1.1 PROLOGUE

Enlightened, emancipated and empowered teachers lead communities and nations in their march towards better and higher quality of life. They reveal and elaborate the secrets of attaining higher values in life and nurture empathy for the fellow beings. Teachers are the torch bearers in creating social cohesion, national integration and a learning society. They not only disseminate knowledge but also create and generate new knowledge. They are responsible for acculturating role of education. No nation can even marginally slacken its efforts in giving necessary professional inputs to its teachers and along with that due status to their stature and profession.

"Education has continued to evolve, diversify and extend its coverage since the dawn of history. Every country develops its system of education to express and promote its unique socio-cultural identity and also to meet the challenges of time". These words of the National Policy on Education (NPE) 1986 subsequently revised in 1992, give direction to Indian Education. The policy further emphasises that “the Government of India will also review, every five years; the progress made and recommend guidelines for further development”. In the light of the aforesaid statements, the National Council for Teacher Education (NCTE), a statutory body, established by the Government of India for the maintenance of standards and improvement of the quality of teacher education in the country, came out with a Curriculum Framework for Quality Teacher Education (Curriculum Framework hereafter) in 1998 and placed it before the nation.

The educational expansion, universalisation of elementary education, vocationalisation of secondary education, higher and professional education and overall quality of education are major challenges before the country. Evidently the quality of education is a direct consequence and outcome of the quality of teachers and teacher education system. The task of bringing qualitative change in institutional
efficacy of the teacher education system in itself is a huge and challenging one. The last five decades have witnessed several attempts to change, modify and indigenise the inherited system of teacher education. The system however continues to function more or less on the same principles, similar content and approaches characterised by continuity and unwillingness to change. Over the years the magnitude of the task has increased manifold.

During these years, large scale and far reaching developments as well as changes have taken place on the national and international scenes in social, economic, cultural, scientific and technological spheres as well as in information and communication technologies. These developments have affected education, including teacher education necessitating review and reform of Indian teacher education. Taking a serious note of these developments, agencies responsible for education from nursery to tertiary and professional education have reviewed / revised their programmes and courses of study. The National Council for Teacher Education has to initiate suitable measures to make teacher education at various levels responsive to such developments as well as to quality concerns in future.

Education of teachers not only facilitates improvement of school education by preparing competent, committed and professionally well qualified teachers who can meet the demand of the system, but also functions as a bridge between schooling and higher education. It has to meet twin demands: (a) challenges of the education system including higher education, and (b) the ever-changing demands of the social system. The role of teacher education as a process of nation building is universally recognised. Its objective is man-making and producing enlightened citizens. But teacher education in India, because of its history and also due to various factors beyond its control, has by and large been confined to school education only.

Preparing the teaching force is a lengthy process. Pre-service teachers should be equipped with high-quality learning experiences based on sound theoretical principles. Adequate time should be allotted for applying these theoretical principles to practice. Pre-service teacher education programmes play a significant role in the preparation of highly qualified teaching workforce. They prepare teachers in subject matter, professional education, and teaching methods (Swift, 1985).
The importance of well-prepared teachers for student learning is unquestionable. Better prepared teachers are more academically able and are rated as more effective by their directors, supervisors, and colleagues. In contrast, less well prepared teachers have more classroom difficulties and are rated less effective by evaluators and colleagues. Therefore, an education system that aims to offer a quality education for all its citizens should be able to rely on teachers who are well prepared, competent and committed ones (Guarino, et al., 2006). Evidences indicate that the strongest predictor of student achievement is quality of teaching. Quality of teaching make a difference in students’ learning gains (Milanowski, 2004). The finding of Darling-Hammond (2005) also indicates that in order to improve quality of education delivered to students; one should be able to produce quality teachers. Thus, recruiting academically successful teachers into teaching, then preparing them for the challenges of teaching, and retaining them in the profession are the main goals in helping students to achieve high academic standards.

Research suggests that pre-service teacher education often provides the first step in the professional development of teachers. It exposes pre-service teachers to new perspectives as well as prepares them in knowledge and skills (Wilke, 2004). It equips them with knowledge of subject matter, and pedagogical content knowledge, or knowledge of how to teach (Wilke, 2004; Shulman, 1987). The pre-service teachers need to know how to organize and present the content in a way that makes it accessible for the students. They must be able to make decisions about choosing materials, instructional approaches, and assessment. In addition, teachers must possess general competencies in the areas of classroom management and discipline. In addition to equipping pre-service teachers in knowledge and skills (Wilke, 2004), the teacher educators must also take into consideration the perception that the pre-service teachers bring to and develop during their training (Pajares, 1992; Atwater, et al., 1991).

