and marketing expenses with projected sales for a proposed product and decide to produce it only if he expects the revenues to eventually recoup the costs. cost-benefit analysis attempts to put all relevant costs and benefits on a common temporal footing. a discount rate is chosen, which is then used to compute all relevant future costs and benefits in present-value terms. Most commonly, the discount rate used for present-value calculations is an interest rate taken from financial markets. this can be very controversial; for example, a high discount rate implies a very low value on the welfare of future generations, which may have a huge impact on the desirability of interventions to help the environment. empirical studies suggest that in reality, people's discount rates *do* decline over time. because cost-benefit analysis aims to measure the public's true willingness to pay, this feature is typically built into studies.

COST-EFFECTIVENESS ANALYSIS

CEA is a form of economic analysis that compares the relative costs and outcomes (effects) of two or more courses of action. Cost-effectiveness analysis is distinct from cost-benefit analysis, which assigns a monetary value to the measure of effect. Cost-effectiveness analysis is often used in the field of health services, where it may be inappropriate to monetize health effect. Typically the CEA is expressed in terms of a ratio where the denominator is a gain in health from a measure (years of life, premature births averted, sight-years gained) and the numerator is the cost associated with the health gain. The most commonly used outcome measure is quality-adjusted life years (QALY). Cost-utility analysis is similar to cost-effectiveness analysis. The concept of cost effectiveness is applied to the planning and management of many types of organized activity.

In education CEA can be utilized in the form of investment done in the education sector and its subsequent result for example The Honorable Finance minister has allocated Rs 21000 crore on SSA. Now an analysis has to be done so that whatever money has been invested had it been yielding the desired result, or not has to be examined. If the returns are not favourable then rethinking, re- planning and reconsideration has to be done.

Check your progress

1. State the difference between Cost Benefit and Cost Effectiveness.

2A.5 COST CONSCIOUSNESS

A company-wide attitude about the topics of **cost** understanding, **cost** containment, **cost** avoidance, and **cost** reduction. These days, it doesn't matter what your product is -- any manufacturer can afford to save a few dollars by avoiding unnecessary purchases. Even aerospace and defence (A&D) companies, which were thought to be the exception, have discovered that they, too, need to cease their free-spending ways and are adopting more frugal procurement practices. So education also has to think on the same line and see that if cost could be cut if, if same amount of investment can be utilized for the many situations and per unit cost can be reduced.

For example can the same classroom be utilized for Alternative Learning purpose, can the same books be used for Adult Learning groups also, can the same teacher be used for learning at various centre etc.

There is a four-step approach to reducing costs:

1. Create a center-led organization approach. The key to improvement is a procurement organization that cuts across business silos. It could even be virtual -- rather than physically collocated -- as long as it can operate as a cohesive unit. Cross- functional teams that are organized around categories and technologies can help provide the foundation for smarter sourcing. Like having a core unit for subjects in schools so that once an approach, a methodology is to be implemented the core its taught and then it percolated down to each member with ease and even the new one would get training from the same mebers.

2. Generate quick wins by reducing complexity. Reducing the complexity in the system will reduce the cost anyways. For example In education it simply means that you need to keep the system simple. We still in education have so much of paper work, everything to be hand written, everything in individual work style, we must have format for everything saving time and energy.

3. Establish robust processes. More effective practices and other innovations can help create lasting improvements in all aspects of the educational process. Small improvements are the key to big results. Examples include establishing pricing of education, negotiating the work load, using material and resources in the teaching learning process and leveraging your spend across categories.

4. Develop a fully integrated cost reduction system. To ensure cost effectiveness ensure that all systems, people and processes are all the time alert and aware that all the happenings in the field of education are having a cost. The building, the energy supply ,the things, the human resource are all there with a cost. So every thing is to be utilized to a judicious extent, of course overuse and exploitation is to be avoided.

Check your progress

1. Explain the concept of Cost consciousness

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PRICING OF EDUCATION

Unit Structure

2B.0 Objectives

2B.1 Micro and Macro aspects of pricing of education (Theoretical Study)

2B.2 Practical solution to the pricing of education especially at the tertiary level

2B.3 Problem of capitation fees.

2B.0 OBJECTIVES

- To understand the macro and micro aspects of pricing of education
- To identify practical solutions the pricing of education
- To understand the problem of capitation fees

2B.1 MACRO AND MICRO ASPECTS OF PRICING OF EDUCATION

Higher education in the 21st century has become increasingly important for both individuals and the larger society. It is important for individuals for the sake of enriched life, enhanced status and greater earning power. It is important for the sake of economic prosperity in general as well as for the advancement of democracy and social justice. In spite of this, in most countries including India, education is suffering from increasing austerity. Problems such as over-crowded classrooms, staff shortage and declining teacher : student ratios, deteriorating physical facilities, poorly maintained buildings, increasingly demoralized staff, poor salaries in most of the private, self-financed institutions and soaring fees are evident in India.

Many important questions about pricing of education are concerned with the following questions :

- Is higher education a good investment for students?
- Is higher education affordable to students from middle income families?
- Is higher education accessible to students from low income families?
- Is higher education a good value?

- How are the costs of higher education shared between students, their families, and government?

These questions are interrelated with some highly publicised issues. For instance, reports of tuition charges of Rs. 20,000 or more have raised fears that college has become unaffordable. Some believe that government financial grant-in-aid policy should help people acquire education at subsidised rates. Others argue that too much government financial grant-in-aid is provided. Further, as governments face increased pressure on their budgets, public higher education institutions have had to cope with smaller appropriations and are relying more on tuition as a source of revenue. Finally, average faculty salaries have recently been rising faster than inflation, but only after much of their purchasing power was eroded during the high inflation years of the 2008-2011.

The cost of higher education to students has a direct impact on access, so that increases in cost are understandably of great concern to students, parents, and education policymakers.

TRENDS IN PRICING OF HIGHER EDUCATION

Six trends in the latter years of the 20th and early years of the 21st centuries—each with economic, political, and social roots and consequences—are noteworthy for their impacts on the pricing of higher education and in turn on higher educational participation and accessibility. These trends, while varying both among countries and within each country, form the context for higher education's currently widespread financial austerity as well as for the emerging policy solutions which exhibit some very similar patterns despite local variations. These trends are:

- The increasing unit (per-student) costs of instruction.
- The increasing enrolments.
- The increasingly knowledge-based economies and the consequent additional expectations heaped on higher education to serve as a major engine of economic development and individual betterment.
- The failure of governmental, or public, revenues to maintain their share of the cost increases resulting from these pressures on higher educational expenditures.
- The trend toward increased globalisation, which contributes both to the increasing cost trajectories and to the faltering governmental revenues.
- The pattern of increasing liberalisation of economies and the resulting decentralisation, devolution and privatisation of public and private systems, including institutions of higher education.

SOURCES OF INCOME FOR HIGHER EDUCATION

The funds for higher education in India come mainly from three different sources, viz, government, fee income from students and other sources of income from philanthropy, industry, sale of publications, etc. Reliance on government for resources has almost more than doubled. On the other hand, fee income has been drastically declining. Higher education has been largely a state funded activity with about three-quarters of the total expenditure being borne by government. The relative shares of non-government sources such as fees and voluntary contributions have been declining.

On the other side, the needs of the higher education system have been growing rapidly. It is being increasingly realized that public budgets cannot adequately fund higher education, particularly when sectors of mass education are starved of even bare needs. A decadal experience with adjustment policies is with clear compression in the higher education budget. Indeed, the decline in plan allocations had started even prior to economic reforms. Hence, in the recent decade, the need for experimentation with several alternatives such as student fees, student loans and privatisation is intensified. Simultaneously, the demand for higher education has been growing rapidly with comparatively faster growth in enrolment in higher educational institutions than the growth in number of higher educational institutions. Even for the very low enrolment ratios in India, it is being increasingly realised that public budgets cannot adequately fund higher education, particularly when sectors of mass education are starved of even bare needs. As a consequence, several policy directions on new ways of diversifying resources, resulting from a variety of pressures and opportunities are continually emerging with several alternatives, including student fees, student loans and privatisation. The most serious casualty of all these is undermining equity of access to higher education. Equity and social justice demand that newly emerging beneficiaries from the secondary education sector, who increasingly represent vulnerable groups are able to afford an access to higher education and eventually for an upward mobility (Punnayya Committee, 1993). However, there is rarely any systematic attempt to examine the impact of increase in fees on access to higher education.

2B.2 PRACTICAL SOLUTION TO THE PRICING OF EDUCATION AT THE TERTIARY LEVEL

1. Increasing Unit (Per-Student) Costs of Instruction : The fundamental financial problem of higher education all over the world begins with the fact that universities face a trajectory of annual cost increases. This trajectory is the natural and quite appropriate rate of increase in the staff salaries. This rate tends to track the rate of increase of salaries in the general economy—or, if there is any real growth in the economy, at a rate in excess of the prevailing rate of inflation. This phenomenon is concerned with of rising relative unit costs in sectors of the economy that are labour intensive and productivity immune, or at least

productivity resistant. Accelerating this natural rate of unit or per-student cost increase are other factors peculiar to many universities that further accelerate annual cost increases in varying degrees in different countries, depending mostly on available revenues as follows :

a. Technology : In goods-producing industries in the private sector, technology lowers costs by substituting capital for labour and driving down unit costs. In contrast, technology in higher education increases costs supposedly altering the very nature and improving the value of the product, but still requiring more revenue.

b. Constant Change : In higher education, new programmes are added almost always faster than it can shed old programmes with their faculty and staff.

c. Research : The costs are already high and rapidly increasing, especially in the physical and bio-medical sciences with their high technology expenses. This trend is especially exacerbated when faculty and administrators aspire beyond their constant share of prestige or of the enrolment market. It is particularly evident in elite and would-be elite universities, which seek greater scholarly recognition, better and more academically qualified students, and higher international rankings. Higher education finance, in short, is burdened with a natural unit cost trajectory that in normal years will exceed the average rate of increase of consumer prices generally. That is, even in ordinary times, the cost trajectory will naturally exceed the rate of inflation year-in and year-out.

2. Increasing Enrolments: The second trend, affecting national systems more than individual universities, is increasing enrolments. These increases accelerate the financial impact of the aforementioned increases in per-student costs because of three forces, which vary greatly among countries. The first of these is demographics: specifically the change (generally the growth) over time in the number of youth in the conventional college or university age cohort (usually 18 through about 24). India, which is a low income country is experiencing increases in the traditional university age cohort. The second force affecting enrolments is the higher participation rate of this cohort. This increased participation rate is a function of: (a) increases in enrolments at secondary levels; (b) changing employment opportunities and a perception of increasing competition for these fewer “good” jobs which will be enhanced by higher education and (c) an increasing regard for social and economic mobility and justice. This third factor leads to policies designed to increase higher educational participation, particularly among segments of the population who have traditionally been less well represented: disadvantaged sections especially SC/STs, women, students from rural areas, religious minorities, or other groups considered to be educationally disadvantaged. A final factor affecting enrolments is the increasing amount of higher education sought by each entering student, usually expressed in terms of final degree. This factor, too, shows an accelerating trend as first-degree graduates perceive a need for even higher levels of education to be competitive. A well known

example is the increased demand for MBAs and other professional master's degrees. Professions such as teachers and the non-physician health professions also show a trend of attaching new status to their degrees, both to raise their stature and to limit the numbers allowed to practice, which limits competition and enhances status and remuneration. The first impact that increased enrolments has on financing higher education is to increase the cost. Thus, maintaining quality requires yearly budget increases, which are usually not forthcoming. At the same time, however, increased enrolments make it easier to take management actions that are extremely difficult in a time of stable or declining enrolments. Such management tactics include, for example, raising student-to-faculty ratios or implementing new and more cost-effective pedagogies. But when enrolment remains level or declines, efficiency measures almost inevitably mean terminating jobs, accompanied by the extraordinary levels of resistance and demoralization that attend the downsizing of any institution.

3. The Increasingly Knowledge-Based Economy : The third factor affecting the financing of higher education in virtually all countries is the increasing tilt toward services or the knowledge-based economy of high tech, design, finance, management and the like. The financial impact of this increasingly knowledge-based economy on higher education is manifested by the new and usually more expensive educational programmes offered and by a redistribution of faculty and students among these new programmes, both effects tending to further accelerate the increase in per-student costs. The increasingly knowledge-based economy also gives a premium to both individuals who have the requisite higher education and also to countries with higher education systems that are high quality, oriented to needs of employers, and broadly inclusive. This trend forms a third source for the increasing revenue needs of higher education everywhere and for the even greater austerity that results when the needed revenue is not forthcoming. At the same time, it constitutes a strong argument for increased investments in higher education from governments (where such increases are possible and politically feasible) and from students or parents (also where such contributions are politically feasible and technically possible). Student loans offer such opportunities, since the possibility that students will be able to repay them is high, thanks to the better jobs they will thereby obtain.

4. Higher Educational Austerity : The immediate effect of these trends on the financing of higher education has been increasing austerity in universities, in other institutions of postsecondary education and in national systems of higher education. This nearly universal austerity, which shows no signs of lessening, has resulted in the following characteristics :

a) Universities and other institutions of higher education are experiencing the results of austerity as manifested by overcrowding in lecture rooms, restive and unhappy faculty, insufficient or outdated library, computing capability and internet connectivity, a deterioration of physical plants, less

time and support for faculty research and a widely assumed diminution of quality in teaching, learning and research.

b) National system of higher education is also experiencing dire consequences: capacity constraints, the inability to accommodate all products of secondary levels who are capable and desirous of further study, a loss of the most talented faculty to countries with fewer financial troubles and an increasing inability to compete in the global knowledge economy.

c) Students are dismayed and resentful to be charged tuition fees where there used to be none or to deal with very rapid increases where fees already existed. Living expenses have also increased, requiring a larger percentage of students to work part-time or full-time while attending school, to go into debt, or both. Many students are not even fortunate enough to find a place, while those who left the secondary school system without obtaining a certificate cannot even hope for the possibility of tertiary education. This austerity has been most serious throughout the world's developing countries and in many "transitional" countries.

POLICY SOLUTIONS TO HIGHER EDUCATIONAL AUSTERITY- Cost-Side Solutions :

In response to these financial pressures and increasing demands for accountability, universities and national systems have sought solutions on both the cost and the revenue sides. Solutions on the cost side include increasing class sizes and teaching loads, deferring maintenance, substituting lower-cost part-time faculty for higher cost full-time faculty and dropping low priority programmes. These solutions are difficult, academically problematic and heavily criticised, especially by the faculty and their political allies who frequently reject outright the claims of insufficient public revenues. Even when they accept the basic economic principle of scarcity, they may have very different notions of proper academic priorities than either their governments or their vice-chancellors. The simplest solution is frequently to impose enrolment ceilings or otherwise limit capacity in the low-price public institutions of higher education, including both research universities and teaching-oriented colleges and technical institutes. This solution inflicts the greatest damage on the goals of greater participation and accessibility. It forces increasing numbers of well-qualified products from secondary schools into higher priced (and generally lower quality) private colleges and universities or into the fee-paying tracks of the public universities. And if family resources preclude paying these costs of private instruction and also meeting the high costs everywhere of food and lodging, then these young people are forced into jobs and must foreclose their aspirations to a post-secondary education. At some point after serious political negotiation for additional public resources, strategic cost-side solutions accept the revenue limitations and seek to use available resources more wisely—that is, strategically. Such an approach requires negotiating among the mix of goals that include even such occasionally divergent aims as academic quality, capacity, social equity and responsiveness to the needs of students, employers and society

alike. The management of governmental agencies and the norms of civil service employment which prize continuity of employment above all else are generally incompatible with many strategic cost side solutions to the financial problems characteristic of universities and other institutions of higher education. Typical problems with government agencies are laws, contracts and political considerations that forbid terminating staff for any but the most egregious reason, hiring part time or temporary workers, contracting out services, carrying unspent funds forward from one fiscal year to the next, or transferring available funds from one budget category to another. There is a need to shift towards greater managerial autonomy and flexibility on the lines of models associated with private enterprise, allow greater managerial autonomy and incorporate more flexibility in strategies. These approaches are sometimes referred to collectively as New Public Management and are designed to maximise the university's outputs of teaching and research for the public, or taxpayer.

Revenue Supplementation and Cost-Sharing : Revenue supplementation is an alternative to cost cutting and presents a preferred route to financial viability. It may take these forms: (a) faculty and institutional entrepreneurship (e.g., selling specialized and marketable teaching or scholarship); (b) renting university facilities to commercial entities; (c) commercially marketing research discoveries; or (d) fund raising, by appealing to alumni and other donors. However, its most sustainable and potentially lucrative form is what has come to be known as cost-sharing. The term “cost-sharing” refers to shifting at least some of the higher educational cost burden from governments, or taxpayers, to parents and/or students. Cost-sharing is first a statement of fact— that is, that the costs of higher education are shared among governments/taxpayers, parents/students, and philanthropists. However, it also refers to the articulation of a policy that some of these costs must be met, not by relying predominantly or even exclusively on governments, but by being shared among parents and/or students in addition to taxpayers. Cost-sharing is most frequently associated with tuition fees and “user charges,” especially for governmentally or institutionally provided room and board. However, a policy shift in the direction of greater cost- sharing can take several forms.

POLITICAL AND IDEOLOGICAL CONTEXT : Trends in pricing of higher education are influenced by complex factors: (a) the country-specific context, (b) global politics, (c) worldwide ideologies and (d) the fiscal austerity with which almost all nations are grappling. These factors impact the various policy solutions that are proposed. At the risk of gross oversimplification, a spectrum exists. At the extreme political and ideological left is the view that the government should own virtually all institutionalised means of production (including universities and colleges), allocate resources, establish prices, and remunerate the staff. At the other extreme are views associated with the far right that would diminish public employment and the size of the public sector generally, including publicly owned and financed higher education. The political right tends to view government, including both politicians and civil servants, as less productive and more frequently self-serving, as preoccupied with

maintaining the salaries and other emoluments that go with governmental employment, and as generally oblivious to the view that they must live off the wealth created mainly in the private sector and diverted to public use only by taxation or inflationary deficit financing.

Micro-level Pricing of Education

At the micro-level, the pricing of education takes the following aspects in consideration :

- The total student enrollment at full-scale operation and the pattern of enrollment growth after start-up. For estimating student enrollment, a market analysis needs to be conducted. For this purpose, trends at other charter institutions and in general enrollment, economic and demographic shifts in the community are examined. In addition, it is necessary to hold an interest meeting for prospective parents and students. Also, use conservative estimates. It is often easier for institutions to handle a larger-than-expected student enrollment than manage the revenue shortfall caused by low enrollment. Besides, account for attrition. Some institutions experience an attrition rate of near about 10 percent during their first year of operation. Accounting for attrition will produce more accurate estimates for years 2 and 3.
- The anticipated student-teacher ratio in classrooms and other instructional programmes.
- The space, library and laboratory facilities and sports and health equipments, cultural programme requirements, canteen, transport, computers and softwares, counsellor, etc. for instructional programmes and activities.
- In addition, revenue sources need to be kept in mind.

Check Your Progress

1. How is pricing determined at the micro level?
2. What are the practical solutions to the pricing of education?

2B.3 PROBLEM OF CAPITATION FEES

In India, over the years, there have been private initiatives in education initially for philanthropic reasons and eventually in

professional and even in general higher education not only to meet the growing demands but also to realize the huge and quick profits potential. Privatization of higher education has emerged in several forms and types in the recent decade in India. One, privatisation within government higher education institutions take place in the form of introducing self-financing courses within government institutions; two, converting government-aided private institutions into private self-financing institutions; three, allowing to expand self- financing private institutions with recognition and also without recognition, which may be termed as commercial private higher education institutions.

With the advent of privatization, there has been an enormous growth in the number of Private professional colleges. This rapid growth has no doubt contributed to a quantitative increase in the number of colleges providing higher education but this has been at the cost of quality, as the Government does not exercise sufficient control over 'unaided colleges'.

Most Private colleges although adhering to standard admission procedures like conducting entrance tests, interviews, etc. tend to admit students by charging an exorbitant amount as capitation fee. Merit invariably takes a backseat and those with the ability to shell out more money often tend to get admitted, without fulfilling the admission requirements.

With privatization, there is the risk of commercialization of education. Although a competitive atmosphere would be created, some colleges would concentrate on profit making rather than on improving the standard of education.

Arguments for and against the Capitation Fee

The practice of charging capitation fees by various institutions and universities has been subjected to criticism on various grounds. It has been often referred as 'killing of merit'. In its emphatic judgement in the Mohini Jain V/s State of Karnataka case, Supreme Court declared that charging of capitation fee was arbitrary, unfair and therefore in violation of the fundamental right to equality contained in article 14 of the Constitution. The Prohibition of Unfair Practices in Technical Educational Institutions, Medical Institutions and Universities Bill, 2010 recognized capitation fee as a cognizable offence. On the other hand, various private colleges have defended capitation fee on the ground that it avails institutions with funds to re-invest in the institution which can be utilized for imparting quality education. People favouring capitation fees argue that for engineering colleges in most states, the permitted fee for private-unaided colleges is in the vicinity of Rs 30,000 per student per annum. Given that even most kindergarten schools charge a higher fee in the cities, one wonders exactly how the private institutions are expected to provide high quality technical education for this fee.

The Ministry had been concerned over some technical and medical institutes and universities resorting to unfair practices. These include, charging capitation fee and demanding donations, not issuing receipts in respect of payments made by or on behalf of students, admission to professional programmes of study through non-transparent and questionable processes, low-quality delivery of education services not in keeping with promises made, misleading advertisements in the media with an intention to cheat, unqualified or ineligible teaching faculty, forcible withholding of certificates and other documents.

The Prohibition of Unfair Practice in Technical Educational Institutions, Medical Educational Institutions and University Bill, 2010

Highlights of the Bill : The Bill seeks to prohibit specified unfair practices in technical and medical institutions and universities to protect the interest of students.

- Unfair practices include demanding or paying capitation fee; admitting students without specified merit criteria; not issuing receipt for any fee charged by the institution; publishing advertisement misleading students; and withholding degree to compel a student to pay a fee.
- The Bill makes it mandatory for every institution to maintain records of the selection process and publish a prospectus at least 60 days prior to admission. The prospectus should include information about fees, conditions of eligibility, process of admission and details of faculty.
- The Bill imposes penalties for offences such as taking of capitation fees, not adhering to the prospectus, publishing false advertisements, etc.

Key Issues and Analysis

- Experts are divided over the issue of capitation fees. Some contend that prohibition of capitation fee is required to ensure equity. Others are of the view that steps to increase supply of educational institutions would automatically reduce capitation fees since it would address core issues such as shortage of seats and poor quality of education.
- Although demanding capitation fees is illegal under current regulations, it has not been curbed. Since the Bill does not change the enforcement mechanism for curbing capitation fees, it is not clear how the practice would be stopped.
- The Bill states that its provisions do not affect the right of minorities to establish and administer educational institutions. However, it is not clear what provisions the minority institutions are exempted from.
- The Bill recommends a maximum of three years imprisonment and prescribes a fine of upto Rs 50 lakh for offences such as charging capitation fees or publishing misleading advertisement. The amount is significantly higher than penalties for offences under some recent Acts such as the Food Safety and Standards Act, 2006; the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

Check Your Progress

1. What are capitation fees?
2. How does the Government respond to this problem?



FINANCING OF EDUCATION

Unit Structure

- 2C.0 Objectives
- 2C.1 Sources of finance for education: private, public, fees, donations
- 2C.2 Endowments and grants. Grant-in-aid principles and practices with special reference to higher education.
- 2C.3 Government's role in financing education at different levels with special reference to higher education.

2C.0 OBJECTIVES

- To understand the various sources of financing of education
- To be aware of the endowments and grant-in-aid principles and practices
- To understand government's role in financing of education

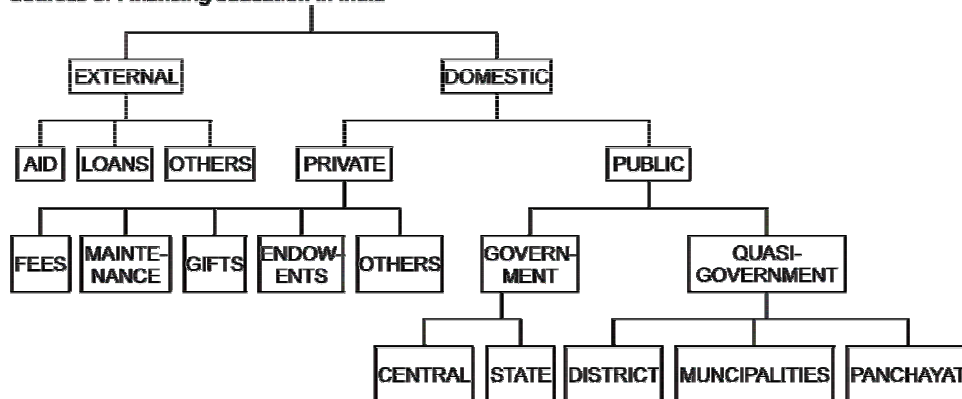
2C.1 SOURCES OF FINANCE FOR EDUCATION

There are multiple sources of finances for education in India. The funds for higher education mainly come from three different sources, viz. government, fee income from students and other sources of income from philanthropy, industry, sale of publications, etc. Reliance on government for resources has almost doubled right from the first plan. On the other hand, fee income has drastically declined. Other sources contribute around 10 per cent through out the period. Higher education has been largely a state funded activity with about three-quarters of the total expenditure being borne by government. The relative shares of nongovernment sources such as fees and voluntary contributions have been declining.

The needs of the higher education system have been growing rapidly. It is being realized that public budgets are not adequate for funding higher education, particularly when sectors of mass education are starved of even bare needs. Hence, in the recent decade, the need for experimentation with several alternatives such as student fees, student loans, graduate tax and privatization is intensified.

The sources of finance for education in India can be broadly classified into external and internal or domestic sources which are explained in the following figure. External sources do not form a significant part of educational finances in India.

Sources of Financing education in India



(A) Internal sources: The domestic/internal sources of funding are broadly divided into public and private sources. The public sources include contributions made by central, state and local governments. The private or non-governmental sources include fees and other household expenditures incurred by the direct beneficiaries (students/parents) of education and endowments and donations made by individuals, trusts, etc. Among the private sources, fees is a compulsory payment whereas others are voluntary contributions.

Private sources of finance:

1. Student fees: It is well known fact that free and compulsory education is made at the primary stage, while fee structure at the secondary and university level has remained constant during the post independence period, attempts at raising fees structure incorporates a large element of in-built subsidy, which is given indiscriminately to all the students, furthermore, Indian education policy provides an open invitation to all qualified students to involve in the institution of higher education regardless of their capacity to profit from such education. The academic resources and the physical resources available to the educational institution are put to the severest strain.

There is a proposal to raise fees, but it adversely affect the socially and economically under privileged sections of the society. The suggestion could be a differential fee system in which those who are able to profiting from secondary and higher education are given while those who propose to join these institutions on the basis of other than academic merit should be made to pay full costs of education. There should be the provision for scholarship and free ship so that no student of merit is denied education due to economic reasons.

2. Educational Loans: The loans by banks and private institutions, being repayable in easy installments, can create a self-generating fund which can be recycled for the education of generations of students. It would assist students to continue their higher education, because the education unemployment is increasing day by day which affects the repayment of loans.

It is proposed that, an alternative student loan scheme specifically for the weaker sections should be evolved. Such a programme must be flexible enough to suit their requirements, which may involve government guaranteed loans, subsidized interest rates, liberal terms of repayment, waivers for those students with less future incomes, etc, in addition to a strong student support system.

3. Individual/trusts donations: There is a decline in the proportion of contributions for education from private sources, and the philanthropic contributions have dried up. Therefore steps to be taken to augment private resources for education as no government can finance entire education system: the combined efforts of the government and the general public could meet the finance.

Various proposals have been made in this regard. Mahatma Gandhi had suggested that the industrial establishments should set up colleges to train technical human resources required by them, levying of cess on imports, encouraging private entrepreneurs to donate for education through tax remissions, surcharge on land revenue and cess on urban property.

Public sources of finance: It includes the funds contributed from central and state, university grants, U.G.C., NCERT and financial aid.

1. Central government: provides grants-in aids for centrally Sponsored schemes. These schemes are formulated by the Central Government and are included in the Centre's five year plans, the Centre persuades the states to implement these schemes through financial incentives in the form of grants-in aid which meet a larger proportion of the total expenditure of the states on those schemes. The Central Government provides assistance, for centrally assisted schemes.

2. State Governments in financing education: The state meets the non-plan and plan expenditure on education at all levels. The non-plan expenditure is met from a states own revenue supplemented by the financial resources passed on from Centre to the state through finance commission. The state incur non- plan expenditure on education about one-fifth of their revenue in a financial year.

3. Grant-in-aid of revenue: The constitution provides for transfer of resources to the state government through grants-in-aid of revenue. The finance commission identifies the particular state that would require assistance for the period of the award as in article 275(1).

Under article 262, the Central government set up planning commission in 1950 for making grants to the states for plan purpose. Grant in aid or economic assistance utilities certain amount for education purpose. This can be in the form of general grant and special grant, which is provided in case of emergency. The Grant in aid amount can be utilised for development of primary education, increase in salary for the teachers, research development in the institution.

4. Funds of local bodies: This amount includes the funds of Municipal Zilla Parishad and other areas which assist development of education. The local community's assist the local schools and colleges for health and education service.

Municipality looks after municipal schools cleanliness, police and other areas in the locality. The aid is provided in the form of municipality fund or municipality club fund. Zilla Parishad looks after the functions at district level, the objectives is to assist education at primary level and secondary education.

5. Gram Panchayat: It would assist in financing education to a little extent, the avenue sought from this area is utilized for education purpose.

6. Endowment funds: The institution utilized this fund for the interest obtained from the endowment fund when required. This amount is meant to utilized only at the time of crisis. This amount is a long term asset for the institution.

2C. 2 ENDOWMENTS AND GRANTS. GRANT-IN-AID PRINCIPLES AND PRACTICES WITH SPECIAL REFERENCE TO HIGHER EDUCATION

Education plays a crucial role in economic development and social modernization. As a key factor in production, it supplies requisite number and quality of persons needed for different tasks and by inculcating among the mass of people appropriate attitudes, skills and personality traits.

It creates a proper climate for development. Creating a well informed and educated citizenry, it ensures the effective working of the basic institutions on which economic and social well being of the nation depends.

The cost for higher education is to be essentially borne by the government or taxpayers (as grants), parents or their substitutes (as tuition fees), students and/or individuals (by availing loans or doing part-time work) and donors (individuals or institutional). Donation for higher education is not a universal phenomenon and plays an insignificant role in financing higher education in most countries. This is mostly found in the U.S.A. and the U.K. Financing of higher education by the government is justified on the ground that education, being a public good or at least a quasi-public good produces many positive externalities. Positive externalities would mean that since at large rather than the individual benefits from higher education, the government should finance higher education. It is widely accepted that education help in social mobility; therefore it is an effective instrument for promoting equity.

Education is a catalytic factor for the development of human resources with the provision for better health and nutrition, socio- economic

opportunities and helpful natural environment. The principles are efficiency, equity, flexibility, national unity.

A) Promote national unity: Higher education promotes values like national diversity, building tolerance, respect for differences and most importantly building a united, modern democratic nation.

B) Equity: The higher education system has to ensure equal and fair opportunities for all those who are eligible to enter the higher education system. In particular, emphasis will be placed on poor students with potential, the physically challenged, rural people, gender equity, and others who have been particularly disadvantaged in the past. Special attention needs to be given to increasing the number of women students.

C) Ethics and integrity: The higher education system must uphold the values of ethics, integrity and trust, act as role models for students and make every effort to inculcate them into young emerging leaders, intellectuals and students. Higher education teaching, research and services are about the search for truth, problem solving, and unravelling complex problems and challenges that affect people's lives and well being. Without high ethical standards and integrity, such efforts are meaningless. Ultimately these qualities together with skills and knowledge will shape the character of students as critical citizens contributing to sustainable development.

D) Good governance, Effectiveness and Efficiency: The principle of effectiveness and efficiency are related but distinct. An effective higher education system or institution works in a manner that leads to achieving its goals and objectives. An efficient system or institution functions correctly, making optimal use of available resources without duplication or waste. A higher education system that will serve in achieving socio-economic development must be both effective and efficient.

Good governance is a key to effectiveness and efficiency. The creation of high quality institutions necessitates improved human resource management, from initial efforts at staff recruitment to the administration of research and other funding. Modern higher education must be flexible, innovative and responsive.

2C.3 GOVERNMENT'S ROLE IN FINANCING HIGHER EDUCATION

The main key to country's current socio-economic success appears to be education, particularly the development of higher and professional education. The correlation between economic development and the development of higher education and the paramount importance of higher education to economic and social development in the knowledge-based

economy are almost universally accepted. A great part of the success of the Indian model in economic development stands upon the foundation that India has built over time in its education sector – a large, complex system to provide higher and professional education that imparts useful, usable skills reliably and on a large scale produces theoretical and practical knowledge.

Broadly defined, the term “higher education” in the Indian context covers the entire spectrum of education beyond 12 years of formal schooling. Generally, it comprises three levels of qualifications: bachelor or undergraduate degree programs, master’s or postgraduate degree programs and the pre-doctoral and doctoral programs – master of philosophy and doctor of philosophy.

India’s independence in 1947 was watershed in its modern social development. It forever changed the higher education system, which has generally grown and improved steadily ever since. By the end of Tenth Plan (2002-2007) the number of universities in India increased from 20 in 1947 to about 378, a thirteen fold increase. There are now 23 central universities, 216 state universities, 110 institutions deemed to be the universities, and 13 institutes of national importance established through central legislation and 5 Institutions established through state legislation. The number of colleges increased from 500 in 1947 to 18,064 in 2006, twenty-six fold increase. The number of university level teachers has grown from 700 in 1950 to 4,92,000 in 2006.

All India Growth of Institutions, Enrolments and Teaching Faculty at the higher Education Level, 1950/51 – 2005/2006

Year	Universities	Colleges	Total Higher Education Institutions	Enrolment ('000)	Teachers ('000)
1947-1948	20	496	516	100	-
1950-1951	28	578	606	174	24
1960-1961	45	1819	1864	557	62
1970-1971	93	3227	3370	1956	190
1980-1981	123	4738	4861	2752	244
1990-1991	184	5748	5932	4925	271

2000-2001	266	11146	11412	8399	395
2004-2005	348	17625	17973	10481	472
2005-2006	378	18064	18419	-	492

The fastest growth in institutions was in 1950s and 1980s, as shown above, reflecting the small educational base in 1947 and the ambitious expansion that independence sparked. The growth was relatively slow in 1970s and 1980s but picked up again from 1990s onward because of increased demand for higher education, particularly in IT.

India has established a huge, complex modern system of higher education. India's institutions of higher education can be classified in several ways. They are divided by titles into universities, institutes of national importance, and the colleges. They are owned either by the national or state government or privately – in which case, they can be aided or unaided. Depending on how they function, they can be affiliating universities, teaching- cum affiliating universities, unitary universities, federal universities and open universities.

Role of Government in Higher education:

Governments play an important role in promoting and administering higher education institutions in India but they generally do so through agencies set up for this purpose. The most important are the National Planning Commission (NPC), University Grant Commission (UGC), the Central Advisory Board of Education (CABE), and the coordinating councils that are concerned with professional disciplines.

The NPC is an advisory board established in 1938 to formulate and watch over the implementation of five year plans. The NPC acting at the central level with the Ministry of Education prepares a national educational development plan in two parts – one dealing with the national government's direct responsibility in education, and a second that is an integrated summary of state's educational development plans.

Indian Educational Five Year Plans by Year

Year	Plan
1951/1952 - 1955/1956	First Five Year Plan
1956/1957 – 1960/1961	Second Five Year Plan
1961/1962 – 1965/1966	Third Five Year Plan
1969/1970 – 1973/1974	Fourth Five Year Plan
1974 – 1979	Fifth Five Year Plan

1979 – 1984	Sixth Five Year Plan
1985 – 1990	Seventh Five Year Plan
1992 – 1997	Eighth Five Year Plan
1997 – 2002	Ninth Five Year Plan
2002 – 2007	Tenth Five Year Plan
2007 – 2012	Eleventh Five Year Plan

Although the market has a great influence on Indian higher education, the central and state government play important role. By setting up the UGC in 1956, India's government took a revolutionary step towards implementation of quality standards in higher education. The commission's prime duties were to monitor the establishment of universities providing higher education and the quality of teaching and other integrated service in Universities and higher education institutions, as well as providing grants for improvements. Government is active in other ways as well.

CABE, established to find ways to promote both autonomy and accountability in Indian higher education, came up with a wide range of recommendations in 2005. So far, nothing seems to have come of the CABE report.

Financing higher education: Higher education has been recognized as a public good and government has therefore assumed most of the responsibility for its funding. The bulk of this spending goes to central universities, state universities and deemed universities in the form of maintenance or developmental grants from the UGC to organization or organization and management committees at the state level. Most of the public institutions are administered by the states and so they pay for up to 90% of their operating costs. 74% of total expenses of state institutions are funds from state expenditure, only 26% from the central government.

The UGC, the central government's main higher education funding agency, uses almost 60% of its budget to finance the operating expenses of the central universities and Delhi colleges. The remaining 35% is spent on the system at large. Most universities and all private unaided universities and colleges are expected to meet all their expenses from their own revenue sources, mostly tuition.



ALLOCATION OF FUNDS TO EDUCATION IN THE 5-YEAR PLANS

Unit Structure

- 3.0 Objectives
- 3.1 The concepts of five year planning.
- 3.2 Actual and estimated allocation of funds at different levels of education in the Five-year plans (I-IX Plans), Priority for education in the various five year plans.
- 3.3 Priorities within education in the various five year plans.
- 3.4 Educational expenditure and national economy.
- 3.5 Expenditure of education, public education at different levels (Central - State Level) in India.
- 3.6 Types of plans – Central, State and Institutional

3.0 OBJECTIVES

- To understand the concept of five year planning
 - To analyse the five-year plan
 - To identify the priorities in the five-year plans
 - To understand educational expenditure and the types of plans
-

3.1 THE CONCEPT OF FIVE YEAR PLANNING

India has an old heritage of education but it was largely based on caste and social status rather than being equally available to all. India has emerged as a secular democracy with a state-led command economy after Independence. Education for all and industrial development were seen as crucial tools to achieve economic prosperity and social equity. The Indian Constitution resolves to provide quality education to all. In the effort to fulfill educational needs of the country, specifically for the diverse societies and cultures of the country the government has chalked out different educational categories viz., Elementary Education, Secondary Education, Higher Education, Adult Education, Technical and Vocational Education. Institutions of excellence in higher education were formed with a view to provide subsidized quality higher education to build a self reliant and modern India. At present, India possesses a highly developed higher education system which offers facility of education and training in almost all aspects of human's creative and intellectual endeavors such as arts and

humanities, natural, mathematical and social sciences, engineering, medicine, dentistry, agriculture, education, law, commerce and management, music and performing arts, national and foreign languages, culture and communications etc.

The government initiative for the planned development of higher education in the country and establishment of University Grants Commission has transformed the elitist system of education favoring the rich and higher class to a more democratic and mass based system. Around 40 percent of enrolments now comes from lower socio-economic strata, and women comprising of approximately 35 percent of the total enrolments.

Educational Goals under Developmental Planning: The Government of India Resolution of March 1950 had asked the Planning Commission to make an assessment of the material capital and human resources of the country, including scientific and technical personnel and suggest measures to increase such manpower which is in short supply. The Planning Commission was asked to prepare an action plan for most effective and balanced utilization of the country's total resources.

The Planning Commission in its report had suggested the following lines of direction;

- (a) Reorientation of the educational system and integration of different levels and divisions functionally;
- (b) Expansion in different fields of education, especially in those of basic and social education, and remodeling of vocational education;
- (c) Consolidation of the existing secondary and university education and devising a system of higher education suited to the needs of the rural areas;
- (d) Expansion of facilities for women's education, especially in the rural areas;
- (e) Training of teachers, especially women teachers, and teachers of basic schools and improvement in their pay scales and conditions of service; and
- (f) Helping backward states by giving a preferential treatment to them in the matter of grants

Most of the recommendations of the study team of the Planning commission were accepted and given effect under the various Five Year Plans.

Process and Nature of Planning for Higher Education: The plan size is determined by the Planning Commission in consultation with the

Ministry of Human Resource Development, UGC and other experts through the constitution of an expert group on higher education. The development grant is essentially in the nature of ad hoc grant provided once in five years by UGC to the Central Universities on the basis of negotiations. In allocating the plan grants to the universities, UGC has scheme-based approach to fund higher education. Plans prepared by the universities are scrutinized by the UGC and allocations to the universities are made under the different schemes.

3.2 ACTUAL AND ESTIMATED ALLOCATION OF FUNDS AT DIFFERENT LEVELS OF EDUCATION IN THE FIVE-YEAR PLANS (I-IX PLANS), PRIORITY FOR EDUCATION IN THE VARIOUS FIVE YEAR PLANS

Education ranks as an important impact of creating a social order founded on the values of freedom, social justice and equal opportunity. Accordingly, it has had to be assigned a pivotal role in the developmental process through the plan periods. Rapid expansion of educational facilities from one plan to another has been a characteristic feature of educational planning in India.

First Five Year Plan (1951-56) took note of the recommendations of the University Education Commission (1948-49) and the Constitutional Provisions of Universal Elementary Education. Accordingly it emphasized the expansion of elementary education.

Second Five Year Plan (1956-61) laid great stress on basic education. The Assessment Committee on Basic Education (1956) appointed by the Government of India became the basis of the expansion and reform in basic education. In the field of secondary education, it was guided by the recommendations of the Secondary Education Commission (1952-53).

Third Five Year Plan (1961-66) emphasized the requirement of trained manpower for the major determinant of the measures of advance which could be achieved in different directions.

There were three One-Year plans (1966-69).

Fourth Five Year Plan (1969-74) took into account the recommendations of the Education Commission (1964-66) and the Resolution on National Policy on Education (1966) passed by the Government of India. The chapter on education was entitled 'Education and Manpower'.

Fifth Five Year Plan (1974-79) provided modest outlays for education during the first three years of the Plan. The rule of the two Governments by different political parties, i.e., the Congress up to 1977

and thereafter the Janata Government running in different directions was not very conducive to development.

Sixth Five Year Plan (1980-85) perceived education, broadly as a seamless continuum of life-long learning and essential for human resource development. The emphasis in the development of education in the Sixth Plan was on the optimum utilization of existing facilities, qualitative improvement of system and making available the educational services to the socially deprived sections of the community. While it was recognized that financial outputs were important and necessary to create additional infrastructure, it was equally important to bring about changes and improvements in the system through increased attention to non-monetary inputs.

Seventh Five Year Plan (1985-90) The development of education during this period was marked by the formulation of the National Policy on Education (NPE) (1986) and the Programme of Action (POA) (1986). The Seventh Plan provided for reorientation of the education system so as to prepare the country to meet the challenges of the 21st century. Launching of Operation Black Board (OB) for the improvement of elementary education and opening of Navodaya Vidyalayas at the secondary stage of education in the rural areas providing free education were the two important characteristics of the development programmes in the field of education during the Seventh Five Year Plan. Vocationalisation of education, especially at the senior secondary stage, was yet another thrust area.

Eighth Five Year Plan (1992-97) Quite a large number of educational plans like plans in other sectors could not be implemented in the way as envisaged by its formulators on account of rapid changes in the Central Government. The formulation of Eighth Five Year Plan was also delayed. The main objectives in the Eighth Plan, according to available indications, would be universalisation of elementary education and complete eradication of illiteracy among the 15-35 age-group.

Ninth Five Year Plan (1997-2002) The Ninth Plan treats education as the most crucial investment in human development. The Prime Minister's Special Action Plan (SAP) has stressed the need for expansion and improvement of social infrastructure in the field of education. This goal has been further elaborated in the National Agenda for Government (NAG) which states: "We are committed to total eradication of illiteracy. We will formulate and implement plans to gradually increase the governmental and non-governmental spending on education up to 6% of GDP; this to provide education for all. We will implement the constitutional provision of making primary education free and compulsory up to 5th standard. Our aim is move towards equal access to and opportunity of educational standards up to the school leaving stage. We shall strive to improve the quality of education at all levels.

3.4 PRIORITIES WITHIN EDUCATION IN THE VARIOUS FIVE YEAR PLANS:-

FIRST FIVE YEAR PLAN: In the post Independence period problems of educational reconstruction, expansion, qualitative improvement and financial implications thereof were reviewed by several Commissions and Committees like, Scientific Manpower Committee (1947), the University Education Commission (1948-49) and the Secondary Education Commission (1952-53). The recommendations of these reports together with the constitutional provisions became the basis for priority determination in the First Five Year Plan.

1. General: A serious attempt should be made to achieve the following broad targets

- (a) At the conclusion of the Five Year Plan, educational facilities should be provided for at least 60 percent of all the children of the school-going age within the age group 6-11.
- (b) At the secondary stage, the target should be to bring 15 percent of the children of the relevant age-group into educational institutions.
- (c) In the field of social education, at least 30 percent of the people (and 10 percent of women) within the age-group of 14 to 40 receive the benefits of social education.

2. Pre-school education: In view of the shortage of funds Government can accept only limited responsibility in this field, confined to research in evolving methods suited to our needs, training of teachers, helping private agencies who take up this work in the rural areas by giving grants-in-aid and running a few model balwadis or nursery schools in each state.

3. Primary education: The provisions of free and compulsory primary education is the first necessary step towards establishing equality of opportunity for every citizen. All States should run, wherever conditions permit, eight-year full-fledged basic schools instead of five-year schools.

4. Secondary education: must be closely related to the psychological needs of the adolescents for whom it is being designed. In order to equip the youth adequately for the needs of the existing socio-economic situations, it is necessary to give secondary education a vocational bias. Secondary education should be closely integrated with the basic education and its essential development underlying principles.

5. University education: In spite of their grave defects, the existing universities are the only repositories we have of the tradition of organized knowledge and the course of wisdom is to improve their working while we attempt to build a system or systems better suited to our needs. We must

develop and apply selective tests on a large scale so that nobody is allowed to go up for higher education who is not fit to profit by it.

6. Social education: The concept of adult education to be widened to include, in addition to literacy, the health, recreation and home life of the adults, their economic life and citizenship training, and to denote this new concept the term 'social education' was coined. Social education implies an all-comprehensive programme of community uplift through community action. Attempt should be made to organize an economic activity on co-operative basis for social education in rural areas.

7. Professional education: Organisation of facilities for professional education cannot be strictly related to the existing opportunities for employment but should take into account the developments planned in the various other spheres of national activity which require technical personnel. The greatest need for expansion of training facilities is at the level of artisans and craftsmen. Institutions run by the Ministry of Labour, trade schools, industrial schools, production-cum-training centres should be opened on an extensive scale, so that the skills of the large numbers of people, engaged in production or likely to be so engaged, are developed.

8. Women's education: Unlike boys, girls are forced to suspend their studies in the early teens due to a variety of reasons and take up wider responsibilities of the home. Arrangements should, therefore, be made to facilitate resumption of studies by women at a time when they have leisure.

SECOND FIVE YEAR PLAN: The progress achieved in different branches of education has been reviewed by the Central and State Governments with a view to formulating programmes for the second five year plan.

1. Elementary education: An aspect of the situation which causes concern is the wastage which exceeds 50 percent at the primary stage. The wastage is greater in the case of girls. Stagnation is the situation where a pupil continues in the same class for more than the normal period. To prevent wastage the introduction of compulsion is essential. Its enforcement may be easier if busy agricultural seasons coincide with school holidays as far as possible. The principle remedy for stagnation lies in improving the quality of teachers and teaching techniques, including understanding of human relations and personality problems.

A major obstacle in the way of promoting girls' education is the dearth of women teachers. The task of training women teachers has to be approached as a matter of urgency.

As regards school buildings, it is inevitable that at the present stage austere standards should be adopted. A school could be started under

whatever arrangements are immediately possible in a locality, and common buildings like village temples and panchayat ghars could also be used. Once a school is actually functioning, the provision of a building can be taken in hand as soon as circumstances are favourable and local contributions are forthcoming.

2. Basic education: In the spread of basic education certain administrative problems have to be considered. The aim should be that new entrants into educational services have had training in basic education. In organizing training for basic teachers it is important to ensure the observations of high standards of teaching. Seminars, refresher courses and schemes of in-service training should also be organized. Further, post-graduate basic training colleges need to be affiliated to the universities so that those who are trained there are able to go up for higher professional training.

The practical value of basic education and even its financial return can be increased by linking it up with allied programmes like agriculture, village and small industries, cooperation, development and national extension service, etc. and thereby giving a definite place to institutions imparting basic education in the scheme of development in each district and each block.

3. Secondary education: The Secondary Education Commission made proposals for bringing about a greater diversity and comprehensiveness in educational courses and providing more comprehensive courses which would include both general and vocational subjects. The Commission recommended the establishment of multipurpose schools, of technical schools either separately or as part of multi-purpose schools and of special facilities for agricultural education in rural schools. A sound system of secondary education, which offers openings in a large number of different directions, is an essential foundation for economic development on modern lines.

Plans of States do not provide in sufficient measure for the education of girls, for, the number of high schools for girls is expected to increase from 1,500 to 1,700 only by the end of second plan. To enable girls to take up careers for which openings exist and are likely to increase (such as gram sevikas, nurses, health visitors, teachers, etc.) special schemes are recommended.

4. University education: For improving the quality of university and college education and for reducing wastage and stagnation of students who are unable to qualify, a number of measures are being taken by the University Grants Commission. These include the institution of three-year degree courses, organization of tutorials and seminars, improvement of buildings, laboratories and libraries, provision of hostel facilities, stipends for meritorious students, scholarships for research and increase in salaries of university teachers. In the course of second five year plan, seven new universities are to be established.

5. Technical education: In the second plan, a provision of about Rs.48 crores has been made for technical education. In the course of the second plan the Indian Institute of Technology, Kharagpur, will be fully developed for under-graduate and post-graduate studies. Post-graduate courses and research in engineering and technology at other selected centres will also be organized. New schemes to be undertaken in the second plan include Higher Technological Institutes established in a phased programme of these in the Western, Northern and Southern Regions in the country. Each Institute when fully developed will provide for a total student body of 1,200 for under-graduate courses and 600 for post-graduate courses and research.

Increasing demands for skilled workers and foremen and other supervisory personnel will need to be met during the second plan.

6. Social education: The total allotment in the plan for social education is about Rs.15 crores, including about Rs.10 crores in the national extension and community development programmes.

7. Higher rural education: To provide (a) facilities for higher studies to students who complete their post-basic or higher secondary courses, (b) certificate courses in subjects such as rural hygiene, agriculture and rural engineering and also shorter courses, and (c) comprehensive teaching-cum-research-cum-extension programmes in rural areas, the Ministry of Education proposed to establish 10 Rural Institutes in the second five year plan and have made a provision of Rs. 2 crores for this purpose.

8. Teachers: In the second plan Rs. 17 crores have been provided for increasing training facilities for teachers and besides expanding existing institutions, it is proposed to establish 231 training schools and 30 training colleges. At the end of the second plan it is expected that the proportion of trained teachers will increase to 79 and 68 percent in primary schools and secondary schools respectively.

9. Scholarships: With a view to providing greater equality of opportunity in the field of education and making available educational facilities to deserving students, about Rs.12 crores for scholarships are being provided in the second five year plan. Scholarships are provided, amongst others, from scheduled tribes, scheduled castes and other backward classes.

THIRD FIVE YEAR PLAN:

1. The Third Plan provides for setting up of six training centres for Bal Sevikas. In the programme for education Rs. 3 crores have been allotted for child welfare and allied schemes at the Centre and about Rs.1 crores in the State in addition to resources available to the community development and social welfare programmes. Schemes for child welfare now being formulated by the Ministry of education include improvement

of existing balwadis, opening of new balwadis, expansion of training programmes for bal sevikas and a number of pilot projects for child welfare in which education, health and welfare services will be organised in an integrated manner.

2. Elementary education: The aim in the third plan was to provide facilities for the education of all children in the age-group 6-11. It was estimated that by the end of the third plan 90 percent of the boys and 62 percent of the girls will be at school.

3. Basic education: During the third plan it was proposed to convert about 57,760 schools into basic schools, to orient the remaining schools to the basic pattern, to remodel all training institutions along basic lines, to establish basic schools in urban areas, and to link up basic education with the development activities of each local community.

4. Trained teachers for basic and other schools: By end of the third plan, the number of training institutions for teachers will increase to 1424 and all of them will impart training on basic lines. For teachers who have not been trained in basic education, short-term courses of training in the simpler aspects of basic education are to be provided.

5. Secondary education: In the third plan, special emphasis to be given to strengthen the entire programme of the secondary school reorganization, such as improvement in craft teaching, organization of school libraries, the better use of audio-visual techniques, etc.

6. University education: The number of universities has increased from 27 in 1950-51 to 46 in 1960-61 and about a dozen more universities are likely to be added during the third plan. In the third plan larger facilities are being provided for diverting students to vocational and technological education.

7. Social education and adult literacy: The Ministry of Education provides programmes for social education. The educational plans of states provide for libraries and continuation classes and adult literacy. Altogether in the third plan, about Rs. 25 crores are expected to be available for social education.

FOURTH FIVE YEAR PLAN: The most important feature of the fourth plan for education was its thrust on manpower planning. The plan recognized that educational development at the higher level should be broadly related to the pattern of jobs and the estimates of demand in the country for educated manpower. It was realized that as manpower was not homogeneous, manpower planning had to concern itself with different categories, such as doctors, nurses, engineers, agricultural graduates and craftsmen each having its own level of education and specialization. It was emphasized that a suitably oriented system of education could facilitate and promote social change and contribute to economic growth by training skilled manpower for specific task of development.

1. Elementary education: The Fourth Plan recognized that facilities for elementary education were a pre-requisite for quality of opportunity and keeping this fact in view the provision of facilities for girls and backward areas was accorded first priority. Efforts were directed to remove the imbalances within states.

2. Secondary education: It was expected that the new pattern of secondary education as recommended by the Education Commission (1964-66) would be implemented in many states during the Fourth Plan. The main teacher education programmes needed attention were: improving the quality of teacher education through in-service education, training of more women teachers and teachers from tribal communities and training of mathematics and science teachers.

3. Higher education: In the field of higher education it was proposed to extend correspondence courses to science disciplines also. The Plan cautioned that proposals to set up new universities would be carefully examined by the University Grants Commission.

4. Technical education: Keeping in view the large scale unemployment of engineers the main emphasis in technical education in the Fourth Plan was on improving its quality and standards.

5. Adult literacy: Mobilisation of voluntary effort and local community resources was considered very vital for spreading adult literacy.

FIFTH FIVE YEAR PLAN: The Fifth Five Year Plan was prematurely abandoned by the Janata Party Government at the Centre. In general terms the Fifth Plan paid emphasis on ensuring equality of opportunities as part of the over-all plan of ensuring social justice.