Education is no more being as a social service but as a necessary economic input. Investment in education is treated as a factor contributing to the development of human resources. “In Indian thinking, a human being is a positive asset and a precious national resource, which needs to be cherished, nurtured and developed with
tenderness and care, coupled with dynamism”.

One could cite some Human Capital Theory models, e.g. the ones of Becker or Lucas, to show the importance of investing in human capital (i.e. education) for the economic growth of a nation. According to human capital theory, education raises earnings because it enhances workers’ skills, thus making employees more productive and more valuable to employers. The education in general raises people’s productivity and creativity and promotes entrepreneurship and technological advances, playing thus a very crucial role in securing economic and social progress and improving income distribution. Moreover, education is thought to enrich people's understanding of themselves and of their world, to improve the quality of their lives and to lead to broad social benefits to individuals and society.

In this regard Teacher Education is now universally recognized as a form of investment in human capital that yield economics benefits and contribute to a country’s future wealth by increasing the productive capacity of its people. Thus expenditure on teacher education can be partially justified in terms of the potential contribution of teacher education to economic growth. However this immediately raises many questions. How does teacher education compare with other forms of national investment? Which makes the greater contribution to future economic growth: investment in human capital or investment in physical capital? Are all forms of education equally productive? Is teacher education a profitable form of investment for the individual as well as for the society? And if so, do pupils and students, or their families, take this into account when making educational and occupational choices? All of these questions revolve round one basic question: the relationship between cost and benefits of teacher education.

"Of all the techniques of investment appraisal which in recent years have come to be applied to the public sector, none has attracted more attention than cost-benefit analysis".

This quotation, taken from one of the world's leading authorities in the field of the economics of education, may be taken to epitomize current thinking among academics, educational policy-makers and planners, regarding the usage of cost-benefit analysis as a methodological technique in education decision-making. The use
of educational cost-benefit analysis is now widely accepted, not least in connection with the development of education systems in Third World countries. It has much to commend it and is widely seen as preferable, both in theory and in practice, to the major alternative techniques, namely manpower planning and the social demand approach.

1.2 BACKGROUND

The birth of the economics of education as a field could be traced to the keen interest in research on the determinants of economic growth after the Second World War. With a strong push through the works of T.W. Schultz and E. Denison and others in the late 1950s and early 1960s, the economics of education quickly established itself as interdisciplinary field of study of education and economy. In the past four decades, a primary impetus for the development of the field has been derived from the public and private interest in the economics outcome of education.

In the 1950s, a key concern in national development for many countries was national reconstruction through economic growth. Policy-makers and researchers alike were interested in understanding the determinants of economic growth, including the role of education in economic growth. Human Capital theory, first introduced by T.W. Schultz around 1960 and further developed by J. Mincer, G. Becker and others, highlights the concept of human capital and positive linkages between education, individual productivity and increased individual earnings and national output. In explaining how investment in education can be effective policy instrument for promoting individual welfare and national economic growth, the theory became widely accepted by academics and policy-makers and has remained the main perspective in the field to date. Since the 1960s, a significant amount of research in this field has been devoted to the estimation of rate of return to public and private investment in education.

However, human capital theory is not without its detractors. The experience of national development in 1960s and the early 1970s among the developed countries showed that despite increased national investment and greater equality in the provision of education, economic growth did not result in a significant reduction in
social in equality; and many developing countries had stagnant economies, soaring unemployment rates and widening social inequality. The oil crisis and economic recession in the early 1970s added to the pressure for a review of national development goals, with a resultant call for the dual goals of economic growth and social equality. In this new context, alternative perspectives on the economic outcome of education emerged, including the screening hypothesis, credentials, labor market segmentation theory, and differential (or radical) socialisation theory. Theses perspectives are different from human capital theory in important ways including the focus of analysis and research methodology. For example they emphasised research on the relationship among education, employment and labor market structure; as well as on the reproduction of socio economic inequality. Instead of using individual as a unit of analysis, some of alternative perspectives tend to use institutional or class based frameworks. The 1970s marked a new page in the development of the field.

Although the field did not experience epochal development in the 1980s, there were nevertheless some new initiatives beside analyses based on previous perspectives and research focus. For example, there were new theoretical interpretations of the relationship between education and work which highlighted the contradictory nature of schooling within the larger context of capitalist democracy. New areas of empirical research including include the study of economic impact of over education, the implication of high technology for the education, and economic return to investment in education quality.

Since the early 1990s, there has been increasing interest in a number of emerging issues, such as education policies and the globalisation of economic production, the impact of information technology on education production, and the links between the education and a fast changing, information based technology. The changing external contexts have significant implications for the contents, pedagogy and mode of learning. To be productive in today’s and tomorrow’s workplace, individuals have to acquire good problem-solving, communication and social skills. Advances in education technology are increasing the demand for non-traditional delivery of education contents. Recurrent or lifelong learning is a necessity and out-of-school (especially in the workplace) learning is increasing its importance.
Nevertheless, the challenge for education contribution to the dual goals of economic growth and equitable income distribution remains.

In short, the field has witnessed its most significant theoretical and methodological advances in the analysis of the economic outcomes of education. The interest in the “external” outcome of education has also prompted interest in applying economic theory to the study of the “internal” process and output of education, especially since the 1970s. Seeing education as an industry and comparing educational production to economic production, researchers have developed the construct of the educational production function to relate students' achievement (as a measure of education output) to variables measuring school process and inputs. Other researchers have examined the impact of market mechanism on school choice, the unionisation of teachers’ market, the ‘micro economics’ of school production, and the economics of educational technology. These economic studies of educational production have certainly enriched the field; they also have narrowed the disciplinary gap between economists and educators.

Studies of the costs and financing of education deal with analyses of the amount, mobilisation, allocation and utilisation of resources in educational production. While they are obviously concerned with the education-input component, they also involve cross-component analysis (such as cost-effectiveness evaluation of education costs and education output). While the interest in education expenditure and revenue predated the birth of the field, the economic analyses of education costs added to the development of this field by introducing the concept of economic or opportunity costs. In addition to education expenditure, this concept calls attention to foregone opportunities of students’ time and to parental spending on education and its impact on education. Studies of education financing are not only economic enquiries; they are often related to the larger education reforms and the political mood of the time.

While most of the earlier studies in the economics of education tended to confine them to one country, over time cross national and comparative studies have become more common. With the globalisation of economic production and the
shortening of physical space through communication advances, cross national concerns and analyses are likely to increase in importance.

Studies on the economics of education can be found in many academic journals, including Economics of Education Review, Journal of Human Resources, and Educational Economics. More recent reviews and collection of studies can be found in Blaug (1985), Cohn and Geske (1990) and Carnoy (1995).

1.3 THEORIES AND METHODOLOGIES OF ECONOMICS OF EDUCATION

Human Capital Theory

Human capital refers to the skills and values than an individual acquires in or out of school that are related to the productive capacity of the individual. According to Samuel (1987), human capital is defined as the provision of skilled labor force strengthened by educational training. It involves meaningful training which enables an educated person acquires specific skill necessary for his efficient functioning in the economy of any nation through employment. Education enhances the human capital of an individual and, thus, his or her productive capacity. In a competitive labor market (an assumption in the mainstream neoclassical economic theory), a more productive individual is paid a higher wage. Thus there is a positive correlation between the education and earnings of an individual and this correlation has been verified empirically. From both private and societal perspectives, spending on additional education can be regarded as a form of investment which leads to higher individual leanings and more aggregate national output. Private and social rates of return to education can be computed by comparing private costs to private benefits and but comparing social costs to social benefits. This theory is based on methodological individualism or reductionism. According to this methodology, complex social phenomena can be better understood by analysing individual behaviour. A key assumption is that individuals are rational with forward looking behaviour: Individuals are willing to make present sacrifices in order to reap higher returns in the future: and they will choose to invest their resources in those activities with the higher rates of return, other things being equal (Becker, 1975; Shultz, 1971).
In research on economic outcomes of education, this theory has stimulated numerous studies on the relationship between individual education and individual earnings, national economic growth and personal income distribution. In the study of education process and output, much attention has been focussed on the analysis of the acquisition of cognitive skills of the individual learner. The individual learner is assumed to join the education process with an a priori set of personal characteristics.

The modern Human Capital Theory, according to Jerome-Forget (1997), traces its origin to the 1960's in the works of Schultz, Mincer and Becker on the theoretical and empirical work on the relationship between education and earnings. Jerome-Forget noted that in the 'new growth' theories of Romer, Banoa and Lucas, human capital is the key determinant of economic growth. Since the principal institutional mechanism for developing human skills and knowledge is the formal education system, most developing nations have accepted the notion of human capital as the engine of growth hence they have invested heavily in education according to Ishola (2002).