1. Non formal education: From July 1975, programme of non-formal education was introduced by the government of India to cover children and also younger group who did not have opportunity for formal schooling or left school for one reason or the other. The major categories of population which received priority were (i) children in the age group of 6-14, (ii) uneducated youth in the age group of 15-35, (iii) specific groups of men and women engaged in development activities or having common occupational or social and cultural identity.

2. Secondary education: In the secondary education sector, efforts were made to implement the new pattern of education, i.e. 10+2

3. University education: The main emphasis in university education is on consolidation and improvement. Provision is, however, being made to provide additional educational facilities to weaker sections of society and in the backward areas. Facilities through evening colleges, correspondence courses and private study will be expanded. Post-graduate education and research will continue to be strengthened

through the development of centres of advanced study, science service centres, common computer facilities and regional instrumentation workshops. Programmes of faculty development, like summer institutes, seminars and orientation courses will be stepped up.

SIXTH FIVE YEAR PLAN: The Sixth Plan (1979-83) initiated by the Janata party Government was abandoned by the Congress Party after it was voted back to power in 1980. The Congress Party changed the years of the plan 1978-79 to 1984-85 to 1980-85. The emphasis in the development of education in the Sixth Plan was on the optimum utilization the educational services to the socially deprived sections of the community. It was highlighted that while financial outlays were important and necessary to create additional infrastructure, it was equally important to bring about changes and improvements in the system through increased attention to non- monetary inputs, i.e., environment conducive to growth and development, participatory management techniques involving the teachers' and the students skills, development of a relevant academic ethos opportunities for learning by doing and appropriate consideration to the problems of education of the first generation planners.

1. Primary education: The Plan proposed a ten-year strategy to realize the Constitutional Directive of providing free and compulsory education to all children up to the age of 14 – an objective which should have been achieved in 1960, i.e., ten years after the commencement of the Constitution. The Sixth Plan proposed universalisation of primary education for the age group 6-11 to be achieved by the end of the Plan in 1985 and universalisation of middle level by 1990.

2. Higher education: The sixth Plan launched by the Janata Party Government had virtually declared a freeze of higher education. The Congress Party which was also aware of the undesirable growth of general higher education and that especially at the undergraduate level, emphasized the scope for and possibility of greater use of infrastructural physical facilities and resources which might need minimum additional support to make them critically viable.

3. Adult education: In the designing of strategy of adult education, it was observed that the lot of the weaker sections like women, scheduled castes, scheduled tribes and agricultural labourers as well as slum dwellers would be given priority.

SEVENTH FIVE YEAR PLAN: Educational policies and programmes during the Seventh Plan were undertaken in the light of the directions contained in the National Policy of Education formulated in 1986.

1. Elementary education: Overriding priority will be given to realizing universalisation of elementary education for children in the age group 6-14 years by 1990; this will continue to be part of the Minimum Needs Programme. The emphasis will shift from mere enrolment to retention of pupils in schools and to the attainment by them of basic elements of

learning. The objective is sought to be achieved through a combination of formal and non-formal methods, focusing sharply on the needs of girls and of children belonging to the economically and socially weaker sections.

2. Adult education: Eradication of adult illiteracy and the development of a programme of continuing adult education is a major thrust area in the Seventh Plan.

3. Secondary education: In view of the importance of linking education with productivity, a major impetus will be given in the Seventh Plan to vocationalisation of the higher secondary stage. Facilities for vocational education will be suitably diversified to cover a large number of fields in agriculture, industry, trade and commerce and services.

4. The main emphasis in higher education will be on consolidation, improvement in standards and reforms in the system to make higher education more relevant to national needs and to forge forward and backward linkages of higher education with employment and economic development. Expansion of general higher education facilities will be carefully planned so as to take care of the need to provide large access to weaker sections and first generation learners from backward areas. In doing so, emphasis will be laid on providing access to existing institutions through appropriate reservation, scholarships, provision of hostel facilities. A network of facilities will be provided through open universities, correspondence courses and part-time education to meet social demand and the needs of continuing education.

5. Technical education: In the context of the rapid modernization of the economy in the near future and given the Seventh Plan objective of improvement in productivity, technical education has to play a leading role. The main emphasis will be on: Consolidation of infrastructure and facilities already created; optimum utilization of the existing facilities with attention to cost effectiveness; identification of critical areas with a view to strengthening the facilities in the fields where weaknesses exist in the system at present; improvement of quality and standards of technical education; modernization of engineering laboratories and workshop in the technical education institutions, etc.

EIGHT FIVE YEAR PLAN:

1. Elementary education: Early Childhood Education(ECE) would be expanded by attaching pre-primary classes to selected primary schools. Voluntary agencies and other NGOs would be encouraged and provided financial assistance by reorganizing the scheme of ECE. Integrated Child Development Schemes(ICDS) model would be supplemented by Balwadis, Creches and Vikas Wadis.

2. Primary education: primary schools or alternatives to primary schools like non-formal centres et. Would be provided to every child

within a walking distance of one kilometer, with suitable adjustment for special cases. Voluntary agencies, factories, cooperatives etc. would be encouraged to set up part-time primary schools to serve several groups of children belonging to hilly, desert, forest areas and nomadic tribes, etc with freedom to adjust the number of school days, instructional hours and appoint teachers on contract basis.

Besides expansion of school facilities, there will be need to improve the quality of education by providing existing schools with sufficient facilities. Therefore, the "operation blackboard" scheme will not only be continued and completed during the eighth plan in relation to primary schools but also extended to upper primary schools.

3. Teacher education: A large number of teachers will be covered through in-service programmes, both institutional and distance education, and reputed professional organizations will be encouraged to conduct in-service and refresher courses for teachers. Open universities at the national and state level will be encouraged to introduce induction teacher training courses to supplement the efforts of the existing training institutions.

4. Secondary education: The expansion of secondary schools would be regulated and new schools opened on selective basis, particularly to cater to the needs of deprived sections like girls and SCs/STs and in rural areas generally. Quality improvement and the raising of the internal efficiency of the existing (10+2) system would be emphasized.

5. Vocational education: Special attention will be given to paramedical vocational courses to meet the needs of health manpower in the eight plan. In addition to vocational courses forming part of the higher secondary courses, efforts would be made to offer varied courses of suitable duration to women, rural and tribal students and deprived sections of society.

6. University and Higher education: At present, the higher education system comprising of general, technical, medical and agricultural streams, is fragmented in terms of structures and policies. Greater cooperation among the streams should be encouraged by promoting networking, sharing of facilities and development of manpower including teachers' training/ orientation facilities. There should be greater coherence in policy and planning.

NINTH FIVE YEAR PLAN:

1. Elementary education: The problem of universal elementary education and literacy is tackled through a strong social movement with clearly perceived goals and involving the State and Central Governments, Panchayat Raj Institutions, Urban Local Bodies, voluntary agencies, social action groups, the media and every supportive element in society.

2. Adult education: To spread literacy in the rural and tribal areas which are lagging behind, a disintegrated and decentralized mode of planning and implementation will be adopted. Interlinkage of the adult education programme with income generation, better health and nutrition, women's empowerment and overall rural development will be focused upon. At the grass-roots level, people's participation will be ensured in planning and implementation of local programmes.

3. Secondary education: The ninth plan will lay emphasis on the revision of curricula so as to relate these to work opportunities. Girls and members of disadvantaged groups will be provided with scholarships, hostels and other incentives, for facilitating their participation in secondary education. Compensatory education will be provided, where necessary, for meeting the equity criteria. Pre-vocational training at the secondary level and employment-oriented courses at the higher secondary level, suited both to industrial and agricultural development, will be provided along with hands-on training. The Open Learning system will be expanded and a wide variety of courses offered.

4. University and Higher education: The priority for the Ninth plan will be the expansion of education mainly in the unserved areas and with a focus on improving the coverage of women and the disadvantaged groups, using financial assistance as a leverage to secure better performance of the system, updating of syllabi to enhance their relevance, improvement in internal resource generation and implementation of a model code of governance to reduce non-academic influence in the higher education system.

3. Expenditure on education and national economy:

Over the years, the percentage of GNP spent on education has been increasing which can be explained with the help of following table.

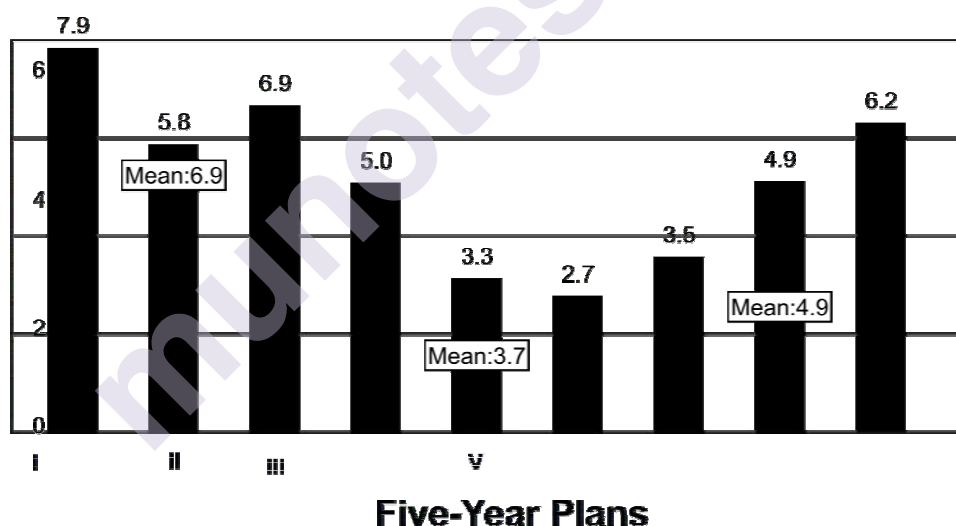
Financial Allocation to Education in Five Year Plans

(Rs. In crores)

Plan	Total Plan Outlay	Expenditure	Outlay on Education	Expenditure on Education	Percentage of Plan Outlay on Education to Total Plan
First Five Year Plan(1951-56)	2,356	1,960	169	153	7.2
Second Five Year Plan(1956-61)	4,800	4,672	277	273	5.8
Third Five Year Plan(1961-66)	6,209	8,557	560	589	6.9

Annual Plans(1966-69)	6,756	6,625	331	321	-
Fourth Five Year Plan(1969-74)	24,882	16,160	822	786	5.0
Fifth Five Year Plan(1974-79)	53,411	42,300	1,285	912	3.3
Sixth Five Year Plan(1980-85)	1,72,210	1,49,750	2,524	2,943	2.7
Seventh Five Year Plan(1985-90)	1,80,00	-	5,733	-	3.5
Eighth Five Year Plan	-	-	-	-	4.9
Ninth Five Year Plan	-	-	-	-	6.2

Expenditure on Education in Five Year Plans (Per cent of Total)



From the above table it has been observed that, during the first three Five-Year Plans, on average about 7 per cent of the total Five-Year Plan expenditure was spent on education, the corresponding proportion declined to 5 per cent in the Fourth Five-Year Plan. It further declined to 3.3 per cent in the Fifth Five-Year Plan and again down to 2.7 per cent in the Sixth Five-Year Plan. The proportion of national income allocated to education in India crossed 4 per cent in the early 1990's, but the level could not be maintained. The allocation in the Ninth, and probably in the Tenth Plan is still much below the allocation made in the very First Five-Year Plan.

While there may be several factors, such as the war, drought and inflation that led to this trend, the most unfortunate and disturbing long-term trend

in this regard is the slackening of government effort to mobilise required resources during the period of high economic growth (1986-87 to 2001-02).

Allocation of Funds to
Education in the 5-Year Plans

3.5 EXPENDITURE ON EDUCATION, PUBLIC EDUCATION AT DIFFERENT LEVELS (CENTRAL AND STATE LEVEL) IN INDIA:

Major share of expenditure on education is incurred by the central and state departments of education. In addition, many other departments also undertake education and training activities. The expenditure on education by the centre and the states is shown in the following table.

Plans Outlay and Expenditure on Education: Share of the Centre and States

Sr. No		Outlay for Education (Rs. in crores)	% outlay for Education to Total Plan	Expenditure on Education (Rs. in crores)
1.	First Plan Centre State Total	44 126	4.9 8.7	32 131
2.	Second Plan Centre State Total	70 207	2.7 9.2	70 203
3.	Third Plan Centre State Total	148 412 560	4.1 10.6 7.5	152 437 589
4.	Fourth Plan Centre State Total	271 551	3.1 7.8	241 454
5.	Fifth Plan Centre State Total	405 880	2.1 4.5	- -
6.	Sixth Plan Centre State Total	735 1789	1.6 3.6	601 2288
7.	Seventh Plan Centre State Total	1739 3994	- -	- -

As discussed in earlier topics, under the Constitution, education is a concurrent subject and educational planning. It is done at two levels – Central level and State. In the course of planning, an elaborate organizational machinery has grown at the Central and State levels for the formation of Five Year Plans. To assist in the formulation of the plans at the Central level, the Education Division of the Planning Commission works in close liaison with the Education Division of the Ministry of Human Resource Development. At the State level the Planning and Education Departments prepare detailed plans of educational development in the State concerned.

3.6 TYPES OF PLANS

The Planning Commission is a high-powered Central agency constituted in March 1950 to prepare a blue-print for development of the country. It has been entrusted with the task of assessing the resources of the country, drawing up Plans for the development and utilization of resources within the framework of specified national priorities, and determining conditions, modalities and adjustments needed for the success of the planning process. The commission also appraises the progress of the plans from time to time.

The Prime Minister is the Chairman of the Commission. In order to achieve co-ordination among the States in implementing the plans and to achieve targets set in the Plans, an advisory body called National Development Council (NDC) was set up in 1952, with the Prime Minister as Chairman and Chief Ministers of all the States and Administrators of the Union Territories as members.

Broadly speaking the National Plans are formulated and finalized in the stages. In the first stage, the rough projections and estimates, prepared by the Planning Commission in consultation with the Central Ministries and State Governments against the background of the long-term perspective, are approved and modified, if necessary, by the NDC in the form of preliminary instructions.

In the second stage, State Governments/Union Territories prepare their own Plans and send them to the Planning Commission which dovetails these schemes, programmes and projects into an integrated Plan called the “Draft Plan”. The Draft Plan is then released for public discussion.

The third stage consists of prolonged discussions between the members of the Planning Commission and the representatives of different Central Ministries, state Governments and Union Territories, for arriving at an agreement on the nature and the size of the Plan.

These tentative agreements are sent to the NDC after examination by the Union Cabinet. In the light of the recommendations of the NDC, the

Planning Commission gives the final shape to the Plan, which subsequently becomes the official national plan.

Allocation of Funds to
Education in the 5-Year Plans

The Five Year Plan specifies the allocation, chalks out the policies and the programmes, and sets targets of achievements. There is a provision for periodical appraisal of the Plan performance and every year 'Annual Plan' is drawn up with due modification but within the framework of the Five Year Plan.

Central and state Plans: Under the Constitution, education is a concurrent subject and educational planning, therefore, is done at two levels – Central and State. At the Central level, the Planning Commission and the Ministry of Human Resource Development prepare a national plan of educational development which consists of two parts – first, a central plan dealing with the direct responsibilities with the Government of India regarding education including schemes of financial assistance to State Governments for educational development in certain specific areas known as the Centrally-sponsored schemes and second, an integrated summary of the State Plans of educational development. At the state level the Planning and Education Departments prepare detailed plans of educational development in the State concerned.

In the course of five decades, an elaborate organizational machinery has grown at the Central and State levels for the formation of Five Year Plans. To assist in the formulation of the plans at the Central level, the education Division of the Planning commission works in close liaison with the Education Division of the Ministry of Human Resource Development.

In the planning of higher education, Education Department of the Ministry is assisted by the University Grants commission. Similarly for school education, it is assisted by the National Council of Educational Research and Training.

Institutional planning: can be discussed under three heads

1. School Principals and Institutional Planning: In his capacity as the leader of a school, the Principal has to discharge two functions: as an administrator and as the Supervisor.

To be an effective leader/supervisor, the Principal must possess three types of skills: technical skills, personal and social skills and co job of the conceptual skills. The first job of the Principal should be to look at the whole school system, assess the strengths and weaknesses of his staff members, and carefully create the ground work for various changes. He will have to proceed in a planned manner. Five steps in Institutional planning:

- a) Individual and group conferences;
- b) Discussion with teachers and experts and identification of problems;

- c) Survey of resources;
- d) Preparation of improvement programmes;
- e) Evaluation of the programme

2. Institutional Planning and Teachers colleges: As for the improvement of the syllabus, a long-term planning is needed through which we could involve more and more teachers in revising the syllabus and making it more up to date. There should be a better representation of the teachers on the Board of Studies. All teachers should continually review themselves and their contribution.

3. Role of Educational administrations in Institutional Planning: Just as the community development programme is the people's programme so is the Institutional Plan, the plan of the school community consisting of the principal, the teachers, the students and the local people for the improvement and development of physical and educational facilities in the Institution. The success of the programme depends on the participation of the people concerned with the programme. This is the basis for a sound national plan.

The success of institutional planning, implementation and proper evaluation will depend on the dynamic leadership, initiative and personality of the District Educational Officer. He will be instrumental in encouraging good work by securing special development grants for the schools on the basis of performance.



HUMAN RESOURCE DEVELOPMENT

Unit Structure

4.0 Objectives

4.1 Introduction

4.2 Relationship between Human Resources Management (HRM) & Human Resource Development (HRD)

4.3 Approaches to HRD

4.4 Need for HRD

4.5 Significance of Education in Human Resource Development

4.6 Concept of 'Manpower planning'

4.7 Need for Manpower planning

4.8 Importance of the need for human resource in relation to other form of resources

4.9 Need of Manpower Planning

4.10 Human Capital in Relation to other forms of Resources

4.11 Purpose of Economics of Teacher Provision

4.12 Concepts of Demand and Supply of Teachers

4.13 Problems associated with Estimating Demand and Supply

4.14 Policy Implications of economics of teacher provision

4.0 OBJECTIVES

This unit deals with the concept, approaches, need and significance of Human Resource Development and hence by the end of the unit you will be able to:

- Describe the concept 'Human Resource Development'
- Explain the need for Human Resource Development
- Discuss the implications of Human Resource Development
- Describe the significance of Development of human resources through education
- Describe the Concept of 'Manpower planning'
- Discuss the need for Manpower planning
- Explain the importance of the need for human resource in relation to other form of resources
- Explain the need for economics of teacher provision'
- State the various factors on which demand and supply in teacher education is linked,
- Discuss the concepts of demand and supply,

- Describe the various policy implications for the difficulties in estimating demand and supply in teacher education

4.1 INTRODUCTION

A well-prepared and motivated workforce is possibly the most important of the three intangible assets to support an organisation's value creating processes. According to Peter Drucker "The most valuable asset of a 20th century company was its production equipment. The most valuable asset of a 21st century institution will be its knowledge workers and their productivity (Drucker 1999). A great deal exists in the literature about the provision of staff development and training as investment for organisations. Staff development and staff training are parts of the bigger concept of human resource development (HRD). Training is just one possible way to organise and implement learning processes in organisations and not always the most effective one. Training and development have come to be viewed as **lifelong activity**, rather than the front end acquisition of qualifications. As a result, the focus of concern has shifted from what the trainer does, to what the learner requires. The ultimate aim of the training and development process has been characterised as the creation of the learning organisation, constantly reviewing its mistakes and successes and adapting its activities appropriately. The issues of workforce demographics, desirable characteristics of the workforce and the obstacles to achieving the workforce which is well prepared, motivated and strategically ready are key elements considered when discussing human resource development.

4.2 RELATIONSHIP BETWEEN HUMAN RESOURCES MANAGEMENT (HRM) AND HUMAN RESOURCE DEVELOPMENT (HRD)

The Human Resources Management (HRM) function includes a variety of activities, and key among them is deciding what staffing needs you have and whether to use independent contractors or hire employees to fill these needs, recruiting and training the best employees, ensuring they are high performers, dealing with performance issues, and ensuring your personnel and management practices conform to various regulations. Activities also include managing your approach to employee benefits and compensation, employee records and personnel policies.

Human Resource Development (HRD) serves communities and people's needs by developing resources that provide opportunities and essential services such as health and nutrition, emergency services, affordable housing, Head Start, youth development, volunteer opportunities, transportation, energy assistance and conservation and community development.

Human Resource Development (HRD) is the framework for helping employees develop their personal and organizational skills, knowledge,

and abilities. Human Resource Development includes such opportunities as employee training, employee career development, performance management and development, coaching, mentoring, succession planning, key employee identification tuition assistance and organization development.

The focus of all aspects of human resource development is on developing the most superior workforce so that the organization and individual employees can accomplish their work goals in service to customers. HRD encompasses the broad set of activities that improve the performance of the individual and teams, hence the organisation.

Human resources is a term with which many organizations describe the combination of traditionally administrative personnel functions with performance management, Employee Relations and resource planning. The field draws upon concepts developed in Industrial/Organizational Psychology. Human resources has at least two related interpretations depending on context. The original usage derives from political economy and economics, where it was traditionally called labor, one of four factors of production. The more common usage within corporations and businesses refers to the individuals within the firm, and to the portion of the firm's organization that deals with hiring, firing, training, and other personnel issues. This article addresses both definitions.

4.3 APPROACHES TO HRD

Human development and HRD: Competing approaches

Human development refers to the capacity of individuals to reach their potential within a society where political and economic processes are transparent and sufficient to provide participation in decision-making. As President of the World Bank Group, James Wolfensohn, has asserted, "The message for countries is clear: educate your people; ensure their health; give them voice and justice;... and they will respond." (World Bank, 1998) Thus from the World Bank's perspective, human development depends on investment in social and political capital, which when integrated with infrastructure, and 'sound' and appropriate economic and financial policies, mean that individuals and societies reach their potential. More explicitly, then, development is: ... a process of expanding the real freedoms that people enjoy. These freedoms are both the primary ends and principal means of development. They include the freedom to participate in the economy ... freedom of political expression and participation, social opportunities including entitlement to education and health services, transparency guarantees involving freedom to deal with others openly, and protective security guaranteed by social safety nets, ... honest governments, open legislative and transparent regulatory systems ... an effective and impartial legal system, with protection of and support for rights ... [as well as] physical infrastructure .. energy, roads, transportation and telecommunications. (Sen and Wolfensohn. 1999). The goals of human development, then, are not simply wealth-driven, although economic growth is necessary. (Sen, 1998; Stiglitz, 1999) Rather the goals of human development are directed at obtaining the benefits of, at least, core standards of health,

welfare and education which are essential for citizens to participate fully in all aspects of social, economic and political life. (World Bank, 1999;) If these latter are to be achieved then social, economic and political policies must be congruent with these objectives. Thus ideal models of human development are multi- dimensional, with each of the dimensions being integrated into the broad framework as set out by Sen and Wolfensohn (1999).

For many the notion of HRD retains its early and broadest definition as the process of increasing the knowledge, the skills, and the capacities of all the people in a society. In economic terms it could be described as the accumulation of human capital and its effective investment in the development of an economy. In political terms, human resource development prepares people for adult participation in political processes, particularly as citizens in a democracy. From the social and cultural points of view, the development of human resources helps people to lead fuller, richer lives ...(Harbison and Myers, 1964, cited in de Silva, 1997).

The traditional ideal of HRD has multiple dimensions which reflect the full gamut of individual needs and rights. In this respect human resource development focuses on capabilities and entitlements within a society. As such human resource development is integrated with other development issues such as, infrastructure and basic human rights. Thus for development centred analysts, HRD is a subset of that much wider set of processes pertaining to human development. Within this approach HRD, is "the process of increasing the knowledge, the skills, and the capacities of all the people in a society", is thus a necessary but not sufficient element of the broader development objective.

Economic Approach to HRD

This economic or development approach to HRD has a very long history with high levels of scholarship in the modern era. Adam Smith noted that the capacities of individuals depended on their access to education. In the 1950s the development centred HRD approach encompassed the new development economics, (Hirschman, 1981; Lewis, 1955; Myrdal, 1968) augmented, *inter alia*, since then with the development of human capital thesis and the writings of development economists such as recent Nobel Prize winner Amartya Sen. The development orientation indeed draws heavily on work of scholars like Sen, who focus on core capacities and entitlements of individuals as the basis for analysis. To expand individual's "entitlements" and "capabilities" (Sen, 1992) is to 'develop' that individual in order to develop the society and economy. In other words, the development orientation to HRD is a subset of the broader issues of development and is based on broad goals of enhancing individuals' rights and capacities. Such an approach is different from the narrowly economic perception of development as financial-economic expansion and trade growth. These were the priorities of major international bodies such as the IMF and World Bank until the late 1990s. Economic growth was perceived to lead automatically to wealth creation, which served as a proxy for development. Under this regime, free markets and trade liberalisation were prescribed as the means to economic growth and so development. Under such a paradigm measuring

development occurred by simple indicators such as GDP per capita or economic growth rates. However, it has been recognised that such prescriptions would lead to human development left too much to chance and, it has been widely demonstrated that indicators such as GDP per capita give no information on distributional issues, who has access to benefits or how far these obtain the capability to be healthy or to choose not have children.

4.4 NEED FOR HRD

Human resources development, education, training and lifelong learning policies facilitate:

- (a) lifelong learning and employability as part of a range of policy measures designed to create decent jobs, as well as to achieve sustainable economic and social development;
- (b) give equal consideration to economic and social objectives, emphasize sustainable economic development in the context of the globalizing economy and the knowledge- and skills-based society, as well as the development of competencies, promotion of decent work, job retention, social development, social inclusion and poverty reduction;
- (c) stress the importance of innovation, competitiveness, productivity, growth of the economy, the creation of decent jobs and the employability of people, considering that innovation creates new employment opportunities and also requires new approaches to education and training to meet the demand for new skills;
- (d) address the challenge of transforming activities in the informal economy into decent work fully integrated into mainstream economic life; policies and programmes should be developed with the aim of creating decent jobs and opportunities for education and training, as well as validating prior learning and skills gained to assist workers and employers to move into the formal economy;
- (e) promote and sustain public and private investment in the infrastructure needed for the use of information and communication technology in education and training, as well as in the training of teachers and trainers, using local, national and international collaborative networks;
- (f) reduce inequality in the participation in education and training.

4.5 SIGNIFICANCE OF EDUCATION IN HUMAN RESOURCE DEVELOPMENT

Education plays a dominant role as an effective instrument for large scale achievement and revolution in all spheres. Purposeful education enables the individual to understand and study the real life situation and to develop an opportunity for creating confidence in the minds of younger generation, and provide a strong base for rational and value oriented and nation building progress (Myers & Harbison, 1965; Mingat and Tan, 1986). The Government is investing heavily on human resources development in the conviction that among its best resources are its people. The World Bank (2000) has also acknowledged the importance of technical and higher education for countries not to be left behind in a global economy based on knowledge. Criticizing an analysis that measures the benefits of higher education solely in terms of incremental earnings accruing to individuals, higher education is regarded as ‘simultaneously improves individual’s lives and enriches wider society’ (World Bank, 2000: 37).

Further, education is a lifelong process. What a student obtains from the school and college is only a small part of the education that the individual needs for the economic and social life of human being. Thus, both in the case of man who is determined to reach the summit, and the man who wants to make a complete success of his life, additional education is imperative to develop the special skills. Therefore, the education must be constant and continuous programme (Myers & Harbison, 1965; Bacchus, 1992, Rena, 2005c).

Human resource development (HRD) in itself can be understood in different ways: HRD in its broadest sense is an all inclusive concept, referring to the process of ‘increasing the knowledge, skills and capacities of all people in a society’ (Tseggai, 1999: 216), encompassing in economic terms the accumulation of human capital, in political terms preparing people for participation in democratic political processes, and in social and cultural terms helping people to lead fuller lives, less bound by tradition (Tseggai, 1999). The dominant human capital theory has, however, narrowed HRD down to its economic aspects, or its human capital component (World Bank, 1995).

The role of higher education within the national HRD strategy broadly follows the pattern advocated by Thompson and Fogel (1976) for educational development in developing countries, in which higher education should be strongly embedded into the national community as a whole instead of being an elitist institution which is removed from the realities of the majority of the population. The role of the universities in specific and education at large should be that of a ‘developmental university’, an institution first and foremost concerned with the “solution” of the concrete problems of societal development’ (Coleman, 1994: 334). Such a university sets out to ‘ensure that the development plans of the university are integrated with or linked to national

development plans' (Coleman, 1994: 343). For human resource development to happen both the formal and informal training programmes at different levels within the society are of paramount importance. Human Resource Development

Check your Progress

- Q.1. What do you understand by Human Resource Development? Discuss the various approaches to Human Resource Development.
- Q.2. "Human Resource Development is to 'develop' that individual in order to develop the society and economy" Discuss this statement in relation to the need for human resource development.
- Q.3. Discuss the significance of education in the development of Human resources.

4.6 CONCEPT OF MANPOWER PLANNING

Manpower Planning which is also called as Human Resource Planning consists of putting right number of people, right kind of people at the right place, right time, doing the right things for which they are suited for the achievement of goals of the organization. Human Resource Planning has got an important place in the arena of industrialization. Human Resource Planning has to be a systems approach and is carried out in a set procedure. The procedure is as follows:

1. Analysing the current manpower inventory
2. Making future manpower forecasts
3. Developing employment programmes
4. Design training programmes

4.7 STEPS IN MANPOWER PLANNING

1. **Analysing the current manpower inventory-** Before a manager makes forecast of future manpower, the current manpower status has to be analysed. For this the following things have to be noted-

- Type of organization
- Number of departments
- Number and quantity of such departments
- Employees in these work units

Once these factors are registered by a manager, he goes for the future forecasting.

2. **Making future manpower forecasts-** Once the factors affecting the future manpower forecasts are known, planning can be done for the future manpower requirements in several work units.

The Manpower forecasting techniques commonly employed by the organizations are as follows:

- i. **Expert Forecasts:** This includes informal decisions, formal expert surveys and Delphi technique.
- ii. **Trend Analysis:** Manpower needs can be projected through extrapolation (projecting past trends), indexation (using base year as basis), and statistical analysis (central tendency measure).
- iii. **Work Load Analysis:** It is dependent upon the nature of work load in a department, in a branch or in a division.
- iv. **Work Force Analysis:** Whenever production and time period has to be analysed, due allowances have to be made for getting net manpower requirements.
- v. **Other methods:** Several Mathematical models, with the aid of computers are used to forecast manpower needs, like budget and planning analysis, regression, new venture analysis.

3. Developing employment programmes- Once the current inventory is compared with future forecasts, the employment programmes can be framed and developed accordingly, which will include recruitment, selection procedures and placement plans.

4. Design training programmes- These will be based upon extent of diversification, expansion plans, development programmes, etc. Training programmes depend upon the extent of improvement in technology and advancement to take place. It is also done to improve upon the skills, capabilities, knowledge of the workers.

4.8 IMPORTANCE OF MANPOWER PLANNING

1. Key to managerial functions- The four managerial functions, i.e., planning, organizing, directing and controlling are based upon the manpower. Human resources help in the implementation of all these managerial activities. Therefore, staffing becomes a key to all managerial functions.

2. Efficient utilization- Efficient management of personnels becomes an important function in the industrialization world of today. Setting of large scale enterprises require management of large scale manpower. It can be effectively done through staffing function.

3. Motivation- Staffing function not only includes putting right men on right job, but it also comprises of motivational programmes, i.e., incentive plans to be framed for further participation and employment of employees in a concern. Therefore, all types of incentive plans becomes an integral part of staffing function.

4. Better human relations- A concern can stabilize itself if human relations develop and are strong. Human relations become strong through effective control, clear communication, effective supervision and

leadership in a concern. Staffing function also looks after training and development of the work force which leads to co-operation and better human relations. Human Resource Development

5. Higher productivity- Productivity level increases when resources are utilized in best possible manner. higher productivity is a result of minimum wastage of time, money, efforts and energies. This is possible through the staffing and it's related activities (Performance appraisal, training and development, remuneration)

4.9 NEED OF MANPOWER PLANNING

Manpower Planning is a two-phased process because manpower planning not only analyses the current human resources but also makes manpower forecasts and thereby draw employment programmes. Manpower Planning is advantageous to firm in following manner:

1. Shortages and surpluses can be identified so that quick action can be taken wherever required.
2. All the recruitment and selection programmes are based on manpower planning.
3. It also helps to reduce the labour cost as excess staff can be identified and thereby overstaffing can be avoided.
4. It also helps to identify the available talents in a concern and accordingly training programmes can be chalked out to develop those talents.
5. It helps in growth and diversification of business. Through manpower planning, human resources can be readily available and they can be utilized in best manner.
6. It helps the organization to realize the importance of manpower management which ultimately helps in the stability of a concern.

4.10 HUMAN CAPITAL IN RELATION TO OTHER FORMS OF RESOURCES

To most people, capital means a bank account, a hundred shares of IBM stock, assembly lines, or steel plants in the Chicago area. These are all forms of capital in the sense that they are assets that yield income and other useful outputs over long periods of time.

But such tangible forms of capital are not the only type of capital. Schooling, a computer training course, expenditures on medical care, and lectures on the virtues of punctuality and honesty are also capital. That is because they raise earnings, improve health, or add to a person's good habits over much of his lifetime. Therefore, economists regard expenditures on education, training, medical care, and so on as investments in human capital. They are called human capital because people cannot be separated from their knowledge, skills, health, or

values in the way they can be separated from their financial and physical assets.

Education, training, and health are the most important investments in human capital. Many studies have shown that high school and college education in the United States greatly raise a person's income, even after netting out direct and indirect costs of schooling, and even after adjusting for the fact that people with more education tend to have higher IQs and better-educated, richer parents. Similar evidence covering many years is now available from more than a hundred countries with different cultures and economic systems. The earnings of more-educated people are almost always well above average, although the gains are generally larger in less-developed countries.

The economics of human capital have brought about a particularly dramatic change in the incentives for women to invest in college education in recent decades. To illustrate; Prior to the 1960s, American women were more likely than men to graduate from high school, but less likely to go to college. Women who did go to college shunned or were excluded from math, sciences, economics, and law, and gravitated toward teaching, home economics, foreign languages, and literature. Because relatively few married women continued to work for pay, they rationally chose an education that helped in "household production"—and no doubt also in the marriage market—by improving their social skills and cultural interests.

All this has changed radically. The enormous increase in the labor participation of married women is the most important labor force change during the past twenty-five years. Many women now take little time off from their jobs, even to have children. As a result, the value to women of market skills has increased enormously, and they are bypassing traditional "women's" fields to enter accounting, law, medicine, engineering, and other subjects that pay well. Indeed, women now constitute about one-third of enrollments in business schools, more than 45 percent in law schools, and more than 50 percent in medical schools. Many home economics departments have either shut down or are emphasizing the "new home economics"—that is, the economics of whether to get married, how many children to have, and how to allocate household resources, especially time.

Of course, formal education is not the only way to invest in human capital. Workers also learn and are trained outside schools, especially on the job. Even college graduates are not fully prepared for the labor market when they leave school and must be fitted into their jobs through formal and informal training programs. The amount of on-the-job training ranges from an hour or so at simple jobs like dishwashing to several years at complicated tasks like engineering in an auto plant. The limited data available indicate that on-the-job training is an important source of the very large increase in earnings that workers get as they gain greater experience at work. No discussion of human capital can omit the

influence of families on the knowledge, skills, health, values, and habits of their children. Parents affect educational attainment, marital stability, propensities to smoke and to get to work on time, and many other dimensions of their children's lives. Human Resource Development

The enormous influence of the family would seem to imply a very close relation between the earnings, education, and occupations of parents and children. Therefore, it is rather surprising that the positive relation between the earnings of parents and children is not so strong, although the relation between the years of schooling of parents and their children is stronger. For example, if fathers earn 20 percent above the mean of their generation, sons at similar ages tend to earn about 8-10 percent above the mean of theirs. Similar relations hold in Western European countries, Japan, Taiwan, and many other places. Statisticians and economists call this "regression to the mean."

New technological advances clearly are of little value to countries that have very few skilled workers who know how to use them. ECONOMIC GROWTH closely depends on the synergies between new knowledge and human capital, which is why large increases in education and training have accompanied major advances in technological knowledge in all countries that have achieved significant economic growth.

Check your Progress

1. What do you understand by the term manpower planning?
Discuss the need for Manpower planning.
2. With the help of suitable illustrations discuss the various steps of manpower planning in an educational institution.
3. "Need for Re training of human capital is of paramount importance in any organization"

Discuss this statement with respect to human resource development and education

4.11 PURPOSE OF ECONOMICS OF TEACHER PROVISION

Although concerns about future teacher supply and demand seem to be perennial, their content changes to suit the times. The alarms heard not so long ago about an imminent general teacher shortage have receded, to be replaced by increasing attention to the adequacy of prospective supply in science, mathematics, special education, and other particular teaching fields. Discussions of adequacy are now at least as likely to focus on teacher quality as on teacher numbers. The lesson seems to have been absorbed, after much contention over whether there will be "enough" teachers, that quantity per se is not the central problem. Given the willingness to pay and/or sufficient flexibility about standards, we can always hire enough people—and usually enough nominally qualified

people—to fill the classrooms. But whether we can find teachers good enough to produce the educational performance gains the nation so urgently needs or to reach the ambitious national education goals that high officials have recently proclaimed are quite different matters.

In these respects, the adequacy of the teacher supply is very much in question, and the future supply-demand balance is a major policy concern. Policy makers' questions about prospects for staffing the schools have stimulated efforts over the years to generate better information on the outlook for teacher supply and demand. Many of these efforts have focused on creating the data bases on which supply and demand analysis necessarily depends—data on the size and makeup of the teaching force, on teacher assignments and career patterns, on persons trained and certificated to teach, on teacher training institutions and programs, and on the agencies (mainly local school districts) that recruit, employ, and seek to retain teachers.

At the same time, other efforts have focused on creating, and then applying, the analytical tools needed to make the data meaningful and to provide policy makers and other users with the information they need—not just the facts, but estimates, inferences, and judgments as to what the facts imply.

4.12 CONCEPTS OF DEMAND AND SUPPLY OF TEACHERS

The demand for teachers can be defined in the aggregate, as the total number of teaching positions funded by educational agencies (government/private and private aided) i.e., the number of teachers that all agencies put together are able and willing to employ at a given time. Total demand thus defined is the end result of a number of considerations leading to the establishment of teaching positions.

The main factors determining teacher demand in any particular year are the number of students enrolled in public schools, policies pertaining to curriculum and teacher-pupil ratios, prior commitments to employed teachers, educational agencies funding capacity, and the prices that must be paid for various types and qualities of teachers.

Aggregate demand, however, is of little use in understanding the dynamics of demand for the teaching force or in designing policies to ensure an adequate supply of teachers. For these purposes, total demand must be specified in greater detail, i.e., disaggregated by teaching assignment and geographic distribution of the teaching positions.

More specifically, computations of disaggregated teacher demand should be stratified by subject matter, grade level, preparation for serving the special needs of students (especially handicapped students and those with limited English proficiency, region of the country, and urban city of

schools within which teaching positions have been established. In addition, demand should be specified by the attributes of teachers desired, especially teacher qualifications (their training, degree level, licensure, and experience) and race/ethnicity. When specified at this level of detail, teacher demand can be compared with information about teacher supply to examine supply-demand relationships.

The supply of teachers in any year is defined, in the aggregate, as the number of eligible individuals available from all sources who are willing to supply their services under prevailing conditions. The supply includes qualified individuals who (a) currently hold teaching positions, (b) seek to enter the profession by applying for open positions, and (c) would apply for positions if suitable openings existed.

The main factors determining who is available to teach are considered to be the availability of teaching positions relative to the availability of positions in other occupations, teacher wages relative to wages in competing occupations, and working conditions in teaching relative to conditions in other occupations.

Unfortunately, no sources of data are capable of providing adequate information about the total supply of teachers thus defined (Gilford and Tenenbaum, 1990). What is known with reasonable precision is the annual number of teachers hired from among those available through several sources of supply. That is, the number of individuals continuing in public school teaching from one year to the next is known, as is the number of individuals entering public school teaching annually. The former group is often called continuing teachers, and the latter group is often called entering teachers or new hires. Collectively, continuing and entering teachers constitute the cohort of individuals employed as teachers (in short, the teaching force), a group representing an unknown proportion of the potential total supply of teachers. Aggregate information about the size of the teaching force is of only modest value for understanding teacher supply. In practice, it is virtually the same as aggregate demand. To be useful in understanding the teaching force, information is needed about various sources of supply of individuals hired as teachers, as well as about the composition and distribution of the teaching force. Information at this level of detail could then be related to comparable information about teacher demand in efforts to understand the degree to which teacher demand is being met by qualified individuals, as well as the sources of teachers that might be manipulated by policy in order to provide a more adequate supply. In practice, the term *supply* (as in teacher supply and demand) is typically used imprecisely. Instead of referring to total potential supply, the expression *teacher supply* is used loosely to refer to the composition of the actual teaching force, to potential sources of entering teachers such as recent graduates of teacher preparation programs, and to teacher supply shortages that occasionally occur in some subject matter fields at various geographic locations. The total potential supply of hirable individuals almost always equals or exceeds the number of available teaching positions. Therefore, in the

aggregate, the size of the teaching force is usually determined by the demand for teachers as defined by the number of funded teaching positions, not by supply constraints.

Sources of Supply

As previously mentioned, the teaching force is composed of two large groups—employed teachers continuing from year to year and entering teachers in any year. Both are broad categories drawn from more specific sources.

Continuing teachers typically have the option of remaining in the same position from one year to the next. Nonetheless, many practicing teachers choose to apply for teaching positions in other schools, in other subject matter fields, or both. Furthermore, some employed teachers may be reassigned to different teaching assignments within a school or reassigned to a different school within the same institution or agency/management. Thus, the flows of practicing teachers within the public education system constitute a major source of teachers hired into, or reassigned to, open teaching positions. Due to attrition of teachers from the profession and gradual expansion of the total number of teaching positions, a large number of additional individuals are also hired by the public education system each year (Rollefson, 1992). So such entering teachers are drawn from four sources:

- A reserve pool of qualified teachers composed of:
 - (a) experienced former teachers and
 - (b) graduates of teacher preparation programs from prior years (sometimes called delayed entrants);
 - (c) Recent graduates of teacher preparation programs (some of whom are also experienced teachers);
 - (d) College graduates who have not completed a teacher preparation program and who have not previously taught (sometimes referred to as entrants via alternate routes); and
 - (e) Teachers employed in private schools who migrate to teaching positions in public schools.

In view of this complexity in the sources of employed teachers, detailed information about flows of teachers into and within the profession is vital to understanding the relative importance of these sources of teacher supply.

Numerous factors mentioned as influencing supply and demand in teaching are specified as follows:

Facts Influencing Supply-

A. Factors which cause an oversupply.

1. The tendency for former teachers to return to the teaching profession

2. Teaching salaries comparatively more attractive than formerly
3. Reduction in non-teaching opportunities causing the preparation for short-time teaching by many who formerly planned other occupations
4. Reduction in the number of women leaving teaching to get married
5. The output of trained teachers
6. Migration from position to position and from state to state
7. Lack of inter-institutional co-operation
8. More men in teaching

B. Factors which reduce an oversupply-

- I. More careful selection and guidance of teachers
2. Higher standards of teacher training
3. Higher certification standards
4. Revival of business Factors Influencing Demand

A. Factors which cause need for fewer teachers

- I. Decreased birth rate
2. Increased pupil-teacher ratio
 - a) Elimination of small classes
 - b) Increased size of classes
3. Contraction or elimination of school services Kindergarten, pre-school, special subjects, adult education, night schools, continuation schools, correspondence courses
4. Longer tenure of teachers
 - a) Fewer women leaving to get married
 - b) Fewer leaving to enter other gainful occupations

B. Factors which cause need for more teachers-

- I. Increase in enrollment
 - a) Changes in the compulsory-attendance age
 - b) Changes in the enforcement of compulsory-attendance laws
 - c) Increased years of average attendance

C. Factors which cause change in demand-

- I. Provision for equalizing opportunities in the elementary and secondary fields
2. Expansion of school services Kindergarten, special subjects, adult education etc.
3. Better opportunities for professional advancement
4. Improvement of general financial conditions

5. Changes in the number leaving teaching
6. Changes in qualifications demanded for teachers ; Age, sex, training, experience, marital status
7. Removal of personal and political prejudices and favoritism

4.13 PROBLEMS ASSOCIATED WITH ESTIMATING DEMAND AND SUPPLY

The teaching force is distributed among public and private schools that vary by type, grade level, and location. A major concern and challenge is that teachers are maldistributed among schools in terms of qualifications, experience, race/ethnicity, and other dimensions of the teaching force. For example, high schools in large urban areas usually attract a teaching force that is less experienced, younger, and less well prepared to teach high school subjects than teachers hired at nearby suburban schools.

Therefore, information about the distribution of the teaching force needs to be presented in terms of teacher variables (such as qualifications) to understand fully how well the supply of teachers meets the demand for teachers at schools of various types, levels, and locations. Such analyses of the teaching force are possible with existing teacher data bases. Little is known, however, about the characteristics of applicants (from which entering teachers are selected) as a function of school location. Unless information about applicants is known, it is not possible to determine whether the supply of teachers available to various schools is adequate, or whether difficulty in hiring qualified teachers is due to hiring practices or other factors. This distribution problem stems from teachers' behavioral response to school location, one of the many variables affecting the supply of teachers available to a school. Supply obviously can vary from school to school since supply is a relationship between the number of qualified individuals who would be willing to teach and such incentives as the salary, working conditions offered, the location of the school, and other alternative career opportunities.

Another main factor behind teacher demand, namely change in pupil numbers due to population growth and expanded access to education. It looks at the size of primary and secondary teaching forces across the world and how numbers have changed over time. Patterns in population and pupil growth affect the aggregate demand for education which can lead to increases or reductions in staff size, especially at the primary level which is typically considered compulsory.

Evenden (1952) made a presentation and analysis of fifteen factors influencing teacher supply and of fifteen factors influencing teacher demand in the National Survey of the Education of Teachers. He showed the influence of teacher mobility on supply-demand relationships. An interesting sixteen-item formula for estimating demand was set up. The suggestions by Evenden (1932) for solving the teacher supply-demand problem included: an inventory of the professional equipment of teachers, the development of a program of teacher education, the estimation and control of the demand, and estimation and control of the supply. However, it found that in most countries there was not sufficient information available for estimating the demand, and little was being done toward controlling the supply. It was recommended that the Association's resources be used in stimulating provisions for securing the necessary data through the various state departments of education and for bringing about cooperative action toward a satisfactory solution of the problem. Elliott (1945) proposed coordination of teacher-training institutions with each other, and with state departments of education. Townsend (1950) suggested nationwide cooperation in bringing the supply and demand together. In his estimation, it is necessary to predict future needs as well as future supply, to lengthen the period of training, to discontinue permanent certification, and to study thoroughly educational trends in order to anticipate new areas of demand. Several authors recommend careful selection of students and limited enrolment. Parsons (1945) certification standards should be raised. The recommendation that the state should assume an increasing responsibility for the certification and selection of teachers was also made by different educationists. Elliott (1965) presented nine recommendations for improving conditions in the teaching profession. These are: (a) creation of a state educational planning board; (b) functional organization of the state board of education; (c) continuous survey of personnel needs; (d) certification limited to state board of education; (e) contraction of teacher production during depression periods; (f) study of institutional competition and duplication; (g) testing of those planning to enter the profession; (h) raising of certification standards; and (i) adoption of the county sociological unit plan. There was a recommendation to adopt what he called the "sabbatical stagger plan." This plan involves the grant of a year's, or a half year's leave of absence with half-pay to teachers who have been in service to the state for a period of six years or more. To take the place of teachers who have been granted such leaves, substitutes would be employed at salaries equal to but not exceeding one-half of the salaries of teachers on leave. The substitutes would be selected from the army of unemployed teachers. A. F. Myers (1972) stated that not more than 10 percent of the states have departments of education adequately staffed to carry out plans for controlling teacher supply. He would have quotas assigned to institutions. He pointed out that vested interests in teacher training must be faced in any program of supply and demand.

In a country like India, the effects of an oversupply that are often mentioned are reductions in teachers' salaries; longer tenure and fewer turnovers; and the tendency of the better teachers to leave the profession. The hazard of unemployment is not limited to recruits without teaching experience. An oversupply of inexperienced teachers with a minimum of training makes the experienced, more capable teacher's position either precarious or economically unprofitable.

Some writers claim that a certain amount of oversupply is a good thing in that it permits employers to secure better teachers for each position. However certain sociologists contends that an oversupply of teachers is not so bad, since a great deal of the training for teaching is also a training for parenthood; and since we need not feel that it is a greater waste to prepare teachers who will never have classrooms than it is to prepare others who will never follow their professions, or indeed than it is to invest in the ordinary liberal arts course without specific goal. Such arguments are not convincing to the prospective teacher, who, having spent much time and money seriously preparing them-selves to teach, find themselves upon graduation unemployed and in debt.

The usual recommendations are made; namely, that state departments of education should raise the certification standards; that teacher placement should be more co-operative and state- wide; that there should be interstate co-operation in selection, preparation, and placement of teachers; more emphasis upon guidance of prospective teachers; inducements for rural and elementary teaching. However the state and the national bodies of teacher education need to look into the various models of demand and supply in teacher education and adopt a strategy to solve this problem.

UNIT END EXERCISE

1. Explain the terms Demand and Supply in the context of teacher education
2. Identify the various factors that influence the over supply problem of teacher provision in India. Illustrate with the help of suitable examples.
3. With the help of suitable examples discuss the various problems faced in the estimation of demand and supply of teacher provision in India.
4. Discuss the various policy implications for the economics of teacher provision.



EDUCATION AND ECONOMIC DEVELOPMENT

Unit Structure :

5A.0 Objectives

5A.1 Introduction

5A.2 Development of the subject

5A.3 The concepts of economic development and economic growth.

5A.4 Need / Importance of subject

5A.5 Education as a prerequisite as an accelerator and a major determinant of economic development:

a) Scope Economics of the Education

b) Nature and its functions

5A.6 Suggestions for improvement in the educational system for enhancing and sustaining economic development.

5A.7 Principles of Economics of Education

5A.8 Interrelation between education and economic development

5A.9 Resource constraints and Resource mobilization.

5A.0 OBJECTIVES

After reading this unit you will be able to :

- Define Economics of Education
- Discuss the concept and meaning of Economics of Education
- Justify its need and development of Economics of Education
- Explain its scope and present status Principles of Economics of Education relationship between Economics and Education
- Explain the education and economic development in rural and urban areas

5A.1 INTRODUCTION

Economics has an important role to play in the development of economics and democratic ideals. The teaching profession has developed mainly since the early 1800's, when teacher training schools became popular

in Western Europe. Before then education, its planning and financing received very little attention.

According to “The New Encyclopedia Britannica (1985),” “Measured in terms of its members, teaching is the world’s biggest profession.” As the human development has taken place the growth in Education system was also noticeable. The need was felt that if human resource is to be utilized to the optimum, the planning of economics of education and its financing cannot be neglected.

So the new branch of economics under the main head of education with the name ‘Economics of Education’ was born 1960’s.

Nearly fifty years ago when researches started taking interest in this new field there appeared to be a near unanimous welcome by economists to this new dimension of India’s progress. But a majority of contributors in the discipline of education received it with a feeling of discomfort and resentment. The major reason of this discomfort was firstly that :

First in India basic education to masses is the responsibility of Government.

Secondly they opined that Economics of Education may increase the differences between haves and have not.

These feelings of elation and distress are both quite justifiable.

In 1963, T.W. Schultz, one of the pioneers of economics of education concisely summarized the then prevailing view point. Those who value schooling highly which includes most of those who are a part of the educational establishment are likely to look upon an effect such as this as an intrusion which can only debase the cultural purpose of education. In this view education lies beyond the economics calculus, because they believed that education is much more than a matter of costs and returns.

5A.2 DEVELOPMENT OF THE SUBJECT

Though the great founder of modern economics, Adam Smith, in his “An enquiry into the nature and cause of wealth of Nations” published in 1776, placed great stress on education, yet economics of education and investment remained one of the neglected subjects in the science of education.

The conceptualization of economics of education has undergone noteworthy changes. India is neither economically advanced nor educationally advances. Over a period of time as the economic development in the country has taken place the educational development also was exhibited.

“The education has become major source of skills and trained talent. Indeed, from one point of view, this is education’s critical economic role.”

5A.3 CONCEPT AND MEANING

The process of development in the Country is determined by a harmonious functioning of the triangular of economy, education and polity. Education is conceived as a critical participant of a triangular relationship and its process which cumulatively leads to change, development and progress in a society in a planned manner.

The economy, education and polity of a country in the modern world are one the one hand, powerful instruments of power with tremendous potential, both positive and negative. On the other hand, they are extremely potent tools for the development of the people provided they are utilized to the maximum. This means each of three sides of the triangle themselves relate itself positively, with the other two sides of the triangle for the appropriate development.

In the opinion of the committee on Educational Planning and Administration and Evaluation in the Fourth – Fifth year plan presided over by Mr. J. P. Naik Adviser, Ministry of Education, Government of India : “The First” important reform needed was preparation of a comprehensive plan which should deal into merely with the allocation of the resources provided by the Central and State Government to different sectors of education and within a given sector but different types of programmes but also with the present educational situations, education objectives in view and the programmes proposed to realize these objectives. It should thus cover planned as well as non planned programmes that involve finance and those that do not and also programmes for better utilization of existing facilities and economizing expenditure. The linkage with programmes of social and economic development should be much closer than at present.”

On the basis of the resources that are likely to be available, three questions are posed : (1) What type of education can the country afford? (2) How much or for whom? (3) What should be the priorities on available funds? The policy approach must keep in consideration both, the educational consideration and financial constraints.

So, economics of education is considered as the study of the allocation of resources among educational institutions and activities and of the returns obtained both by individuals and nations.

5A.4 NEED / IMPORTANCE OF SUBJECT

As economics deals with planning, financing and appropriate utilization of resources and basic education is the fundamental right to all in India; it becomes very essential to equate the available resources.

The present time educationists as well researchers also endorsed the viewpoint of some of the economists of 1963, that economics of education is the need of the hour. Although some of the researchers have expressed their resentment and opposition that consideration of economics aspect of

education would completely overshadow its other important dimensions, but majority of economists and educators of our country are now prepared to accept the need and importance of the subject for the following specific reasons :

1. Rising Cost. The proportion of national income spent on education has increased in the recent years.

2. Secondary Industries : As individuals become richer the proportion of their income devoted to food and other basic necessities drop. The amount they spent on health, education etc. rises.

3. Technological Transformation. The basis of the technological transformation of the world economy can be found in the accumulation of knowledge.

4. Health and productivity : The low productivity of many workers in various countries is directly attributable to their poor physical state. This in turn depends to a considerable extent on the type of education that the workers receive.

5. Shortage of Skills. It is a common belief that a shortage of skills holds back economic growth. An effective education plan must be based on the needs of skill manpower of all sorts. An unplanned system of education results in unemployed persons and deprives the nation of their contributions to the growth of national income. Thus the specialized role of manpower forecasting brings the economics of education into prominence.