Screening Hypothesis

Like human capital theory, screening hypothesis accepts the empirical evidence on the positive relationship between education and earnings, but it provides an alternative explanation of the correlation. The screening hypothesis assumes the persons of higher productive ability obtain more education but education itself may not raise individual productivity. In a labor market with imperfect information, employers have to rely on some characteristics or signals about the ability of potential employees to assist in their hiring decision. To the extent that education is a reliable signal about individual ability (and thus productivity), employers are willing to pay more educated individuals with higher pay (Arrow, 1973; Spence, 1973). Thus, individuals with more education have higher earnings because of the signalling function of education. However, if the ability-enhancing role of education in minimal or non-existent, additional spending on education can be a wasteful public investment because it does not result in higher individual productivity and additional national output, even though it can be very profitable from the perspective of an individual. The screening hypothesis is also based on methodological individualism. It has
stimulated empirical studies on screening in the workplace (Hartog, 1981); but not studies on education process and output. To date, it remains controversial among researchers in this field with regard to the explanation for the education-earnings relationship; the extent of the productivity/ability-enhancing versus information role of education is yet to be resolved. The screening hypothesis presented a significant challenge to the human capital theory in the 1970s, but interest in this perspective began to decline in the 1980s.

Segmented Labor Market Theory

These try to explain the education-earnings relationship by drawing attention to the structure of labor markets. In contrast to human capital theory, which assumes one competitive labor market, the earlier theories of segmented labor market (Doeringer and Piore, 1971; Reich et al., 1973) point out that the labor market is divided into two or more segments with little or no labor mobility between them. In the ‘low-skill’ labor market segment, for example, employment is seasonal or temporary, and the pay and educational qualification or workers are lower. In the high-skill labor market segment, in contrast, employment is more stable, and the pay and qualifications are higher. While there is an overall relationship with education and earnings for workers across the labor market segments and in the ‘high-skill’ segment, there may not be such a relationship in the ‘low-skill’ segment. In addition to explaining the education-earning relationship, these alternative perspectives also highlight job-mobility within a firm (the ‘internal’ labor market) and why there is persistent unemployment and low earnings among the disadvantaged group of society (DeFreitas et al., 1991; Hartmaan, 1987). However these perspectives are not homogeneous in their theoretical and methodological underpinnings. Some perspectives draw from more radical or Marxist tradition and examine the historical development of labor market segmentation within the larger context of a capitalist economy; they are based on holistic analyses of class-based society. Analyses of labor market segmentation since 1980, however, have questioned the rigid dualism of the earlier theories (Berger and Piore, 1980; Ryan, 1981). Instead, segmentation has increasingly been seen as a dynamic labor market process characterised by discontinuity rather than dualism and by compartmentalisation of workers in diverse
forms. Both the earlier and more recent studies of segmentation are focused on the economic outcomes of education; they have little or no analysis on education process and output. The expansion of studies on the structure of labor markets through historical and multidisciplinary analysis in more national settings has kept this research area lively.

**Radical Socialization Theory**

While proponents of human capital theory point to the importance of cognitive skills in raising individual productivity, radical socialisation theorist shift attention to the productive role of non-cognitive skills and the important socialisation process in schooling for acquiring such skills (Bowles and Gintis, 1976). Differentiation and fragmentation in the capitalist workplace lead to different kinds of job which require different worker traits. Some jobs need workers who are independent, creative and inquisitive, while other jobs are suitable for workers who are docile and receptive to authority, and who follow instruction from seniors without question. The school serves the needs of the capitalist economy through the inculcation of students from different social classes with different sets of traits or non-cognitive skills required by the capitalist workplace. In this way, schools are very functional in supporting capitalist production and reproduction of social classes. This perspective draws from the Marxist tradition with a focus on the role of education in the reproduction of the social relation of production. It is also characterised by economic determinism, in which the function of school is determined by the economy and has little autonomy relative to the economy. This perspective highlights the interrelationship between social class, the stratified education process and unequal economic outcomes of education.