6. Demand of Scarce Resources : Education can be made cheap in the developing countries in the sense that there is a superabundance of manpower which can be harnessed very conveniently. Education thus makes limited demands on the scarcest resources of the country. The under developed countries are short of physical and sometimes of natural resources. This implies that the use of abundant supply of manpower and its endowment with skills is likely to be one of the major objectives of any programme, planning, financing through the understanding of economics of education.

7. Extra ordinarily high monetary cost of education : Education in the developing countries is most prominently poorly administered, lacking in planning and co ordination. And one of the most striking features of education reform in the poor countries has been their extra – ordinarily high monetary cost. For the most efficient mobilization of country's resources, it is paramount importance that the plans for the development of economy and for developing human resources must be co-ordinated. Education can not be left of the general plan. The neglect of education means overlooking the importance of an adequate supply of skill manpower and the efficient uses of resources in education. John Vaizey observes : “since education makes large demands on public funds about 20% of government expenditure in recently developed countries it is an important part of economic programme, because of its

cost alone. But it has also an important positive contribution to make to economic growth.”

5A.5A) SCOPE OF ECONOMICS OF EDUCATION

Economics of education as a systematic body of knowledge was born as a reaction to the difficulty faced by economists in their research rather as a spontaneous recognition of the economic dimensions of education. In other words, this new discipline is a by product of economic research.

Interest in knowing the basic determinants of economic development, the ‘growth economists’ came across a residual in growth which could not be explained in terms of the conventional factors of production i.e. labour and capital. In their trial and error approach for identifying the other logical and statistical grounds, was found to be very important variable, explaining more than 66 percentage of the residual.

Robert Solow’s earlier study on aggregative production function provided the necessary theoretical base for this new branch. The contributions of T. W. Schultz, Becker, Vaizy etc enriched this theoretical foundation.

The scope of economics of education however was widened subsequently as a natural corollary of the theory. Attempts have been made to estimate the economics returns different types and levels of accordance and to develop models of planning of education in accordance with economic requirements of the individual and of the economy. The literature on these aspects has developed at such a rapid pace that economics of education has now come to receive a status of a significant branch of economics. Even some of the universities in India have now separate units of economics of education in their department of economics : Mumbai University is one such example.

Status of Economics of Education in present time :

One needs to assess the value of the subject and its existence in the system. There are two criteria for a particular subject being studied or taught in a given course of study.

1) Theoretical consideration:

The subject should be a body of fundamental knowledge which is a prerequisite for the understanding of other subjects.

2) Practical consideration:

The subject should have a practical significance in the sense that its understanding would be useful in taking efficient decisions in some of the practical problems.

Let us focus whether economics of education satisfies these criteria of assessment.

Economics, according to Marshall, is a study of man's actions in the ordinary business of life. It inquires how man gets his income and how he uses it. The other side of the thought is – how much investments does he make in generating his personal and national Income.

While it cannot be confidently asserted that economics of education is a fundamental discipline it cannot be denied that resource has to be taken to this subject to explain some of the fundamental puzzles in economics theory. For example the residual in economic growth skewness in income distribution even with normally distributed abilities, employer's interest in the welfare of the employees in developing countries. Leontief Paradox in the theory of international trade etc. is a few such riddles in theory which can be solved with the aid of the principle of economics of education.

5A.5.B) NATURE AND ITS FUNCTIONS

1) Villagers to not send their children to primary schools despite the provision of free primary education. Failure of compulsory primary education programme is largely due to the lack of proper responses from these people. This is because people know that opportunity cost of primary education is higher than that of other activities.

2) For the same reason of high opportunity cost of primary education the dropout rate of children of poor farmers is found to be higher.

3) High opportunity cost of education is one of the factors preventing from the full use of the concessions under prospective discriminatory measures in education, so far the scheduled caste and scheduled tribe people are concerned.

4) Since the various concessions and benefits of increasing education expenditure have been accruing to the richer than to the poorer people and since richer people are politically more influential, larger expenditures on education are made on higher education. Education expenditure are a more definite and a subtler form of benefiting a particular group in the society, without causing any open resentment be others. It is for this reason that expenditure on higher education in our country has been increasing much faster than expenditure on school education. This is so because higher education by and large benefits the richer and upper income more than the poor and low income group people.

5) It is for the same reason expenditure on education in urban areas has been rising than in rural areas.

6) Expenditure of larger economics benefits from surer that employment and larger earnings – from education is the main reason for greater rush of students to professional colleges.

7) Since general school education is preferred for admission in colleges and since employment and earnings are less attractive for technical schooling there is overcrowding in general schools that in technical schools.

5A.6 SUGGESTIONS FOR IMPROVEMENT IN THE EDUCATIONAL SYSTEM FOR ENHANCING AND SUSTAINING ECONOMIC DEVELOPMENT

The following websites provide us the ways to improve the Educational system for enhancing and sustaining economic growth. These sites need to be quoted: http://www.icrier.org/pdf/WP_179.pdf

1. What are your views regarding the ways to improve the educational system for enhancing and sustaining economic growth?

Read Knowledge commission report and provide suggestions. References: Prof JB Tilak

5A.7 PRINCIPLES OF ECONOMICS OF EDUCATION

In recent years there has been a great emphasis on the economics of education by keeping following factors into consideration:

Planning and economics have something in common – both of them are responses for the challenges arising out of scarcity of resources and possibility of alternative uses and maximum utilization of limited resources.

Planning for economic development has become basic necessity all over the world.

Educational planning is a major part of over all planning for social and economic development.

The basic principle of objective of education is to find a major place in overall planning and plans have to provide for financing educational development for meeting these educational objectives. Education is in addition a public service, demand for which is in excess of the supply that any Government is able to make. This is because of the unchanging birth rate, falling death rate and the consequent growth of population in the age-group between 5-24 and the rising demand for education.

5A.8 INTERRELATION BETWEEN EDUCATION AND ECONOMIC DEVELOPMENT

The relationship between economics and education can be very well understood by analyzing the concept of economic development and Educational development.

Education as Human Growth :

It has been generally observed that some of the economically developed countries are also educationally advanced. They have almost cent per cent literacy and all children of school going age are enrolled in

the school. As opposed to this there are some countries which are not economically much developed but they have registered tremendous educational progress. The most relevant examples of some countries are Sri Lanka, china, Myanmar (Burma) & Philippines. On the contrary there are some counties which are economically well off but they are educationally backward. The Gulf countries are the obvious examples of this type.

The overall situation which emerges is that generally the countries having higher levels of income or economically advanced also have higher level of educational attainment. The economically poor countries are likely to remain educationally backward if they do not give importance to education and / or do not allocate more funds to it and ensure optimum utilization of the available resources.

Education as economic investment:

It is only in recent years that a growing number of economists have been making it one of their principal preoccupations, and that the words “human capital”, is coming into widespread use. It is gradually being realized that education has a major role not only in promoting social peace and harmony and self- improvement, but also in the process of wealth creation itself.

Education as National Development :

One needs to agree that a substantial portion of per capita income in the developed countries is caused by education. The difference of the degree of per capita income and rate of its increase depends very largely upon how drastically the country is willing to change the school system and what price it is willing to pay socially and culturally to bring about the high income. All other factors remaining the same i.e. location of the country, it's physical and naturally resources etc. perhaps the strongest reason for believing that education properly designed can have a powerful effect in increasing the income of any country in the world.

The value of economics of education however, needs to be recognized more for its practical significance rather than it's the oretical significance. Whether the educationists, economists and researchers recognize this and are at consensus to each other or not, people in general have amply showed their awareness of th economic aspects of education.

5A.9 RESOURCE CONSTRAINTS AND RESOURCE MOBILIZATION

Resource Constraints

Resource constraints relate to the lack of adequate resources which may force parallel activities to be performed in sequence. The consequence of such a change in network relationships is delay in the completion date of the project. We will examine the nature of resource constraints with regards to Education system.

The most important resources that policy makers and stakeholders need to plan and manage the day-to-day functioning of the Education system that comprises of People-Administrators, Principals/Heads, Teachers, students and Support staff and Infrastructure-Materials and equipments, laboratory, Library, Play ground and Working Capital.

Obviously, if these resources are available in abundance then this could accelerate the growth and functioning of the system efficiently, to achieve shorter project duration. On the other hand, if these resources are severely limited, then it creates blocks and barrier in the effective functioning of the education system in stipulated time.

A careful planning is required at different levels, and if one has limited nature of resources, thoughtful consideration should be given to the resource requirements; the implementation of the plan should be refined when necessary so that it is practical.

The process of refining the plan to effectively manage and schedule resources (sometimes referred to as resource modeling) comprises four major stages: resource definition, resource allocation, resource aggregation, and resource leveling (which include resource smoothing).

The following websites provide the details of resource constraints in Indian Education System.

<http://www.ugc.ac.in/financialsupport/intro1.html>

<http://www.drededucation.com/2009/12/2010-trends-indian-education-sector.html>

https://courses.worldcampus.psu.edu/welcome/pmangt/samplecontent/520lesson08/lesson08_03.html

UNIT END EXERCISE

1. Explain the meaning of Economics of Education?
2. What is its nature and scope?
3. What is the need of Economics of Education in present time?
4. Explain the functions of Economics of Education?
5. What are the principles of Economics of Education?
6. Explain its relationship with education?
7. Prepare a report on Education and Economic development in Urban areas.
8. Explain the educational and economic development in rural areas



CONTRIBUTION OF EDUCATION TO ECONOMIC GROWTH

Unit Structure

5B.0 Objectives

5B.1 Introduction

5B.2 Approaches other than Cost Benefit Analysis

5B.2.1 Correlation Approach

5B.2.2 Residual approach

5B.2.3 Manpower Forecasting Approach

5B.2.4 Wage-differential Approach.

5B.0 OBJECTIVES

- To examine the relationship between education and economic growth
- To evaluate whether education is consumption or investment
- To critically evaluate the various approaches adopted to study the education's contribution to economical growth.
- To compare and contrast between the different theories/approaches.
- To deduce merits and shortcomings of the different theories/approaches.

5B.1 INTRODUCTION

Relationship between education and economic growth:

Education is defined as the acquisition of the art of utilising knowledge for moral and material development, the discipline of economics deals with the study of how individuals choose to deploy resources on various activities for maximising social and economic returns'.

While the economy of a society provides resources to fulfil the educational aspirations of its members, **the education systems**, in turn, help in equipping the society and the economy with the required types and levels of manpower which are needed for expediting the process of socio-cultural transformation and economic modernisation.

The creation and expansion of educational opportunities at all levels have been actively pursued all over the world, in the belief that education does contribute to economic growth by way of :

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

Is Education Consumption or Investment?

Governments choose to spend money on education for many different reasons, and it is helpful to distinguish between two groups of reasons, making use of a familiar economic distinction: that between Consumption and Investment,

Broadly speaking, we distinguish between **consumption** expenditure - which is incurred now for the benefits it will provide in the **present** and **investment** expenditure, which is incurred now for the benefits it will provide in the **future**. Another way of putting it is to say that the resources devoted to consumption are, literally, consumed in the present, but that investment is a way of increasing productive capacity, or wealth, in the future. Education is regarded as both a type of consumption and investment» People want schools sometimes, as they want TV sets - as a status symbol» They want their children to learn to read because they will enjoy life more as a result. These are just some of the consumption benefits of education. But education is also a form of investment in human capital. Future levels of production are not dependent simply on labour and physical capital - but on technical knowledge and the

skills of the labour force - and these are provided by education. So the answer to the question 'is education consumption or investment?' is simply 'Both'.

EDUCATION IS BOTH – CONSUMPTION AND INVESTMENT

Education in itself is consumption as well as investment. The activities of an educated person such as enjoying non-pecuniary (non-monetary) benefits like reading stories and poems, enjoying higher social status, etc. are activities of consumption and the monetary gains from a lifetime's earnings are taken as investment. Also, the absorption of a large number of

educated persons by the education system itself for carrying out teaching and research responsibilities refers to consumption whereas the surplus educated manpower constitutes investment which contributes to human capital formation in the economy and forms the basis for raising the level of production.

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

Check your Progress 1

1. Describe the interdependence of education and economic growth in your own words
2. 'Education is both consumption as well as investment'. Do you agree? Justify your answer.

5B.2 APPROACHES OTHER THAN COST BENEFIT ANALYSIS

If education is a form of investment one of the first questions to spring to mind is how much does it contribute to economic growth, compared with other forms of investment? This question rather dominated/ dominates the economics of education. The following are the main approaches adopted to understand the contribution of education to economic growth.

5B.2.1 CORRELATION APPROACH

The first attempts to demonstrate that **education was investment** consisted in simply correlating some index of educational progress - for instance expenditure on education, per head, or enrolment rates, with an economic index - such as GNP per head.

The correlation is positive: the more a country spends on education, the richer it is. This suggests that **education does add to wealth**. Unfortunately the relationship can just as easily be stated the other way: the richer a country is, the more it spends on education. So although simple correlation shows that there is a relationship between education and economic progress, it does **not prove cause and effect**. Education and income are positively correlated. But we do not know if one caused the other. It might be that having more education causes a person to earn a higher income. It might be that having a higher income allows a person to go to school more. It might also be some third variable. A correlation tells us that the two variables are related, but we cannot say anything about whether one caused the other. This method does not allow us to come to any conclusions about cause and effect.

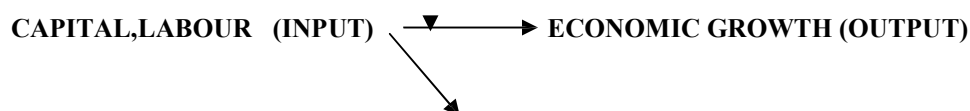
On the relationship between literacy and per capita income in selected states in India indicates a correlation coefficient of 0.756 which is very positive and significant; and that per capita state domestic product in 1991 was higher in the case of states (like **Maharashtra, Gujarat, Punjab**) with higher literacy rates, and lower in the case of states with lower literacy rates (like **Bihar and Madhya Pradesh**). Source: (i) Economic Survey 1997-98, Govt. of India.

The theoretical expectation that education and training contribute to economic growth requires to be quantified so as to assess the nature and the extent of the relationship between the variables characterizing education and economic activities. Such calculations and information are very useful for policy makers and

planners, who are necessarily concerned about the relationship between two or more variables, especially from the point of view of preparing the development plans determining the appropriate allocation of funds. The approach which is generally used to study such aspects is known as the correlation method which, when employed, indicates the nature and strength of the relationship between the chosen variables.

5B.2.2 RESIDUAL APPROACH

The residual approach is used to measure the extent to which different factors are responsible for contributing to economic growth. The rate of increase in the aggregate output is compared, under this approach, with the aggregate input. The sources of the economic growth are identified to the extent possible in measurable inputs like capital and labour. The unexplained or residual part is attributed to an **unspecified input, i.e., Education and advances in technology**. The results obtained on application of this approach have been largely responsible for generating **interest in investment in human resources** and also in recognizing the fact that **educational expenditure needs to be regarded as an investment** owing to its crucial role in determining economic growth. The residual approach, by identifying the contribution of the given types and levels of education and training to output~ economic growth, provides reasons for **increasing investment** in human resources in general, and in those who belong to the identified type and level of **education**, in particular.



Residual factor – (Quality of labour) – educated, skilled, technological knowledge

Solow (1957), Svernilson (1964) and Denison (1962) suggested that improvements in the quality of labour force, including increased education, were important together with other factors such as technological progress and economies of scale and constitute an important part of the residual.

Later economists like Griliches and Jorgenson (1966) were also of the same opinion and argued that the residual was not "a coefficient of ignorance", as some critics (Balogh 1963) argued. *Human capital, particularly education, forms a significant proportion of this residual.* Though the residual was believed to comprise economies of scale, technological progress, external economies, improved health, education and skill of labour force, better

management etc., it was also felt that among all **education** was an important factor. With Denison (1962, 1964) and Griliches (1964,

1970) works, it was made clear that education could enter as an important variable (input) in the production function analysis of economic growth. For an economy, **education can increase the human capital in the labor force, which increases labor productivity and thus leads to a higher equilibrium level of output.**

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

Check your Progress 2

1. Describe and evaluate the correlation Approach.
2. Distinguish between correlation and cause and effect. Why is it stressed that there is correlation between economic growth and education but it is not a cause effect relation.
3. In what way does education contribute to economic growth according to the residual approach?
4. What are the advantages of Residual Approach of education with reference to economic growth

5B.2.3 FORECASTING MANPOWER NEEDS APPROACH

The objectives of all forecasting of human resource needs are to work out the future needs of the economy for persons with various kinds and levels of training. Such forecasts can be expressed in terms of broad groupings of people. For example:

1. the number of persons required in each occupation in the economy for any future year;
2. the present number of persons in each occupation;

3. the annual number of withdrawals from each occupation due to death, retirement or movement out of labour force and;
4. the annual number of separation from one occupation and accessions to another as the result of job change, etc.

A variety of methods have been used in arriving at human resource projections. For example, employers are asked to specify how many persons with certain kinds of qualification may be needed in a given number of years in the future, which are then added up to arrive at the aggregate figure for the total requirement of human resource with the specific expertise. Further, the calculated ratios of trained human resource for total employment are also projected into the future on the basis of demographic information.

The importance of this approach has been well recognized because it offers definite guidelines framed in the terms in which decisions must actually be made. Whereas the returns to education approach reveals whether the given level of spending on education is too much or too little on education, **manpower studies** indicate that 'X' number of new student places in the field 'Y' could be created by the year '2'. This type of information is obviously much more useful to the policy maker and planner. The greater the detail in the manpower forecasts, the more refined can be educational planning.

This approach has, however, been widely criticized because it has been viewed that the human resource projections have not succeeded in taking account of the flexible possibilities of substitution between capital and labour, and between highly trained human resource and not so highly trained human resource. Moreover, this approach is not really directed at assessing the economic contribution of education.

On the basis of the criticism raised it could be said that human resource forecasting ought not to be viewed as an alternative method of working out the investment requirements of the education sector, but as a way of obtaining information which can be analyzed usefully for effective planning and management of education system.

Check your Progress 3

1. Elucidate the merits and shortcomings of estimating future manpower requirements.
2. What are the different ways of forecasting future manpower needs?

5B.2.4 WAGE DIFFERENTIAL APPROACH

Wage differential refers to differences in wage rates due to the location of company, hours of work, working conditions, type of product manufactured, or other factors. It may be the difference in wages between

workers with different skills working in the same industry or workers with similar skills working in different industries or regions.

For example, wage differentials may also be used to compare **wages between genders, union and non-union jobs, or wages of employees with and without college degrees.**

Wage differential can have multiple meanings; generally it refers to a gap in wage rates (for similar jobs) that can occur because of:

* Different location of company

- In two distinct countries
- Within the same country;

* Hours of work;

* Workers skills; (For more information see: High-skilled labor)

* Gender and ethnic discrimination. (See also Racism)

A difference in wage rates between **two types of worker**. Wage differentials may be on account of different levels of skill, different formal qualifications, between unionized and non-unionized firms, or between workers of different age, sex, or ethnic groups.

In the UK wage differentials based on age are legal, while those based on sex or ethnic group are not. The desire of groups to maintain traditional differentials within occupations makes some economists fear that minimum wage laws would not just affect the unskilled, but would lead to general wage inflation. The desire to maintain differentials between occupations makes inflationary wage rises tend to spread around the economy.

The chief factor determining the excess earning of trained personnel over minimum wage is the cost of investment in education, including time spent on education, the excess earning being meant to compensate for the investments and time spent in education.

Secondly, in the case of top managerial personnel, they have adequate technical experience of management, they have to carry risks of business and are responsible to produce results. Their job is more than full-time. Therefore, they are to be paid higher salaries to compensate for the risks and for sacrificing all their time for business. Such managerial talents are rare to be found and therefore, they have to be adequately compensated and retained. How does it happen that a film star receives a remuneration which is so much higher than that of a street cleaner? Why does a foreman receive more than an unskilled worker, or an accountant more than a sweeper? Foremen and accountants are few have to spend long years in training and unskilled workers and sweepers are available in plenty and they need no training. This is the way the differentials in employments are sought to be justified.

The actual higher or lower wages depend upon the scarcity of labour in that category.

The country needs to reward persons who have put in more efforts to acquire **specialised skills**, as long as better quality or talent is sought to be recruited or trained. Moreover the differentials will continue to exist when the intellectual capital of a person, skills and experience acquired differ from person to person. This also differs **from industry to industry**. In a labour intensive industry say cotton textile industry, where wages constitute 25% of the total costs, we see that wages per worker are lower than in a capital intensive industry like petro-chemicals or fine chemicals. Again a small industry or an industry in **rural area** is not expected to pay the same wages and fringe benefits to workers as in large-scale industry. The capacity and profitability of such industries is much less, and the skills required from workers in such small units are also less. We can hope that over a period of time these differentials will narrow.

Thus the differentials in wages are bound to persist and it is difficult to eliminate them. Their differential ratio perhaps can be brought down by judicious wage policies to be pursued at the enterprise level. It is up to the management of the enterprise to initiate action.

(1) WOMEN AND WAGE DIFFERENTIAL

Within the workforce, two kinds of wage differentials have been found to exist. In the informal sector—where most women are employed—there is evidence of women directly being paid lower wages than men, especially in the agricultural labour sector and the urban informal labour sectors where little effective legislation exists as a disincentive for this practice.

In the organised sector, where equal remuneration laws are more directly enforceable, pure wage discrimination (differential pay for the same job) has not been found to exist. However, differential levels of education and differential returns to that education implies that women are usually less skilled than men and thus can attain only lower level jobs even within the organised sector, leading to a high wage differential.

In the agricultural sector, it appears that a trend of rising wages for women has ceased. Male-female wage differentials had declined steadily to fall to 1.3 in 1987-88 from 1.7 in 1965. After 1996, however, the differential stagnated in most states, and even rose in a few others (Unni 1998). Less favourable conditions of employment for female agricultural workers in recent years, attributed by many to the effect of the SAPs, is thought to be primarily responsible for this trend. Education has been found to greatly influence wage differentials. Studies found that the female- male wage ratio in urban India was 0.59 for female illiterates and 0.82 for literates (Deshpande and Deshpande 1992). Another study by Kingdom et al., however, found that even after controlling for gender, only 22% of the gap in wages could be explained by the lack of female education—78% of the wage gap, thus, is due to differential returns to education.

Check your Progress 4

1. Describe the determining factors of wage differential?
2. Write a short note on women and wage differential approach.
3. Examine the role of education and training in wage differential approach
4. How does cost benefit analysis affect the investment in education?
5. Which, according to you, is the best approach of education's contribution to economic growth? Give reasons?

Conclusion

To conclude, the approaches that we studied- correlation , residual, forecasting manpower requirements , cost-benefit ,wage differential **are not totally alternatives , or exclusive of each other** as every educational planning has to take into account the job opportunities for educated manpower, the effects of changes in supply and demand on relative wage levels, and the total costs and the residual role of education in accentuating human capital. Every nation tries to consider education an investment and to allocate more funds inputs for the development of human resources.

Suggested further reading

- Nagpal, Mittal,(1993) *Economics of Education*. Anmol Publications Pvt Ltd. New Delhi
- Enaohwo.J. O (1990) *Economics of Education and the Planning Challenge* . Anmol Publications Pvt Ltd. New Delhi
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PRODUCTIVITY AND WASTAGE IN EDUCATION

Unit Structure

6A.0 Objectives

6A.1 Introduction

6A.2 Concept of productivity and Productivity of Educational system and learning for productivity objectives

6A.3 Internal and External efficiency of the educational system

6A.4 Dual approach , process and product approach

6A.5 Wastage In Education-Meaning

6A.6. Wastage in education at different levels of education.

6A.7 Types of wastage

6A.0 OBJECTIVES

After going through this unit, you should be able to.

- Describe and discuss the meaning and significance of productivity in education system .
- Explain the internal and external efficiency and the related aspects to increase productivity in education.
- Describe the dual approach inclusive of process and product approach
- Explain the estimation of drop out rates at different levels of education
- Describe the types of wastage in education.
- Analyze the importance of human capital and ideological issues related to overall productivity in education.

6A.1 INTRODUCTION

In this unit deals with the concept and definition of productivity and the various learning objectives for productivity, The input and the output concept is dealt in detail for ensuring the internal and external efficiency. The role and significance of education is highlighted at primary, secondary and at higher level of education system a great deal of

caution has to be exercised in respect to Dual approach policy in terms of process and product approach to optimize educational institutions in relation to productivity process.

The present study deals with issues and problems of drop out and wastage in education and the way to minimize wastage and maximize out put in the form of productivity in education. We talk of estimation of the drop out rates at different levels of education. The types of wastage in terms of money, time, and material resources are dealt in detail. The resources utilization increase productivity in educational system is highlighted in relation to ideological views in terms of quality in educational institutions.

6A.2 CONCEPT OF PRODUCTIVITY AND PRODUCTIVITY OF EDUCATIONAL SYSTEM AND LEARNING FOR PRODUCTIVITY OBJECTIVES

The out put of education system is considered production by both economists and educationists. The processes of production in an economy and a formal educational system are compared with regard to their structure, decision making processes and the ultimate objectives. In other words the system of formal education based on a comparable hierarchical structure can be compared with the organization of the factory (Industry) system or the functioning of an industrial plant.

Eg :-

Raw materials enter at one point and finished out put exit at a subsequent point, a sequence of net values being added between the two points is compared with formal schooling. In the later case, the raw materials, the students enter into the educational process which takes in other inputs like teachers, books and equipment and the net value is added to the product at every stage in the form of scores and certificates.

The concept of productivity was introduced in the field of economics to minimize the costs and maximize the out puts.

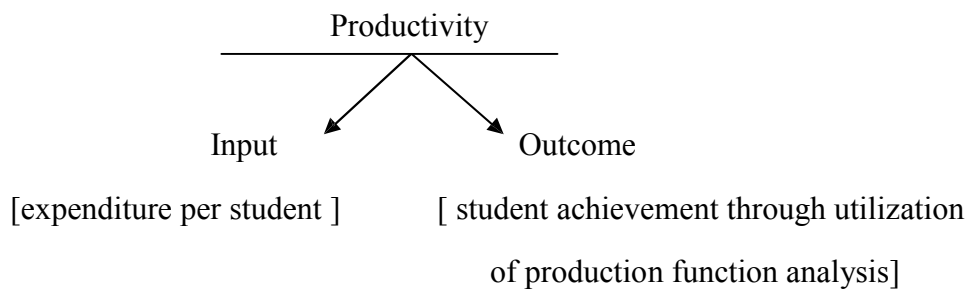
- Productivity can be defined as achieving the maximum output of a process with the use of minimum inputs.
- Productivity can be applied to the field of education similar way in which economists analyze the relationships between

Input \longleftrightarrow Out Put

E.g.

Productivity in public education institutions are expected to be productive to minimize costs and maximize the utilization of resources to meet increased and diversified needs as well as to become accountable to the public for the expenditure of resources

Educational productivity is the effective and efficient production of educational out comes (Rolle)



"Productivity is the final out come of better input in the form of schooling and educational out comes controlling the influence of various other aspects."

When we talk of productivity, during 1960s economics of education propagate by Schultz (1963) believed that people as producers and consumers invested in themselves to enhance their capabilities, and the largest investment in human capital was mainly schooling, while at the time the relationship between education and productivity was only assumed, while today we have sufficient evidence to prove this the world economy has under gone changes which have put human capital at the central stage of economic development.

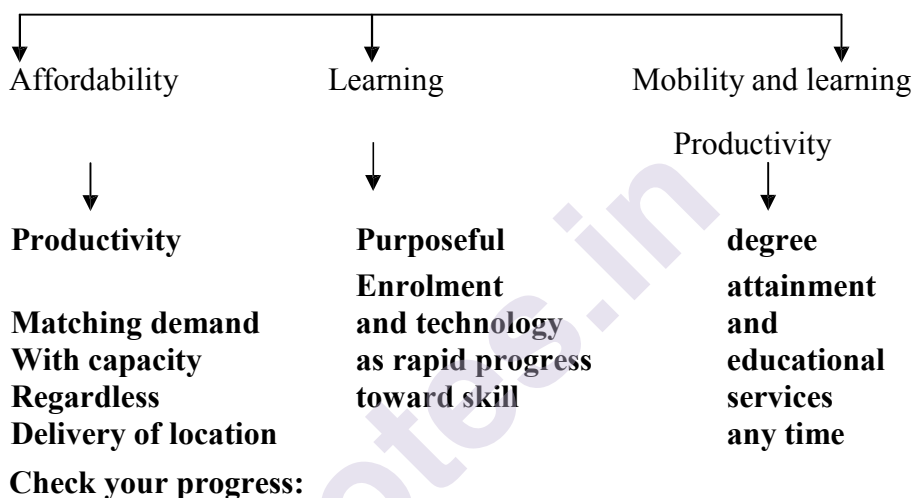
Globalization and technological changes, the use of computer related using, internet, e-learning, virtual classrooms and other technological changes have enhanced the capacity of human capital to acquire modern and higher technical knowledge has promptly respond to changes. The early studies by Welch (1970) and Schultz. (1975) proved that education helped in adjusting to disequilibrium due to technological or allied changes and there by increasing productivity. Higher schooling = higher wages, but then, there was no evidence of higher schooling leading to increasing productivity of industrial employees.

Schooling increases cognitive knowledge which is essential for the development of skills needed for productive work, there is no empirical evidence of a direct relationship between more schooling and increase in the workers productivity, but then the assumption that additional education leads to better decision making and higher productivity needs to be extended to include a reality where the employees, be it teachers or other employees are provided with such responsibilities by the employers, with the advent of instructional design often is taken to connote preparation of materials. The important steps to be taken are

- Analysis of needs
- Goals and priorities
- Analysis of resources

When we think of learning productivity, we need to keep the following objectives in order to ensure better learning outcome.

- assure affordable options for post secondary education and training for all;
- increase and improve the mobility of student learners to move across state lines to access education and promote the mobility of institutions to provide access through technology to place bound students
- improve learning productivity of students by assisting them in achieving a higher level knowledge and skill attainment in the most cost effective manner. The above objectives are closely interrelated.



1. Describe in about 6 lines the learning productivity objectives.

6A.3 INTERNAL AND EXTERNAL EFFICIENCY OF THE EDUCATIONAL SYSTEM

The Concept of efficiency in education is wisely understood in terms of external and internal efficiency.

Internal efficiency refers to the extent to which the educational expenditures are properly utilized for immediate objectives like producing graduates which also includes the aspects such as dropout rates, wastage and stagnation under-utilization of building, library and laboratories.

External efficiency of the educational system relates to the realization of the over all educational objectives, developing skills and productivity in the human resource and the supply of skilled human resource.

It is like comparing inputs and outputs of educational facilities. A set of internal inputs such as teachers, stationery, instructional materials, building, furniture are combined in such a way that to produce better output. The quality teaching to the students by making use of technological devices like computers and other modern gadgets In the classroom would enhance effectiveness to teaching. The instructional material in the form of teaching aids is essential to enhance students learning. Therefore it is imperative that each institution develops an

efficient (IQA) system to enhance internal efficiency and it is up to the institution to decide the appropriate model that fits best. Internal quality assurance system is a system under which students + staff + management satisfy themselves that control mechanisms are working to maintain and enhance quality in education, IQA is the totality of systems, resources, information devoted to testing up, maintaining and improving the quality and standard of teaching, scholarship, research and service to community. The internal efficiency be maintained well in the institution by keeping monitoring and evaluation instruments appropriately.

- Internal efficiency of an institution depends on the library faculties, materials and equipment to provide a stimulating learning environment.
- Continuation of research information, masking quality, developing appropriate indicators, and building local capacity to collect and interpret local data.

The key outcomes achieved are classified key performance outcomes, impact on service users, impact on community, Delivery of education processes, management and support of staff policy development and planning.

The external efficiency can be achieved if all the quality input parameters are well implemented. The output or quality outcome is expected in terms of examination results or some other measures of output and quality

Check your progress :

1. How do you develop internal and external efficiency in your teaching learning process ?

6A.4 DUAL APPROACH, PROCESS APPROACH AND PRODUCT APPROACH

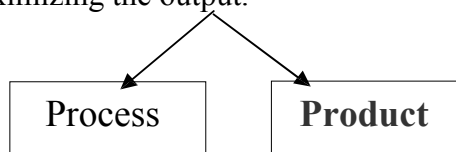
It is seen that approaches and methodologies are generally employed by the planners and researchers for assessing the contributions of education to economic growth and social development with various approaches. Dual approach in terms of process and product approaches enhance quality of teaching learning in the educational system.

A dual approach consists of two usually complementary components to minimize the total cost and maximize the output. This method is widely used in the industrial and economics sector as well as in management and educational sector.

“It is an educational procedure which stimulates learning and brings better learning outcome.”

Dual Approach is competitively combining the two approaches which are significant in education system duly combines process as well as the

product. It is an integration approach complementing the process and product thus maximizing the output.



Process is the way to knowledge to learn the significance of economic product, just as in economics, process is the way it happens as the outcome.

The two approaches process and product dominate teaching learning, research or in teaching of writing, just as in writing, product approach focus language structure and model texts, while process approach has personal expression and composing process. In this, the learner copies, imitates and transforms teacher supplied notes.

The process and product approaches can be applied in the action research in education in the form of qualitative and quantitative approaches to find solution to a problem.

PROCESS APPROACH

The process approach emphasizes a learners own creative self discovery in reflective way (Flower 1989). It centers on continuous exploration and reformulation of ones own idea in order to accomplish this task, a learner should engage in multiple drafting, brainstorming, revising, editing while the students and teachers need to provide responses.

For eg: while writing research paper, while choosing the topic for research thesis they have to choose their own topics and conduct journal writing and peer review. The writing aspect / process is at one stretch but interactive and recursive, The elements in the process interact with one another and the process repeats itself. In the mean while learners makes constant self reflection and receive frequent feedbacks.

The process approach is not well accepted in terms of pedagogy for lacking social dimensions and undermining the role of teacher, however, few conclusive researches are available on how writing in research paper and language process is actually taught and explicitly assessed in a systematic way in process approach. It also overlooks socio-cultural constraints placed on writers by not to consider how differences in class, gender, and ethnicity influence in the writing process.

PRODUCT APPROACH

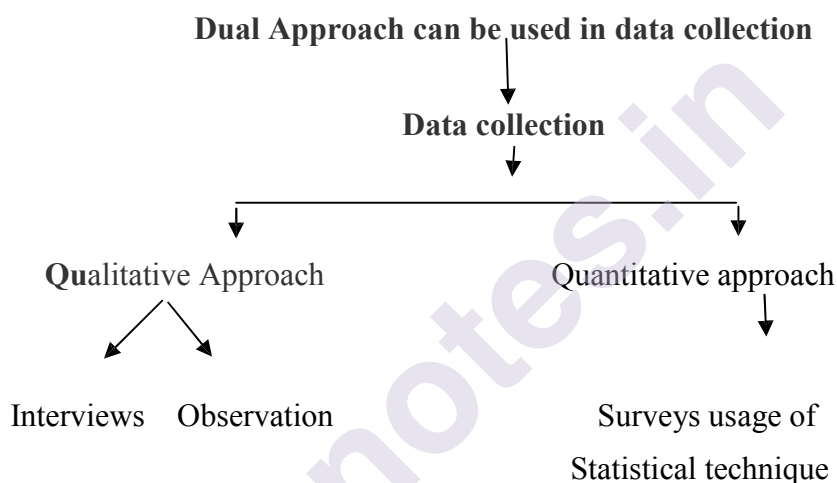
In the product approach learning to write research paper or language writing is found as gradually gaining control of complex knowledge and skills which are demonstrated in final writing products, with reference to language, more emphasis is placed on the grammar, vocabulary, structure. The assessment focuses on how far grammar is accurate enough and whether sentence patterns are complex enough comparing

with modeled samples. The learners are expected to have repeated assisted imitations, as prescribed by research norms or linguistic rules.

The product approach too has not been totally appreciated as the activity of writing is seen as an “exercise in habit formation” while students tend to avoid complexity to attain accuracy and correctness.

While dual approach expects the combination of both process and product approaches. The process approach promotes wider educational aims and objectives, while product approach expects tangible and immediate outcomes.

They are not mutually exclusive in classroom context. In case of conducting action research



Drop out rate is defined as the proportion of children cease to remain in the schooling system. There are variety methods for estimating drop – out rate education statistics of the ministry of human resource development is.

Grass drop out for classes from I to V can be Calculated as $1 - \frac{\text{Enrolment in class V during the reference year}}{\text{enrolment in class I Four year ago}}$.

The data collected through DISE provides repeaters enrolment class wise / sex – wise Two consecutive years data thus collected can be used to generate a reconstructed chart which is more appropriate to estimate the dropout rates. DISE data are school wise, using such data for the school which remained common in two consecutive years, a new data base has been generated and the drop out rates are calculated. This suggests that the drop out rates were 15 % in 2002 -03 which reduced to 13 % in 2003 – 04 and further reduced to 12 % in 2004 – 05 Although the trend is encouraging, concerned effects would be needed to ensure further reduction.

Check your progress :

a) What type of approach do you intend to you internal to implement in your teaching learning process ?

6A.5 WASTAGE IN EDUCATION-MEANING

It is seen that planners of education have always expressed concern about educational wastage caused by repeaters and dropouts. Such wastage is one of the difficulties in fulfilling the

social demand in formal education. For an effective management of educational system, it is required that the retention rate should be improved by reducing educational wastage, while maintaining the quality of the system at reasonable input cost.

- Educational wastage is an economic term defined as the ‘total’ number of student’s years spent by the repeaters and dropouts.
- Repeater is a student who in a given school year remains in the same grade as in the previous year while, drop outs are those who leave the school before the end of the final year or some where during an educational cycle in which they are enrolled.
- Wastage refers to the benefits provided to the repeater for his/her extra time spending in school and the benefits accruing to the drop outs before their leaving the school.

Total Wastage = Reflect the total size of repetition and drop outs in the flow of Promotion within on education system

Repeaters = Stay in the school for longer than normal duration there by reducing the intake capacity.

Causes of wastage and dropouts

Drop out is frequently used term in educational settings. It concerns students who start courses but do not complete them.

- Non starters Æ illness Æ Poor family support Æ No shows Æ Failures Æ Lack of time In the ODL system students who officially withdraw / submit assignment but do not take up exam and vice – versa Inadequate Skills Æ Intellectual difficulties Æ Administration reasons

In all wastage is the refection of value of an estate caused by an act of negligence or failure to take advantage of education available.

$$= 1 - \frac{\text{Total optimum years}}{\text{Total actual used years}}$$

While the same procedure cannot be applied for quantifying the wastage at international levels when comparing educational wastage across national level great deal of caution to be taken as educational systems are

not alike a structural and promotion policies and achievement norms differ to a larger extent, when we

talk of drop out and repeaters, we have to consider educational wastage as the total number of pupil years. Spent by repeaters and drop outs and can be converted into a percentage of the total number of pupil years spent by repeaters and dropouts

The tendency of students to repeat and drop out is largely influenced by

- Socio economical backwardness
- Educational factors
- Excessive involvement of learners in domestic work
- Parental opposition, educational states of parents

As for educational factors are concerned, stagnation or absence or relationship between educational system and Economics needs of the community, faulty admission policy. Lack of physical facilities poor institutional environment are the causes of repetition and drop outs.

Factors like death of parents, poor physical standard of learning lead to dropping out or repetition of grades.

Check your progress:

1. Drop out at primary level is hindrance to further education.
2. Discuss the statement I your own experience

6A.6 WASTAGE IN EDUCATION-AT DIFFERENT LEVELS OF EDUCATION

The rates of return to education and the levels of education acquired by the human resources are positively related, though there are differences in the social and private rates of return to education of different types and levels, while the social rates of return are usually estimated to be higher at the lower levels of education like the primary and elementary stage, the accrual of private benefits are relatively more from the successively higher levels of education. It is on the basis of such evidence and reasoning that most governments every where on the globe have adopted deliberate policy of providing free education for certain age groups of the population; example up to 14 years of age in India, while the extent of subsidy is somewhat less at the higher levels of education as compared to the lower levels. However the rates of return to education, social and private differ, not merely at different levels and types of education but also across various regions.

A number of studies have been under taken to analyze some of the important problems the study reveal large scale drop outs at various stages of education.

In Satara estimated the apparent wastage (proportion of the school drop – outs to the initial cohort enrollment of infant classes to 36.20% The financial wastage was estimated at 28 % At the collegiate stage Kamat and Deshmukh 1963, Ferguson College, Pune estimated that out of the initial entry of 1000 arts students only 492 students succeeded in completing their college education indicating a wastage was estimated at 28 %

In another study in Gujrat revealed that it provided a regression analysis in support of the optimum size of enrolment of a college and a school as suggested by Kothari Commission. It is estimated that there is large scale wastage and stagnation both at the school and college levels. This is more so among the girls and economically weaker and socially backward students.

The school education is characterized by high rates of dropout (The drop out rates in India from classes I to VIII in 1995 – 96 were 54.99 percent per boys and 61.70% per girls.

Drop out of school in Indian Context

Contrary to popular sentiment, the non availability, the non availability schooling facilities seems to account for only 10 – 15 % of India's out of school children. Large percentage of children are unable to take advantage of near by educational facilities because they are needed at home to participate in the basic tasks of the house hold economy most children who are not in school are instead working outside to have income which exists more in rural areas a considerable proportion of urban dropout city failure to pass examinations as their reason for discontinuing education.

Drop out rates at primary and upper – primary levels 1999 –

204 – 05

Stage 1999 – 2000 2000 – 01 2001 – 02 2002 -03 2003 – 04 2004 – 05

Class I – IV

Girls	42.3	41.9	39.9	33.7	28.6	24.82
total	40.3	40.7	39.0	34.9	31.5	28.49
Boys	52.0	50.3	52.9	52.3	51.8	50.10
Girls	58.0	57.7	56.9	53.4	52.9	50.76
otal	54.5	53.7	54.6	52.8	52.3	50.39

Promotion repetition and dropout rates in 02 – 03 , 03 – 04 and 04 - 05

Gender	2002 – 03			2003 – 04			2004 - 05		
	Promo	Repeat	Drop	Promo	Repeat	drop	Promo	Repeat	Dropo
Boys		81	5	15	82	5	13		83
	4	13							
Girls		80	5	15	82	5	13		83
	4	13							
Overall		80	5	15	82	5	13		84
	4	12							

The stage transition ratios from primary to upper primary levels of education indicate that they are very high in most of the states. Further expansion of primary education will have a demand for expansion of upper primary education even when transition ratios remain the same. In certain cases expansion of primary education may be accompanied by an increase in the inter stage transition ratios. Under such circumstance, the demand for expansion of upper primary education system may be rather high. In States which are educationally more advanced, the primary stage completion rates and inter stage transition rates are nearing

100%. In States which are educationally less advance the primary stage completion rates are not yet nearing 100 % but inter stage transition rates are very close to 100% . Educationally backward States have lower primary stage completion rates and lower inter stage transition rates than State which are educationally advanced. Hence implications for expansion of upper primary education facilities.

The input output ratio, which is an indicator of efficiency of the system, indicates that wastages are relatively less at the upper primary level of education than at the primary levels of education. The input output ratios are 1:1.24 in case of Malappuram; 1:1.41 in case of Bilaspur ; 1:1.11 in case of Aurangabad and 1:1.20 in case of Moradabad. These input – output ratios show that wastage is less in upper primary school except in Bilaspur. More importantly wastage on account of repetition is at least three times higher than that on account of drop – outs.

Check your progress

1. Explain the factors leading to drop out in Rural set up ... 10 lines

6A.7 TYPES OF WASTAGE

I) MONEY

Money is an indicator justifying investment, is closely related to education due to the fact the educated workers earn higher wages than those who are illiterates or unskilled or have lower educational qualification. The relationship between education and monetary aspect is important from the point of view of distribution of income and wealth among a cross section of people. Wastage in terms of money would result in output inefficiency. financial resources have no meaning unless these are utilized to procure human and physical resource for further utilization. The level of education that an individual possesses, in one form or the other is positively correlated with the amount of personal earning. The number of years of successful education is the best predictor of the eventual occupational status of earning of an entrant into the labor force market. The earning profile of workers with different levels of education shares the following characteristics.

The wastage of money would lead to improper out put.

- The average earnings of all workers
- The higher the level of educational attainment
- The workers with higher level of education reach their maximum earning capacity faster

The wastage of money will hinder not only the quality of education but also hinder Economics Development

II) Material Wastage

Material wastage is one of the most important aspects in educational system. Wastage in material resources result in wastage in generating non human resources. Material wastage resources include both physical and financial resources.

Wastage in terms of non human resource like and building, administrative block, lecture rooms, library, computer room, sport room, hostel building, book implement and tools, teaching aids, models technological gadgets like radio, T. V. tape recorder, overhead projector, film projector, slide projector, if these materials are neglected by not utilizing frequently it would lead to huge wastage. Apart from this material usage the consumable items like power, drinking water, stationery, news paper / magazines be appropriately used by the teacher and students, It would remain as waste, hence the authority concerned along with teaching and non teaching in the institution need to optimize the utility purpose and not as a wastage product.

III) Human Capital

Human beings invest in themselves to acquire more education and training and better health condition which, in

essence. For human capital which has both qualitative and quantitative dimensions. Qualitative dimension of human capital involves the acquisition of variety of skills, extent of knowledge abilities and other desirable attributes that affect human capabilities of under taking productive work to maximize out puts.

Quantitative dimension means the number of people performing a particular task, the proportion of people who enter into the labour force or in gainful employment and the time devoted to completing a particular task. The factors determine the human capitals are.

Education =-----> Health Services -----> On job training
-----> Not formal Education -----> Modernization of technical
Education

If the human capital in the above aspects are not properly utilized, it becomes wastage more so in the field of education. This wastage depreciates over a time if not optimally utilised. The very first indicator

is the level of educational attainment the gross number of persons in the total population who have completed successive levels of education like primary, secondary and higher education; of the last two are important in indicating the stock of high level human resources. Thus decline in human capital result in maximum wastage which would hinder quality education. Human capital in education includes teaching administration technical and professional staff.

IV) Ideological

Ideological refers to the nature of range of issues raised and how they are raised to the systems of representation that they are promoted or excluded in explicit or implicit terms.

The question raised is what are the constitutive issues at stake in the first place mainly in terms of wastage in educational activities? When it comes to asserting important categories

The ideological is the analysis of individual curricular and co- curricular activities and the text relation is main understanding the ideological news on education. This analysis perspective assumes that education offer and provides a particular conversely abstract truth.

If these required ideologies are not followed in the educational system, it may not reach up to concrete values which are essential be it technology or education?

The wastage in terms of ideological component is mere was as it does not help in the quality of education that is the imparted to student community, the teachers in educational institution need to keep this component clearly during teaching learning process. Thus ideological factor can become useful if kept in practice, otherwise it would mean decline of educational input / output

Check your progress

1.What are the other types of wastage leading to hinder quality education?

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EDUCATIONAL EQUITY MEASURES

Unit structure:

6B.0 Objectives

6B.1 Introduction

6B.2 Causes of inequality in educational opportunities

6B.3 Meaning of equality and equality at different levels

6B.4 Equality for women

6B.5 Equality for disabled children

6B.6 Some inherent contradictions

6B.7 The cost benefit criterion: Equity in the provision of education

6B.8 Equity in the distribution of public spending in education (Income Variance and distribution)

6B.9 The ability to pay criterion

6B.10 Tools to assess the equity and income distribution

6B.10.1 The Lorenz curve

6B.10.2 Gini coefficient

6B.10.2.1 Gini Index calculation

6B.10.2.2 Generalized inequality Index

6B.10.2.4 Advantages of Gini coefficient as a measure of inequality

6B.10.2.5 Disadvantages of Gini coefficient as a measure of inequality

6B.11 General problems of measurement

6B.12 Other uses

6B.0 OBJECTIVES:

After going through this unit you will be able:

- To understand the causes of inequality in educational opportunities
- To know the meaning and nature of equality in education

- To understand the inherent contradictions in the equalization of educational opportunities
- To explain the equity criteria in opportunities and public spending
- To understand the issues involved in the cost benefit in education
- To understand the problems involved in the ability to pay criterion
- To explain the Lorenz Curve
- To define and explain the Gini coefficient
- To calculate the Gini Index
- To explain the advantages, disadvantages and general problems of Gini coefficient as a measure of inequality

6B.1 INTRODUCTION:

Is education an equalizer? Education has great potential to decrease the inequality. But this potentiality itself seems to be governed by the existing system of stratification.

To achieve the goals of economic, social and cultural development, adequate provisions of education is necessary. With inadequate education, the persistence of economic disabilities, regional imbalances and social injustice will be prolonged leading to a possible build up of disintegrative tensions. Through proper education, the achievements of economic and social development can be facilitated and expedited. The human resource would have a multiplier effect on the utilization of all the resources. That is why education has been increasingly accepted as and that is why the Education Commission Report spoke of education as the only instrument of peaceful social change.

The Constitution of India has specific expression of liberal ideology. It declares the society to be open and assures equality of opportunity to one and all in all realms. 'The claim of the individual to welfare is sacred and irrefutable' in such a constitution and it

'partakes of the character of a natural right' (Marshal: 38). With the intention of bringing the socially and economically backward (normally the Scheduled Caste and Scheduled Tribes), the state has assumed the role of a generous donor and bears the responsibility for providing the necessary help to uplift in the form of protective discrimination.

An integral feature of economic planning is the faith that is reposed in education as an instrument in national development. This seems to be based on the fact that with the growing complexity of urban-industrial society, economy and education

have become intertwined, each affecting the other in significant ways. Economists have been aware of the importance of this relationship and its implication for development in general.

Alfred Marshall emphasized the importance of education as a national investment by underscoring the point that the most valuable of all capital was that 'invested in human beings'.

The relationship between education and economy is reflected in the close link that has developed between education and occupation in modern urban-industrial societies. Occupations have become, by their very nature large and dependent and the process of production very complex. Mental work as different from manual work has gained importance. Modern occupations call for trained talent in the application of vision, knowledge, and concepts. In short, the increasingly technical nature of industry has raised the level of education required in occupations of all types.

Education influences economic development. Education system provides the labor force that matches the needs of economy. This is called '*the man power allocation function of education*'. Education is a prerequisite of economic growth. Economic development assumes a particular set of attitudes and values. Education is capable of generating a climate for growth. It is wide spread belief that now that in context of economic development education can yield both financial and non financial returns. For a proper understanding of the various aspects that come into play in the field of education, it is essential to the opportunity available for different sections of people, who bears the cost and who benefits, and the ability to pay for education by different sections of people.

6B.2 CAUSES OF INEQUALITY IN EDUCATIONAL OPPORTUNITIES:

1. Inequalities of educational opportunities: Inequalities of educational opportunities arise in various ways. In places where no primary, secondary or collegiate institutions exist, children do not have the same opportunity as those who have these facilities in the neighborhood. This should be overcome by the widest dispersal of educational institutions consistent with economy, and efficiency, by instituting adequate scholarship programs, by providing the needed hostel facilities or by making suitable transport arrangement.

2. Poverty: Poverty among a large section of the population and the relative influence of a small minority acts as a hindrance in achieving equality in educational opportunities. Even if educational institutions are available in the neighborhood on an equal basis, children from poor families do not have the same chance as those who come from richer ones. To overcome these handicaps, it is desirable to abolish fee progressively, to provide free books, stationary and even school meals and uniforms and also scholarships.

3. Differences in the standards of schools and colleges: Differences in the standards of schools and colleges create an extremely intractable form of educational inequality. When admission to an institution such as a university or professional college is made on the basis of marks obtained at the public examination at the end of the higher secondary stage, as often happens, the marks do not at all provide a common yardstick for a student from a rural area who attend an ill-equipped school in his village and a student from an urban area who attends a good city school. To overcome this to some extent at least, it is necessary to evolve more reliable and egalitarian methods of selection, whether for admission to institutions or for award of scholarships.

4. Differences on home environment: A child from a rural household or an urban slum having non-literate parents does not have the same opportunity which a child from an upper class home with highly educated parents has. These inequalities are obviously the most difficult to overcome and here the progress essentially depends on the general improvement in the standard of living of the population. Here, special attention at school can be paid to children from the underprivileged groups and provision of day study centers or boarding houses to overcome this problem.

5. Gender inequality in education: A peculiar situation in Indian context is the gender inequality education. There is wide disparity between the education of boys and girls at all stages and in all levels of education. Various steps like reservations for girls in educational institutions of various branches of studies have been effected. Also steps like fee concessions, scholarships and other incentives are made available for girl students in order to enhance girls' education.

6. Disparity between advanced classes and backward classes: There is a wide gap of educational development between advanced classes and the backward ones-the scheduled castes and scheduled tribes. On grounds of social justice as well as for furtherance of democracy, it is essential to make special efforts to equalize educational opportunities between these groups.

7. Absence of earnest striving to achieve equality of opportunities: To achieve perfect equality may be unattainable. But an impassioned faith and earnest striving in the direction is very essential. In a good system of education there should be a continuous attempt to identify factors which tend to create significant form of inequality and to adopt measures either to eliminate them altogether or at least to reduce them to the minimum.

6B.3 MEANING OF EQUALITY OF EDUCATIONAL OPPORTUNITY

Equality of educational opportunity has been interpreted "as the opportunity to start together, to benefit from staggered starts, to remain on the same track, and to remain or progress together." According to NPE

1986, equality of educational opportunity means “to provide for equal opportunity to all not only in access but also in the conditions for success.” Equality of educational opportunity has been taken as “success by manipulation of educational inputs (like physical facilities and equipment in schools, quality of teachers and curriculum, and financial assistance for the poor.) to others it meant an equalization of results of education well, that is equalization of educational achievement and benefits accruing from it.

Up till now the term equality of educational opportunity was generally interpreted as openings of schools within walking distance for children, providing residential facilities to children, admission of children of all communities to schools, reducing the dropout rate and increasing the retention rate of children through various measures, provision of non-formal education centers for the non attending children, grant of pre-metric and post-metric stipends and provision of various ancillary services to facilitate schooling of children. It is common observation that such provisions have either not been fully utilized or not understood in the right perspective by the beneficiaries. Economic poverty, though a major reason, is not the only constraint in the educational development of the educationally backward sections of Indian society. There are other factors, such as sociological and psychological restraints lack of motivation in children, a low self-concept of their parents, inadequate facilities at home, and the passive attitude of teachers to the educational progress of learners from backward communities. Teachers’ active participation in the educational development of these communities in general and individual attention to their children in particular, will definitely pave the way for their success in education.

Equality of educational opportunities at the primary stage: Primary education caters to the most fundamental needs of all men and women and it that stage of education, without which men cannot qualify themselves for a group life. Therefore, Article 45 of the Directive Principles of state policy in the Constitution of India declares. “The state shall endeavor to provide....for free and compulsory education for all children until they complete the age of fourteen years.” Thus to provide equal opportunity to all children primary education (referred to as Elementary Education in India) has been made compulsory, free and universal.

The Indian government has also banned child labour in order to ensure that the children do not enter unsafe working conditions. However, both free education and the ban on child labor are difficult to enforce due to economic disparity and social conditions. 80% of all recognized schools at the Elementary Stage are government run or supported, making it the largest provider of education in the Country. However, due to shortage of resources and lack of political will, this system suffers from massive gaps including high pupil teacher ratios, shortage of infrastructure and poor level of teacher training. Education has also been made free for children for six to 14 years of age or up to class VIII under the Right of Children to Free and Compulsory Education Act 2009.

There have been several efforts to enhance quality made by the government. The District Primary Education Programme (DPEP) was launched in 1994 with an aim to universalize primary education in India by reforming and vitalizing the existing primary education system. 85% of the DPEP was funded by the central government and the remaining 15 percent was funded by the states. The DPEP, which had opened 160000 new schools including 84000 alternative education schools delivering alternative education to approximately 3.5 million children, was also supported by UNICEF and other international programmes. This primary education scheme has also shown a high Gross Enrollment Ratio of 93–95% for the last three years in some states. Significant improvement in staffing and enrollment of girls has also been made as a part of this scheme. The current scheme for Universalization of Education for All is the Sarva Shiksha Abhiyan which is one of the largest education initiatives in the world. Enrollment has been enhanced, but the levels of quality remain low.

Equality of educational opportunities at the secondary stage:

Provision of equalization of opportunities is a universal demand. This arises mainly from two considerations. 1) The first being the purely ideological demand that the right to education is a human right. Art. 26 (1) of the universal declaration of Human Rights envisages this right to every citizen. Hence education is a fundamental right and so it cannot be denied on any ground such as caste, color, creed, race, etc. 2) this demand arises out of the desire of people for more education. People believe that more education can improve their socio-economic status.

The National Policy on Education (NPE), 1986, has provided for environment awareness, science and technology education, and introduction of traditional elements such as Yoga into the Indian secondary school system. Secondary education covers children 14-18 which covers 88.5 million children according to the Census, 2001. However, enrolment figures show that only 31 million of these children were attending schools in 2001-02, which means that two-third of the population remained out of school. A significant feature of India's secondary school system is the emphasis on inclusion of the disadvantaged sections of the society. Professionals from established institutes are often called to support in vocational training. Another feature of India's secondary school system is its emphasis on profession based vocational training to help students attain skills for finding a vocation of his/her choosing. A significant new feature has been the extension of SSA to secondary education in the form of the Madhyamik Shiksha Abhiyan.

A special Integrated Education for Disabled Children (IEDC) programme was started in 1974 with a focus on primary education, but it was converted into Inclusive Education at Secondary Stage Another notable special programme, the *Kendriya Vidyalaya* project, was started for the employees of the central government of India, who are distributed throughout the country. The government started the *Kendriya Vidyalaya* project in 1965 to provide uniform education in institutions following the

same syllabus at the same pace regardless of the location to which the employee's family has been transferred. Educational Equity Measures

A multilingual web portal on Primary Education is available with rich multimedia content for children and forums to discuss on the Educational issues. India Development Gateway is a nation-wide initiative that seeks to facilitate rural empowerment through provision of responsive information, products and services in local languages.

Tertiary or University Education:

Our university system is, in many parts, in a state of disrepair...In almost half the districts in the country, higher education enrollments are abysmally low, almost two-third of our universities and 90 per cent of our colleges are rated as below average on quality parameters... I am concerned that in many states university appointments, including that of vice-chancellors, have been politicized and have become subject to caste and communal considerations, there are complaints of favoritism and corruption. – *Prime Minister Manmohan Singh in 2007*

Educational progress of SC/ST students: According to the 1981 census, the all India literacy rates of Scheduled castes and Scheduled Tribes stood at 21.38 and 16.35 percent respectively, as against 41.20 percent of the non-Scheduled Caste and non- Scheduled Tribes population sectors. The literacy rates of women of the SC and ST were 10.93 and 8.04 percent as against 29.43 percent of other population sectors. The incidence of higher education is dismally low. The imbalance in educational development among different population sectors lead to many social and economic ills, in addition to the loss of human resource development in the country in general, and the non harmonious development of the individual learner's personality.

Objectives of Equalization of Educational Opportunities for SC/ST Students:

1. Educational backwardness amongst the Scheduled Caste and Scheduled Tribes has been due to social deprivation and economic poverty meted out to these communities for centuries. Hence corrective measures have to be taken.
2. To minimize by special efforts the inequalities in educational development between educationally backward communities and other sections of Indian society.
3. To eradicate the behavioral discrimination shown towards the children of the SC and ST even inadvertently, that results in their disinterest in studies, early withdrawal and development of low esteem of self.
4. To bring forth teachers who play a special role towards the education of these communities, especially the first generation learners.

5. To sensitize parents and community members of ST and SC on the schemes and incentives for them and to motivate to educate their children.
6. To develop a crash program for universal functional literacy with teachers' wholehearted participation to bridge the gap and imbalance in the education of ST and SC and other communities.

6B.4 PROVISION OF EQUAL OPPORTUNITY OF EDUCATION TO WOMEN:

The NPE 1986 with regard to education for women's equality states, "Education will be used as an agent of basic change in the status of women. In order to neutralize the accumulated distortions of the past, there will be a well-conceived edge in favor of woman." Education system will play a positive interventionist role in the empowerment of women.

The removal of women's illiteracy and obstacles inhibiting their access to and retention in, elementary education will receive overdoing priority, through provision of special support services, setting of time targets, and effective monitoring. Major emphasis will be laid on women's participation in vocational, technical and professional education at different levels. The policy of non-discrimination will be pursued vigorously to eliminate sex stereo- typing in vocational and professional courses and to promote women's participation in non-traditional occupations, as well as in existing and emergent technologies.

6B.5 PROVISION OF EQUAL OPPORTUNITY OF EDUCATION TO DISABLED CHILDREN:

Impairment, disability and handicap are not synonymous terms. Not every impairment results in disability and not every disability results in handicap. Impairment refers to biological forces and is nothing but the physical defect of an individual. It develops due to overwork, accident or due to hereditary factors. It decreases mobility, limits the range and depth of interpersonal and social relationships which causes psychological problems.

Disability refers to how a culture deals with impairment. It is the behavior evolving from the impairment. Impairment imposes limitations upon an individual's capacities and levels of functioning. Disability has a cultural aspect also. How the culture of a particular society deals with impairment determines disability. In most cases, the negative feelings and reactions from the physically able children may develop a tendency towards disability. The visually impaired or the hearing impaired or the mentally retarded are permanently disabled.

Handicap depends on how the individual deals with the physical impairment. Anything is a handicap if it prevents someone from doing what he wants to do. Handicap as a technical term refers to conditions such as blindness, deafness or very low intelligence. There

are 10 officially recognized categories of disabled children. 1) blind 2) partially blind 3) deaf 4) partially hearing 5) educationally abnormal 6) epileptic 7) maladjusted 8) physically handicapped 9) affected by speech defect and 10) delicate. It is a fact that the national goals of development, integration, excellence, and equity cannot be attained without ensuring that every child in the country crosses a minimum threshold of education. Even for facing the challenges of the world today a minimum level of education is essential. Also for the development of individual personality, appreciation of the constraints and potentials of environment, internalizing the value system, imbibing and becoming aware of the social responsibilities and the acquisition of specific capabilities to deal with life. Realizing this importance, the inclusive education is earnestly pursued in the present time.

Unless the disabled children get equal opportunity for education, we cannot achieve our national goal. So it is of prime importance to bring effective measures to promote academic development and vocational possibilities, achievement of self sufficiency and independence of the disabled. So it is important for the parents, educators and administrators to work hand in hand.

Recommendations of NPE 1986 on Equal Opportunity of Education to the Disabled: the NPE states that the objective is to integrate physically and mentally challenged with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence. The following are some of the important recommendations.

1. Wherever it is feasible, the education of children with motor handicaps and other mild handicaps will be common with that of others.
2. Special schools with hostels will be provided as far as possible at district headquarters, for the severely handicapped children.
3. Adequate arrangements will be made to give vocational to the disabled.
4. Teachers training programs will be reoriented to deal with handicapped children.
5. Voluntary effort for the education of the disabled will be encouraged in every possible manner.

6B.6 SOME INHERENT CONTRADICTIONS IN THE EQUALIZATION OF EDUCATIONAL OPPORTUNITY:

In the effort to equalize educational opportunity to all, one should not lose sight of the hierarchical school system in the

country reflecting and perpetuating social inequality. The schools vary in terms of the sources of finance, machinery for social control, medium of

instruction, social milieu, process and direction of socialization and, not the least, the class clientele. At the top of the hierarchy are the so called 'public' schools- schools from which "the great majority of the public are precluded from entering" – and their slightly faded versions in private/convent English medium schools. At the bottom are the majority of the ill-managed (more so in rural areas) vernacular medium schools run either by the government itself or with its aid by private managements.

The former category of schools caters mainly to the children belonging to the ruling class, professional elite, and some middle- class mobiles. By and large these schools are exclusive and inaccessible to the oppressed. These schools serve the ruling class' interest by socializing successive generations of civil servants, army officers, professional elite and managerial magnates who have, as is to be expected internalized the values necessary for their dominance in the existing order.

On the other hand, the 'state' schools, which depend almost entirely on the public exchequer, cater to the oppressed by way of realizing the statutory objective of Universalization of elementary education. These schools, no doubt, provide a schooled and differentiated labor force for the economy. But given the worsening crisis due to socio-economic contradictions, they also constitute the breeding ground for discontentment and a mass base for a potential revolution and a threat to the establishment.

Values are embodied in a culture and socially rooted. The promotion of certain values through the curriculum cannot per se represent the interests of all sections of society. Thus the question arises whose values are going to be embodied in education and with what consequences?

We talk of 'uniquely Indian values' and a search word by inference imply that the government is disillusioned with the values enshrined in the Constitution, such as equality, social justice and freedom of opinion. In fact, these values which are most important for the oppressed in the present order are substituted with values 'uniquely Indian' which have pernicious consequences for the oppressed. The fact that the schooling of the oppressed is controlled by the state predominantly that the state is a handmaid of the dominant classes and groups, and that the move is a search for 'uniquely Indian values' outside the Constitution, would assuredly result in education being fostering a 'culture of silence' among the oppressed.

A cursory look at the data on the socio economic background of our school teachers confirms that by and large they belong to the dominant sections rather than to the oppressed. These teachers have as much a vested interest in the present system as those who manipulate, direct and control it. As such what would be their predispositions to the oppressed and the latter's emancipation can be anybody's guess. A report in the Indian Express, Bangalore, 15 February 1984, about a school in Mehekar village in Amravati District in Maharashtra where the seventh standard students allegedly tore off pages from a book containing

a lesson on Dr. Ambedkar following an order from their teacher, according to whom Dr. Ambedkar was an untouchable and not a fit topic for instruction is a pointer. Educational Equity Measures

A few teachers from among the oppressed sections are also made instruments of manipulation at the hands of the dominant classes. Even the teachers' training programs also follow this line of thinking and provide legitimacy to what they already been doing. An ideal society focuses on the promotion of 'the good of *every* man and the *whole* man.' the oppressed sections of the society who are in effect defenseless should be strengthened and made prepared to deal critically with the oppressive elements of reality. The oppressed should also be enabled to believe in their own power if change is to be made in this regard.

One aspect of the reformism is the notion that the oppressed have been provided with the opportunity of 'quality education.' This notion has made the oppressed the object of humanitarianism and the implied 'false generosity.' If the oppressed are unable to benefit from the state generosity, the blame is squarely placed upon them by individualizing failure, ignoring the socio-economic reality. In fact, considering the role that education can play in bringing about a revolution or preventing it, one is reminded of the need to 'rescue education from the influence of the ruling class' recognized by Marx and Engels as early as 1848.

Exercise:

Answer the following questions in not more than 150 words.

1. What do you mean by equality of educational opportunity? How can you provide equality of educational opportunity to the students at the primary and secondary stage of education?
2. Discuss the objectives of equalization of educational opportunities for the SC/ST students.
3. How can equal opportunity of education be provided to the girl students?
4. Who are the disabled children? How can we provide equal opportunity to the disabled children?

6B.7 EQUALITY IN THE PROVISION OF EDUCATION

In most societies, equity in the distribution of income, wealth, or prestige is an important concern. Since education affects this distribution, its impact is a natural topic of analysis. It is often useful to document the level of equity associated with the current characteristics in the education sector and to estimate the change that might result from alternative education policies. Equity is one among many other objectives of educational policies. Yet equity often arises in the analysis of other problems in the sector. The following are some of the basic methods for addressing it.

1. Studies that assume education is beneficial without specifying its nature or value. The main focus is on the access of specific levels or types of education. Equity is analyzed by using such indicators as relative rates (or indices) of entry, transition, and success among various population groups differentiated, for example, by sex, region, ethnicity, or socioeconomic status of parents.

2. Studies that focus on the value education confers on the educated. This value may materialize while a person is being educated or after graduation from the system. In the first case, the benefits consists of the public resources that accrue to people who are enrolled in the system; in the second, those benefits appear in the form of higher earnings (or income) and upward social mobility.

3. Studies that assess who pays for and who benefits from the provision of education. Included in this category are studies on the distributional effects of education. Two kinds of analyses can be made. The first is cross-sectional, a comparison of the contribution of various groups to the public budget for education and the share of that budget that they receive through public education. The second kind of analysis is longitudinal, comparing what a person receives from public spending on education with his or her lifetime contribution in the form of taxes.

All three approaches are relevant to the analysis of equity in education. But not all of them are feasible in sector work. The issue of who pays and who benefits is more appropriately the subject of a specific study than of sector work.

Among the three types of studies distinguished above, the first is clearly the most feasible in sector work. It should be taken into consideration that though the results do not provide a great deal of insight into the problems of educational equity because the analysis is somewhat limited in depth. One way to expand the assessment is to document the distribution of public spending on education among people belonging to the same generation.

(a) The Equal Opportunity Criterion:

Indicators of equity traditionally measure variation in the access to and success in education among different groups in the population. They usually are calculated from data on the gender, location, or socio-economic characteristics of the student body and a reference population (for example, all children of school age).

Table 11 a. 1. Access to primary schooling by sex.

Student population		Reference population		Ratio (1)/ (2)	Relative Index
(percent) 1		(percent) 2			
Girls	40	50		0.8	1.0
Boys	60	50		1.2	1.5

Table 11 a-1 shows the difference between boys and girls in their access to primary schooling. The reference population is children of primary school age, and half this population will normally be girls. The index in the last column indicates that boys are 1.5 times as likely as girls to enroll. The same table could be calculated for other levels of education, and the results would show how this pattern becomes more or less prominent as the level of education rises.

Table 11. a-2. Transition from Primary to Secondary Schools by

Region

*Region Primary (percent) Secondary intake (percent) Ratio Relation
index*

	(1)	(2)	(2)/(1)	(north=1)
North	15	6	0.4	1
	25			
East	40	50	1.25	3.1
West	20	14	0.7	1.75
Total	100.0	100.0	1.0	

Table: 11. a- 2 provides evidence on the transition between primary and secondary schools by region of the country. It shows that primary school students in the north are less likely than students in other regions to continue beyond primary level. This outcome is distinct from the fact that the primary school enrollment ratios are low in the north. Although the figures do not identify the reasons for the regional differences in the access to secondary schooling- such as low demand or inadequate supply- they highlight this issue as a topic for further analysis.

6B.8 EQUITY IN THE DISTRIBUTION OF PUBLIC SPENDING ON EDUCATION

The distribution of public spending may be addressed by focusing on a given level of education. The calculations compare the of public spending received by various groups in the student body with the distribution of a reference population (such as all parents with children in the relevant age groups).the analysis may be broadened by documenting the origins of the state budget, so as to measure the contribution of each group against what each receives through the children's- education. To gain a sense of the overall situation, a general assessment may be enough to point out, for example, that although the taxes on agricultural products make up the bulk of physical revenues, public spending on education benefits mainly urban families.

People receive public resources as long as they remain in the education system. The longer they stay the more resources they accumulate. Equity in the distribution of public spending is therefore

influenced not only by the pattern of spending per pupil at each level of education, but also by the structure of enrollment pyramid.

Observe table 11 a-3 on the unit cost of education and enrollment ratios in countries A, B, and C. the school age population is the same in all three countries, as is the size of the public budget for education. These countries differ, however, in their choice of the structural characteristics of education.

Table: 11 a-3. Structure of Enrollment and Unit Cost in

Enrollment		ratio	Country A	Country B	Country C
Primary	unit	Cost	60	40	40
Secondary			25	25	25
Higher			3	10	10
Public					
Primary			100	100	70
Secondary			200	200	200
Higher			600	600	900

Three Countries

Countries A and B spend the same amount per pupil at all three corresponding levels of education, but country A has placed more emphasis on enrollment in primary schooling, while country B has emphasized higher education at the expense of primary schooling. In fact one can conclude that public spending on education is more highly concentrated in country B than country A.

Now turn to countries B and C. the structure of enrollment is identical, but substantial differences exist in the pattern of spending per pupil. Country C is more elitist in that higher education is more heavily funded at the expense of lower per pupil spending in primary schooling. The data shows that the distribution of public spending on education is less equitable in country C than in country B.

Equity in the distribution of public resources for education depends on two features of the education system—the quality (unit cost) and the quantity (enrollment ratio). To give a comprehensive picture of equity, the analysis consider how the enrollment pyramid affects the distribution of education (measured by the number of years of schooling received) among people in the same generation, and how this distribution in turn interacts with the structure of unit costs to determine the distribution of accumulated public spending on education.

Table 11-a-4: Distribution of Cumulative Public Spending on Education (Rupees)

Highest Educational Attainment expenditure	Number	Cumulative public of expenditure students	Aggregate cumulative per student	Share of total aggregate expenditure
No schooling	40	0	0	0.0
Primary	35	100	3,500	29.7
Secondary	20	260	5,200	44.1
Higher	5	620	3,100	26.2
All	100		11,800	100.0

The aggregate amount received by this population, grouped by level of schooling, is obtained by multiplying the number of persons in each group by the public spending accumulated individually. In this example, 5 percent of the populations (those who attain higher education) receive 26.2 percent of the accumulated public spending on education. But 40 percent (those with no schooling) get nothing, and 75 percent (those with primary schooling or less) get only 29.7 percent.

The results in table 11-a-4 can be presented in a **Lorenz Curve*** (please refer to chapter 11-d) To plot the graph, groups in the population are ranked according to the highest level of education they attained. Each point on the Lorenz Curve reflects cumulative shares of population and public spending on education. For example, point B shows that 75 percent (40+35) of the population leaving the school-age range obtained 29.7 percent (0+29.7) of the accumulated public spending on education. The closer the Lorenz Curve is to the diagonal OD, the more equally distributed is public spending among a generation of children.

b) The Cost Benefit Criterion:

Who Actually Paid for my Education? [Originally published in *soc. Culture; Indian in 2000.*]

It will be interesting to note what a foreign national who had his school education and his masters in engineering in India has to say about Indian education system and the cost benefit criterion as existing in India.

“India suffers from very low literacy even compared to other developing countries. Yet one gets to hear about the tremendous impact that Indian doctors, engineers and scientists have had around the world. This conveys the impression that the Indian schooling system works. I believe that that impression is wrong and that in fact the Indian school system is inefficient and biased against the poor.

I spent many years the Indian school system and I must admit that I received very good schooling. My eleven years in a pretty good high school in Nagpur was practically free. I was given a scholarship during my bachelor’s degree in engineering. At IIT Kanpur, while doing a master’s degree in computer sciences, I received a stipend which was sufficient to pay for all normal expenses. I estimate that my entire education in India, including a master’s in computer science, cost me less than US\$ 100 in today’s terms.

How is it that a poor society can afford to educate its children for free? I come from a middle- class family and I am sure we could have afforded more than that. I am also sure that if the education had been priced at full cost, we could not have paid for it up front. Someone else paid for my education. That is true for a very large number of people who are educated in India’s premier institutions– someone else paid.

Nagpur is a medium-sized city by Indian standards. It has a bunch of good high schools. You have to have a middle-class or better background to get into those because competitive pressures keep the poor out. But if you get in, and don't goof off too much, you can do well in the competition for admission into a good engineering or medical college. And then you get heavily subsidized education in college. Armed with all the advantages, you fill out a bunch of applications, write the GRE and the TOEFL and off you go to the US, never to return".

It was fashionable in the 1970s and 80s to refer to the migration of trained doctors, scientists and engineers to the advanced industrialized countries as a "brain drain." Actually, it was a "resource drain" rather than a "brain drain." India never really had a shortage of basic brains. There are hundreds of millions of basic brains in India. However it takes resources to train a basic brain and turn it into a useful brain. These scarce resources are lost to the economy when used to train brains that eventually migrate.

Just like capital flight from poor economies to the rich ones, the migration of trained manpower, human capital flight, is enormously expensive. It is an even more of a burden when the training is publicly funded. When a trained engineer migrates to the US, it is totally indistinguishable from a gift of US\$ 100,000 from India to the US. Over the years, the total implicit subsidy from India to the US could be estimated to be of the order of hundred billion dollars.

When an educated person leaves India, there is a first-order loss to the economy if the education was publicly funded. There is no comparable first-order loss if private resources were involved in the training. But in either case, the economy loses the life-time stream of economic contributions that the migrant would have made. This is a second-order loss. There is what can be considered a third-order loss that is harder to estimate but whose impact may be the most damaging in the long run. This arises from publicly subsidizing higher education at the expense of primary education.

Primary education, somewhat like primary health care, has characteristics of what economists call a "public good." The positive effects of primary education spill over into the larger economy more than that of higher education, which is more like a private good. Markets efficiently provide optimal quantities of private goods but are known to under-provide public goods. The market understandably fails in the case of primary education. The solution is straightforward: the public subsidy of primary education.

The essential point is that the subsidizing higher education is an inefficient use of resources which could have been used for primary education. And this distorted system has real-world consequences: the shameful neglect of primary education.

The Indian constitution mandates universal primary education for all (see Article 8 of the Indian Constitution). Yet, 41% of children do not reach grade 5 in India. Compare that to some other countries:

Gambia	20%
Mali	18%
Senegal	15%
Tanzania	17%
Burkina Faso	25%

[Source: Human Development Report 1999. UNDP.]

Of the countries that rank lower than India in the human development index, only about four have higher percentage of children that do not reach the fifth grade. Mozambique does worse

than India, for instance. But never mind small strange sub-Saharan African countries. Take Indonesia for example: only 11% of its children don't go past the fifth grade. Or take Mexico with its 14% figure. Compare India with neighboring Sri Lanka with its 17%.

The failure of Indian primary education is hard to escape. Sixty years after India's political independence, India is placed 126th out of 175 countries ranked in the 2006 Human Development Report. India's adult literacy rate is a dismal 61%, below Cameroon (68%), Angola, Congo, Uganda (67%), Rwanda (65%), and Malawi (64%). That 40% of today's Indian adults cannot even "both read and write a short, simple statement related to their everyday life" implies that they did not get the equivalent of the most basic of primary education. Compare that to China's 90% adult literacy. [Source: UNDP Human Development Report.]

The argument is often advanced that the Indian education system must be world-class. After all, doesn't it produce world-class NRIs (non-resident Indians) like Vinod Khosla and Rajat Gupta? And don't they turn around and give millions of dollars to support the IITs? Yes, of course. Sure the NRIs send some money home. But what is the ratio of the amount India spends on their education to what these worthies send back home?

Even then, who could be so crass as to measure everything in terms of dollars? Surely there is something more important than money. And it is the untapped human capital that India has in abundance and which it criminally neglects. It neglects them because the powers that be have it made under the current system and it serves their narrow purposes.

For all our vaunted world-class scientists, doctors and engineers, India ranks miserably in the number of scientists and technicians it has: 0.3 such per 1,000 populations. Compare that to: China 0.6, Islamic Rep of Iran 0.7, South Africa 1.7, and Korea 2.9.

Unless we recognize the basic problem, examine it dispassionately, we are unlikely to even consider solving the problem. In a sort of defense through

denial, we may declare that the problem does not exist. But the problem does exist which has wide ranging implications. The most devastating impact of our dismal educational system is that we are condemning ourselves to a future of exceedingly low economic development. If there is one thing that developmental economists have learnt, it is this: education is the most important factor in economic growth than natural resources, foreign investment, exports, and imports, whatever. Neglect education and you may as well hang you and save yourself the pain of a slow miserable death.

So who paid for my education? It is the poor rural children, thousands of them, who paid for my education by losing their opportunity to become semi-literate. The system is tilted against them and unless there is a radical change in the way that education is funded, they will continue to pay the price for subsidizing the US for decades to come.

What is the solution? One solution to the problem could be of pricing all higher education at full cost. If a year of engineering school costs Rs 3 lakhs, price it at that. Then give loans to every student that needs it to pay the price. The loan is repayable upon employment and in terms commensurate with the level of employment. If you earn big dollars in the US, pay in big dollars. If you work as a doctor in a small village in India, pay small amounts in rupees. Essentially, with the loan system in place, there is no need for public subsidies for higher education.

Under the existing Indian scenario, a large chunk of students who vie for higher education may not be even eligible to get an educational loan since they are not able to fulfill the requirements needed to secure it from the bank. In such cases the Government can stand guarantee after securing necessary undertakings from them to ensure the repayment of the loan. This could be a second option.

A third option could be providing subsidies to those students who are economically backward. There are difficulties in identifying those who really deserve under this criterion. Though there could be some manipulation on the part of beneficiaries, a strict and sincere scrutiny can segregate the really deserving ones to a greater extent of accuracy.

6B.9 THE ABILITY TO PAY CRITERION

The third option mentioned above is the reality in the Indian context. With the Government aided institutions being very meager and the private players and foreign educational institutions who are mostly driven by profit motive have made higher education beyond the reach of the majority of students. Not only that education has been commercialized, but the quality provided by them is questionable. Through various promotional programs by the Government and NGO's, a demand for education has been created among the public, but thousands of aspirants are unable to fulfill their desire for education especially higher education due to various reasons. The exorbitant cost of education, the

uncertainty of job after completion of studies, the failure of successive governments to create additional job opportunities and the corruption rampant in every field has deterred thousands of youngsters especially from the lower strata from the portals of educational institutions.

The commercialization of education, the arrival of foreign universities, the liberalization policies, the privatization of education, the degradation of education from merit goods to non-merit goods, the withdrawal of government from funding education, the low allocation of GDP for education, and diversion of funds meant for education to other activities of government, difficulty to get educational loans have all pulled education in India backward and kept a sizable number of Indian children and youth from the precincts of education institutions. Poverty among the masses, the exorbitant cost of education, poor infrastructure, lack of will among the governments, unemployment, non-availability of quality educational institutions within reasonable reach are also deterring factors in the progress of education in India. Considering the peculiar situation prevailing in India, the system needs an overhauling and finds new ways to achieve the goals envisaged in the Constitution of India. India has followed a discriminatory reservation policy, especially in the field of education. But the gap between the poor and rich increasing day by day, more and more number people who are not listed in the scheduled category and being side lined since they are not able to bear the cost of education. So a re-look of the policies to include the non scheduled poor masses is also warranted. It is true to implement this proposition is plagued with a number of roadblocks.

Unit end exercise:

1. What are the different methods followed in the assessment of equity in education?
2. How is the equal opportunity criterion lopsided between sexes?
3. What are the anomalies in the distribution of public funds in education in India?
4. What solutions do you suggest to have fairness in the distribution of public funds in the field education?
5. Suggest ways and means to attain equality in educational opportunities in education.

6B.10 TOOLS TO ASSESS THE EQUITY AND INCOME DISTRIBUTION

The most commonly used inequality measures are **the Gini coefficient (based on the Lorenz curve) and the percentile or share ratios**. These measures try to capture the overall dispersion of income; however, they tend to place different levels of importance on the bottom, middle and top end of the distribution.

6B.10.1 THE LORENZ CURVE

Lorenz curve identifies the share of the nation's income earned by different segments of the population. It is a very useful tool to measure the income distribution. Economists in their efforts rely on tools like Lorenz Curve to trace certain changes to understand how a particular nation is dealing with ongoing problem of scarcity; economists compile a wide range of statistics and plot them on a variety of graphs and charts. But these are only the starting point in their analysis. According to the game of economic principles, breaking down the **numbers** is just the first step in assessing economic conditions.

Economists also use Lorenz Curves to measure changes in the distribution of income. In 1947, the income was distributed like this:

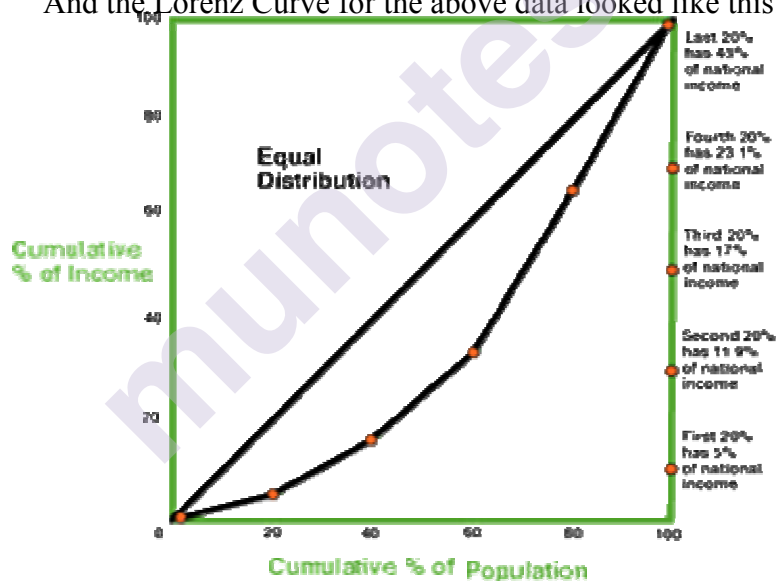
Table 1.

Lowest 20% earned 5.0% of the national income. Next 20% earned 17.0%

Next 20% earned 23.1% Highest 20% earned 43.0%

Figure 11. d. 1.

And the Lorenz Curve for the above data looked like this:



In order to gain a clearer sense of the distribution of income, a line of equality is drawn. If income was equally distributed, 20% of the public would have earned 20% of the nation's income, 40% of population 40% of the income etc. The corresponding Lorenz Curve would look like the above with difference between the two lines illustrating the gap between the perfect and the actual distribution of income. The curve also indicates that the lower 60% of the population receive only 33.9% of the national income whereas the upper 40% of population get 66.1% of the total National income. That means the income is not evenly distributed.

A comparison of the 1947 and 2005 Lorenz Curves suggested that the personal distribution of income is less equal than it was 58 years ago. Now why it is so, and why it may or may not be significant is another question. But the Lorenz Curve does a nice job of visualizing the empirical fact.

Figure 11.d.2.

Comparison of the 1947 and 2005 distribution of income:

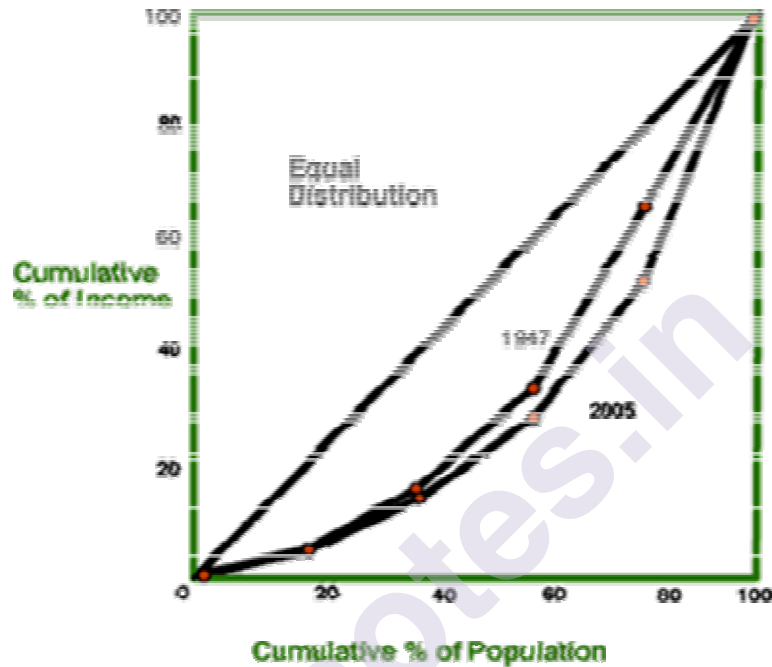
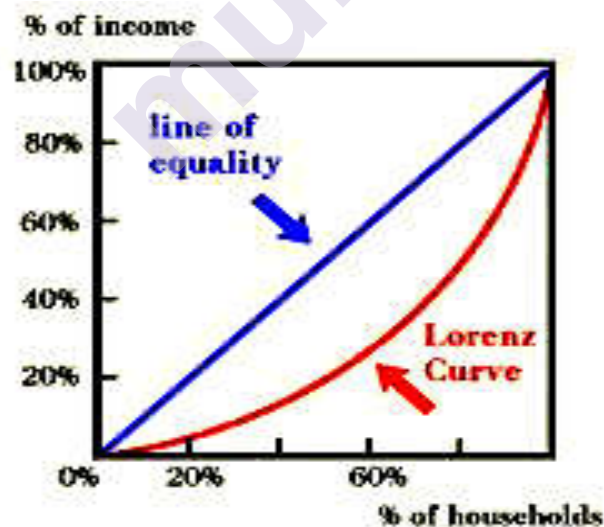
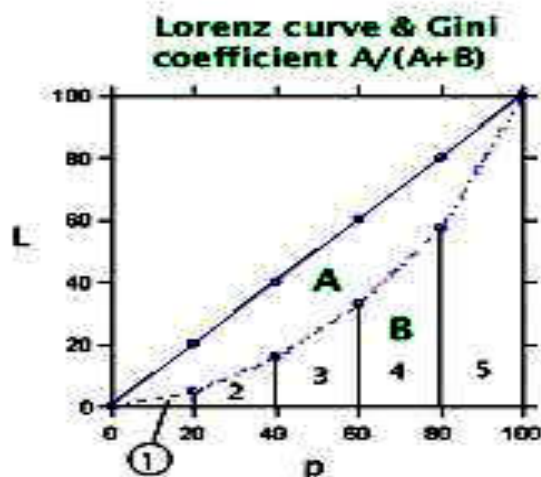


Fig 11 d. 3. Lorenz Curve, India



A Lorenz Curve illustrates inequality

Table 11 d. 4.



Lorenz Curve is of great importance in today's macroeconomic stats which run into big numbers. The US GDP is now about \$15 trillion. (That is, \$15,000,000,000,000.) Such big numbers are not easy to comprehend and analyze the distribution trend. In such cases the Gini coefficient.

6B.10.2 GINI-COEFFICIENT

The Gini coefficient is a measure of statistical dispersion developed by the Italian statistician Corrado Gini and published in his 1912 paper "Variability and Mutability" (Italian: *Variabilità e mutabilità*)

The Gini coefficient is a measure of the inequality of a distribution, a value of 0 expressing total equality and a value of 1 maximal inequality. The Gini coefficient operates on a scale of 0 to

1 (0 being a perfect score where everyone earns equally.) the higher the Gini coefficient, the higher is the disparity and India's Gini coefficient has risen from 0.32 in mid-80s to 0.36 in the mid2000s. It has found application in the study of inequalities in disciplines as diverse as economics, health science, ecology, chemistry and engineering. It is commonly used as a measure of inequality of income or wealth. Worldwide, Gini coefficients for income range from approximately 0.23 (Sweden) to 0.70 (Namibia) although not every country has been assessed.

DEFINITION

The Gini coefficient is usually defined mathematically, based on the Lorenz curve, which plots the proportion of the total income of the population (y axis) that is cumulatively earned by the bottom x% of the population. The line at 45 degrees thus represents

perfect equality of incomes. The Gini coefficient can then be thought of as the ratio of the area that lies between the line of equality and the Lorenz curve over the total area under the line of equality.

The Gini coefficient can range from 0 to 1; it is sometimes multiplied by 100 to range between 0 and 100. A low Gini coefficient indicates a more equal distribution, with 0 corresponding to complete equality, while higher Gini coefficients indicate more unequal distribution, with 1 corresponding to complete inequality. To be validly computed, no negative goods can be distributed. Thus, if the Gini coefficient is being used to describe household income inequality, then no household can have a negative income. When used as a measure of income inequality, the most unequal society will be one in which a single person receives 100% of the total income and the remaining people receive none ($G=1$); and the most equal society will be the one in which every person receives the same income ($G=0$).

Some find it more intuitive (and it is mathematically equivalent) to think of the Gini coefficient as half of the relative mean difference. The mean difference is the average absolute difference between two items selected randomly from a population, and the relative mean difference is the mean difference divided by the average, to normalize for scale.

6B.10.2.1 GINI INDEX CALCULATION

The Gini index is defined as a ratio of the areas on the Lorenz curve diagram. If the area between the line of perfect equality and the Lorenz curve is A, and the area under the Lorenz curve is B, then the Gini index is $A/(A+B)$. Since $A+B = 0.5$, the Gini index, $G = A/(0.5) = 2A = 1-2B$. If the Lorenz curve is represented by the function $Y = L(X)$, the value of B can be found with integration.

There does not exist a sample statistic that is in general an unbiased estimator of the population Gini coefficient, like the relative mean difference.

Sometimes the entire Lorenz curve is not known, and only values at certain intervals are given. In that case, the Gini coefficient can be approximated by using various techniques for interpolating the missing values of the Lorenz curve. If (X_k, Y_k) are the known points on the Lorenz curve, with the X_k indexed in increasing order ($X_{k-1} < X_k$)

The Gini coefficient can be calculated if you know the mean of a distribution, the number of people (or percentiles), and the

income of each person (or percentile). Princeton development economist Angus Deaton (1997, 139) simplified the Gini calculation to one easy formula:

Where u is mean income of the population, P_i is the income rank P of person i , with income X , such that the richest person receives a rank of 1 and the poorest a rank of N . This effectively gives higher weight to poorer people in the income distribution, which allows the Gini to meet the Transfer Principle.

6B.10.2.2 GENERALIZED INEQUALITY INDEX

The Gini coefficient and other standard inequality indices are reduced to a common form. Perfect equality—the absence of inequality—exists when and only when the inequality ratio, equals

1 for all j units in some population; for example, there is perfect income equality when everyone's income x_j equals the mean income, so that $r_j = 1$ for everyone). Measures of inequality, then, are measures of the average deviations of the $r_j = 1$ from 1; the greater the average deviation, the greater the inequality. Based on these observations the inequality indices have this common form.

Where p_j weights the units by their population share, and $f(r_j)$ is a function of the deviation of each unit's r_j from 1, the point of equality. The insight of this generalized inequality index is that inequality indices differ because they employ different functions of the distance of the inequality ratios (the r_j) from 1.

GINI COEFFICIENT OF INCOME DISTRIBUTIONS

While developed European nations and Canada tend to have Gini indices between 24 and 36, the United States' and Mexico's Gini indices are both above 40, indicating that the United States and Mexico have greater inequality. Using the Gini can help quantify differences in welfare and compensation policies and philosophies. However it should be borne in mind that the Gini coefficient can be misleading when used to make political comparisons between large and small countries (see criticisms section).

6B.10.2.3 ADVANTAGES OF GINI COEFFICIENT AS A MEASURE OF INEQUALITY

- The Gini coefficient's main advantage is that it is a measure of inequality by means of a ratio analysis, rather than a variable unrepresentative of most of the population, such as Per Capita Income or Gross Domestic Product.
- It can be used to compare income distributions across different population sectors as well as countries, for example the Gini coefficient for urban areas differs from that of rural areas in many countries (though the United States' urban and rural Gini coefficients are nearly identical).
- It is sufficiently simple that it can be compared across countries and be easily interpreted. GDP statistics are often criticized as they do not represent changes for the whole population; the Gini coefficient demonstrates how income has changed for poor and rich. If the Gini coefficient is rising as well as GDP, poverty may not be improving for the majority of the population.

- The Gini coefficient can be used to indicate how the distribution of income has changed within a country over a period of time, thus it is possible to see if inequality is increasing or decreasing. The Gini coefficient satisfies four important principles:

1. *Anonymity*: It does not matter who the high and low earners are.
2. *Scale independence*: The Gini coefficient does not consider the size of the economy, the way it is measured, or whether it is a rich or poor country or average.
3. *Population independence*: It does not matter how large the population of the country is.
4. *Transfer principle*: If income (less than half of the difference), is transferred from a rich person to a poor person the resulting distribution is more equal.

6B.10.2.4 DISADVANTAGES OF GINI COEFFICIENT AS A MEASURE OF INEQUALITY

- While the Gini coefficient measures inequality of *income*, it does not measure inequality of *opportunity*. For example, some countries may have a social class structure (Indian cast system) that may present barriers to upward mobility; this is not reflected in their Gini coefficients.
- If two countries have the same Gini coefficient but one is rich and the other is poor, it can be seen to measure two different things. In a poor country it measures the inequality in material life quality while in a rich country it measures the distribution of luxury beyond the basic necessities.
- The Gini coefficient of different sets of people cannot be averaged to obtain the Gini coefficient of all the people in the sets: if a Gini coefficient were to be calculated for each person it would always be zero. For a large, economically diverse country, a much higher coefficient will be calculated for the country as a whole than will be calculated for each of its regions. (The coefficient is usually applied to measurable nominal income rather than local purchasing power, tending to increase the calculated coefficient across larger areas.)
- The Lorenz curve may understate the actual amount of inequality if richer households are able to use income more efficiently than lower income households or vice versa. From another point of view, measured inequality may be the result of more or less efficient use of household incomes.
- Economies with similar incomes and Gini coefficients can still have very different income distributions. (This is true for any single measure of a distribution.) This is because the Lorenz curves can have different shapes and yet still yield the same Gini coefficient. For example, consider a society where half of individuals had no income and the other half shared all the income equally (i.e. whose Lorenz curve is linear from (0,0) to (0.5,0) and then linear to (1,1)). As is easily calculated, this

society has Gini coefficient 0.5 -- the same as that of a society in which 75% of people equally shared 25% of income while the remaining 25% equally shared 75% (i.e. whose Lorenz curve is linear from (0,0) to (0.75,0.25) and then linear to (1,1)).

- It measures income rather than wealth. A society in which everyone earned the same final amount over a lifetime would appear unequal because of people at different stages in their life. However, Gini coefficient can also be calculated for any kind of single-variable distribution, e.g. for total wealth.

- Gini coefficients do include investment income; however, the Gini coefficient based on net income does not accurately reflect differences in wealth—a possible source of misinterpretation. For example, Sweden has a low Gini coefficient for income distribution but a significantly higher Gini coefficient for wealth (for instance 77% of the share value owned by households is held by just 5% of Swedish shareholding households). In other words, the Gini income coefficient should not be interpreted as measuring effective egalitarianism.

- Too often only the Gini coefficient is quoted without describing the proportions of the quintiles used for measurement. As with other inequality coefficients, the Gini coefficient is influenced by the granularity of the measurements. For example, five 20% quintiles (low granularity) will usually yield a lower Gini coefficient than twenty 5% quintiles (high granularity) taken from the same distribution. This is an often encountered problem with measurements.

- Care should be taken in using the Gini coefficient as a measure of egalitarianism, as it is properly a measure of income dispersion. For example, if two equally egalitarian countries pursue different immigration policies, the country accepting higher proportion of low-income or impoverished migrants will be assessed as less equal (gain a higher Gini coefficient).

- The Gini coefficient is a point-estimate of equality at a certain time; hence it ignores life-span changes in income. Typically, increases in the proportion of young or old members of a society will drive apparent changes in equality. Because of this, factors such as age distribution within a population and mobility within income classes can create the appearance of differential equality when none exist taking into account demographic effects. Thus a given economy may have a higher Gini coefficient at any one point in time compared to another, while the Gini coefficient calculated over individuals' lifetime income is actually lower than the apparently more equal (at a given point in time) economy's. Essentially, what matters is not just inequality in any particular year, but the composition of the distribution over time.

6B.11 GENERAL PROBLEMS OF MEASUREMENT

- Comparing income distributions among countries may be difficult because benefits systems may differ. For example, some

countries give benefits in the form of money while others give food subsidy, which might not be counted by some economists and researchers as income in the Lorenz curve and therefore not taken into account in the Gini coefficient. Income in the United States is counted before benefits, while in France it is counted after benefits, which may lead the United States to appear somewhat more unequal vis-a-vis France. In another example, the Soviet Union was measured to have relatively high income inequality: by some estimates, in the late 1970s, Gini coefficient of its urban population was as high as 0.38,^[16] which is higher than many Western countries today. This number would not reflect those benefits received by Soviet citizens that were not monetized for measurement, which may include child care for children as young as two months, elementary, secondary and higher education, cradle-to-grave medical care, and heavily subsidized or provided housing. In this example, a more accurate comparison between the 1970s Soviet Union and Western countries may require one to assign monetary values

to all benefits – a difficult task in the absence of free markets. Similar problems arise whenever a comparison between pure free-market economies and partially socialist economies is attempted. Benefits may take various and unexpected forms: for example, major oil producers such as Venezuela and Iran provide indirect benefits to its citizens by subsidizing the retail price of gasoline. India gives subsidy in various aspects like education, oil, fertilizers, food subsidy through Public Distribution System.

- Similarly, in some societies people may have significant income in other forms than money, for example through subsistence farming or bartering. Like non-monetary benefits, the value of these incomes is difficult to quantify. Different quantifications of these incomes will yield different Gini coefficients.
- The measure will give different results when applied to individuals instead of households. When different populations are not measured with consistent definitions, comparison is not meaningful.
- As for all statistics, there may be systematic and random errors in the data. The meaning of the Gini coefficient decreases as the data become less accurate. Also, countries may collect data differently, making it difficult to compare statistics between countries.

6B.12 OTHER USES

Although the Gini coefficient is most popular in economics, it can in theory be applied in any field of science that studies a distribution. For example, in ecology the Gini coefficient has been used as a measure of biodiversity, where the cumulative proportion of species is plotted against cumulative proportion of individuals.

In health, it has been used as a measure of the inequality of health related quality of life in a population.

In education, it has been used as a measure of the inequality of universities.

In engineering, it has been used to evaluate the fairness achieved by Internet routers in scheduling packet transmissions from different flows of traffic.

In statistics, building decision-trees, it is used to measure the purity of possible child nodes, with the aim of maximizing the average purity of two child nodes when splitting.

The Gini coefficient is also commonly used for the measurement of the discriminatory power of rating systems in credit risk management. The discriminatory power refers to a credit risk model's ability to differentiate between defaulting and non-defaulting clients. The Gini index for the entire world has been estimated by various parties to be between 56 and 66.

An example of Lorenz curve and Gini coefficient:

Observe the following table. The table shows the cumulative public expenditure on 100 children (students) who attain different levels of education.

Table 11-d-2: *Distribution of Cumulative Public Spending on Education (Rupees)*

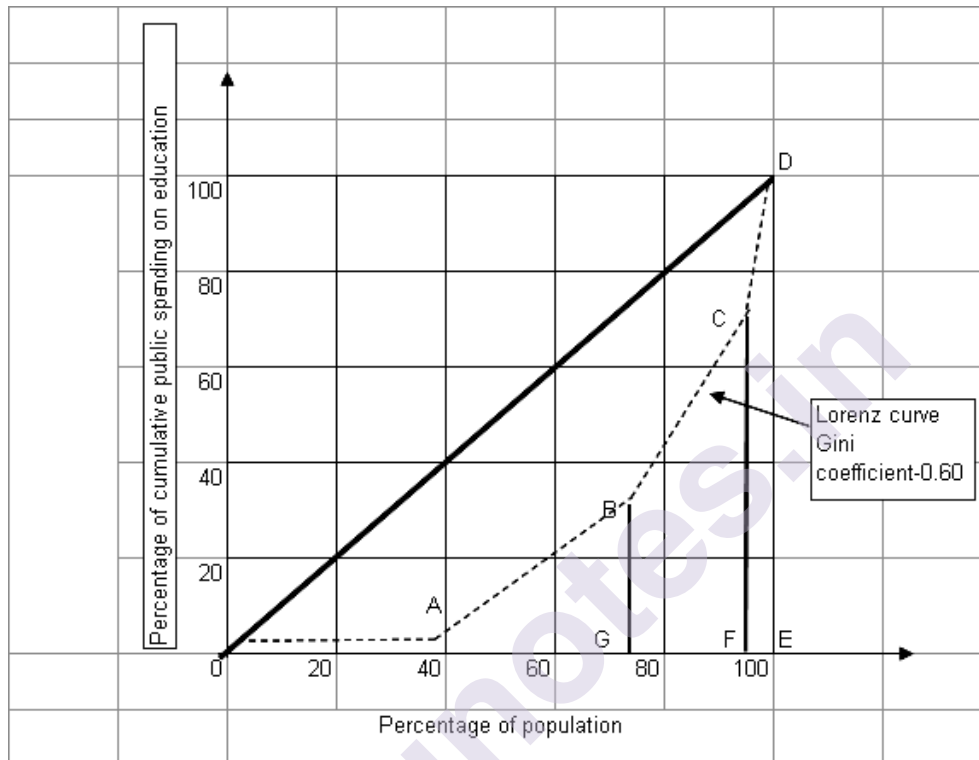
<i>Highest Share of total Educational attainment % expenditure</i>	<i>Number of students</i>	<i>Cumulative public expenditure per student</i>	<i>Aggregate cumulative expenditure</i>
No schooling	40	0	0.0
Primary	35	100	3,500
Secondary	20	260	5,200
Higher	5	620	3,100
All	100		11,800

The aggregate amount received by this population, grouped by level of schooling, is obtained by multiplying the number of persons in each group by the public spending accumulated individually. In this example, 5 percent of the populations (those who attain higher education) receive 26.2 percent of the accumulated public spending on education. But 40 percent (those with no schooling) get nothing, and 75 percent (those with primary schooling or less) get only 29.7 percent.

The results in table 11-d-3 can be presented in a **Lorenz Curve*(Figure 11.d.6.)** To plot the graph, groups in the population are ranked according to the highest level of education they attained. Each point on the

Lorenz Curve reflects cumulative shares of population and public spending on education. For example, point B shows that 75 percent (40+35) of the population leaving the school-age range obtained 29.7 percent (0+29.7) of the accumulated public spending on education. The closer the Lorenz Curve is to the diagonal OD, the more equally distributed is public spending among a generation of children.

Fig.11.d.6. Lorenz curve and Gini coefficient:



A summary statistic associated with the Lorenz curve is the Gini coefficient, defined as the ratio between the area OABCD and triangle OED in the graph. The coefficient has a range of 0 to 1. The smaller it is, the more equal is the distribution of public spending on education. It can be calculated as follows.

$$\begin{aligned}
 \text{Area ABCDE} &= \text{area AGB} + \text{area BGFC} + \text{area CFED} \\
 &= [(0.5 \times 35 \times 29.7) + 10.5 \times (29.7 + 73.8) \times (95 - 75)] \\
 &\quad + [0.5 \times (73.8 + 100) \times (100 - 95)] \\
 &= 1989.25 \\
 \text{Gini coefficient} &= \text{area OABCD} / \text{area OED} \\
 &= (5000 - 1989.25) / 5000 \\
 &= 0.60.
 \end{aligned}$$

The Gini coefficient is useful for comparing countries and regions and for tracing trends and measuring the impact of policy changes in the same country. The foregoing calculations can be disaggregated-by gender, region, urban-rural location, socioeconomic group, ethnicity and so on- if the data are available on each group's share in total enrolment at the three levels of education.

Does the Gini reflect the Indian scenario correctly?

If people are totally free, the most talented (and lucky) will get far richer than the dullest and unluckiest. So freedom will create

inequality. Communist countries aimed at equality of outcome through totalitarian controls, but this was hypocrisy: there was no equality of power between those laying down the rules and those forced to obey.

To ease the tension between liberty and equality, countries typically aim for equality of opportunity, not outcome. Yet inequality exists almost everywhere measured by economists in terms of outcome, not of opportunities.

The following table lists the six most equal and unequal major states in terms of consumption.

Gini Coefficients of Major states, 2004-05		
Bihar	0.17	0.31
Assam	0.17	0.3
Jharkhand	0.2	0.33
Rajasthan	0.2	0.3
UP	0.23	0.34
MP	0.24	0.37
Gujarat	0.24	0.32
Punjab	0.26	0.32
Tamil Nadu	0.26	0.34
Maharashtra	0.27	0.35
Kerala	0.29	0.35
Haryana	0.31	0.36
ALL INDIA	0.25	0.36
<i>Source: Economic Survey, 2010-11</i>		

The table shows, dramatically, that areas with the most consumption equality (i.e., with the lowest rural Ginis) are the poorest. Bihar and Assam are the most equal, with Ginis of just 0.17. But they do not represent the islands of fairness and wellbeing.

Recently, Bihar witnessed record growth and improved governance under Nithish Kumar government. The 2009-10 data shows that inequality of consumption has increased in Bihar. Analysts may condemn this as a sign of rising unfairness. But the fact is that, in such states, opportunities of improvement have improved and that matters more than the equality of outcome. This fact is reinforced by the fact that the incumbent chief ministers of such states that suddenly grow fast (Bihar, Orissa, and Chhattisgarh) get re-elected with large majorities despite worsening Ginis.

The most unequal states in rural Gini are the richer ones. Haryana leads with 0.31, followed by Kerala (0.29) Maharashtra (0.27) Tamil Nadu (0.26) Punjab (0.26) Gujarat (0.25). Consumption equality in the poor states is almost invariably below the all India average of 0.25 and in rich states invariably above. Such equality in poor states is a sign of distress more than fairness or satisfaction.

People have long migrated from relatively equal but poor states to relatively unequal but richer states. People also migrate from villages which are relatively equal to towns which are relatively unequal in terms of consumption. The greater the gaps between the rich and poor areas, the greater are the gains from migration. So, what some analysts condemn as growing inequality between states translates to rising returns to migration, creating more opportunities for poor migrants.

For most people the biggest surprise in the table could be Kerala. It has a welfarist, socialist pattern of society, but has the second highest rural consumption inequality (0.29). by this measure, it is far worse off than Bihar or Uttar Pradesh!

Kerala is substantially a remittance economy (a quarter of state GDP comes from remittances), and clearly those getting remittances gain over those without. Kerala has the best social indicators in India, which should mean the most equality of opportunity. But that does not translate into equality of outcome. Apparently unequal Kerala is a much better place to live in than apparently egalitarian Bihar and UP, because Kerala provides more opportunity for developing skills that fetch returns in the market place, and that is what really matters.

It is easy to say that, other things equal, more income equality is better than less. But other things not being equal, it is clear that rising equality of opportunity, leads to rising inequality of outcome. In this context, it may be said that Gini coefficient as a measure of fairness proves to be a wrong tool as GDP is a very incomplete measure of well-being.

Unit End Exercise:

1. Explain Lorenz curve.
2. Define the Gini coefficient.
3. How is the Gini coefficient calculated? Give example.

4. What are the advantages of Gini coefficient?
5. What are the disadvantages of Gini coefficient?
6. What are the general problems in the calculation of Gini coefficient?
7. Why is Gini coefficient a better tool to measure the inequality of distribution of income etc.?
8. How is Gini proved to be a wrong measurement in the Indian context?

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