**Schooling in Democratic Socialism**

According to this perspective, schooling in the United States is part of a democratic state associated with a capitalist mode of production. As such, schooling in the United States is subject to the influences of two forces: (a) the force of capitalist production, which places demand on schooling to undertake differential socialisation of students for an unequal and undemocratic capitalist workplace and (b) the force for
democracy and equality, which seeks to promote democracy and equality in school and in the society at the large. The development of schooling in the past two centuries in the USA could be interpreted as responding to the varying extent of influences of the two forces. These two forces being opposite to each other,

Schooling has often been regarded as problematic and with contradictory roles (Cornoy and Levin, 1985). Being part of democratic state, schooling has some autonomy relative to the economy and its development could depart from the requirement of economy and exacerbate contradictions within the economy. This perspective highlights the interrelationship between social class, a stratified but contested education process within a democratic state, and an unequal and undemocratic workplace with its own contradictions.

1.4 COST ANALYSIS IN EDUCATION

There is a large body of literature on education costs in both less developed countries and developed countries that demonstrates in important applications of cost analysis in education. Cost analysis can reveal the cost implication of an education policy, assess the financial feasibility and sustainability of an education reform, provide diagnosis of past and current resource utilization in education, project future cost requirements and evaluate the relative efficiency of alternative education policies or interventions. Cost studies can contribute significantly to decision-making, planning and monitoring in education (Tsang, 1988).

The costs of teacher training are the direct and indirect resources devoted to such training. The methodological issues concerning the costing of a teacher training programme include identification of economic costs, classification and measurement of training costs, and estimation of costs and the decision context.

A common approach to costing, called the ingredients method (Levin, 1983), comprises two steps: first, identify all the relevant ingredients or resources used in the programme for generating the desired output; and, second, estimate the economic cost of each ingredient and then add the economic costs of all the ingredients to yield the total cost of the programme. In using this method, if a major ingredient is omitted, the estimate of the total cost will be inaccurate. Ingredients of a teacher training
programme usually include student teachers’ and teacher educators’ time, instructional materials, equipment and physical facilities. In economic analysis, the cost of an ingredient is its opportunity cost, measured by the value of the ingredient in its best alternative use (Mishan, 1982 pp. 64-73). For most ingredients, the costs are the expenditures (direct resources) made in obtaining the services of the ingredients (for example, teacher educators’ salaries and expenditures on library services). But the costs of some ingredients cannot be measured as expenditures. For example, equipments may be donated. Although the equipment is costless to those organizing the programme, its cost is borne by the donor. The failure to record such costs can lead to a significant underestimation of a programme’s true cost (Arrigazzi, 1972). On the other hand, if the equipment is given by a foreign donor and is earmarked for the training programme (and thus, effectively, has no alternative uses), then it is costless to the country under consideration. Another common example is the cost of a student teacher’s time. By attending a teacher training programme, a student teacher forgoes the pecuniary or non-pecuniary gains from alternative activities such as employment or leisure. The cost of a student teacher’s time (an indirect resource) is often measured by the student teacher’s forgone earnings.

In theory, the ingredients method provides a straightforward, and seemingly objective, procedure for estimating the total cost of a training programme. In practice, however, cost estimation is not an exact science. Unless the learning process is well understood, all the relevant ingredients may not be known. Also, the cost of some ingredient may not be known; the ingredient may be unprized, as are some public goods and services, or not accurately priced – for example, an imported good exchanged at a non-market rate. In this case, the cost analyst often must make some assumptions about the social value of the ingredient (Mishan, 1982). Because different assumptions can lead to different estimates, the assumptions should be stated explicitly, and the sensitivity of the estimated costs to these assumptions should be determined.

Cost studies can be grouped into three categories: costing and feasibility testing studies; behavioural studies of educational costs and cost-benefit and cost-effectiveness analysis.
**Costing and Feasibility Testing Studies:**

These studies are concerned with education inputs only. Their major tasks consist in identifying and measuring the costs of various inputs to education; they are often conducted to estimate resource requirements and to test the financial feasibility sustainability of an educational intervention. A significant contribution of economic analysis of education costs is the application of the concept of economic costs, which are defined to be the economic value of inputs in their best alternative use (also known as opportunity costs). This concept implies that education costs are concerned not only with education expenditure, but also with parental spending on education, donated inputs to education institutions and the economic value of students’ time.

Educational costing is one of the earliest and most common applications of educational cost analysis. Previous studies range from the costing of an educational intervention in the classroom, an education project, or an education programme, to the costing of the reform in a subsector of education, or a five-year plan for the entire education system. Earlier studies tended to focus on education costs for the government, but more recent research has demonstrated the importance of private education costs. Studies on a number of countries in Asia, Africa and South America have found that private costs have a number of positive and negative consequences:

- They constitute a significant part of the total cost of education;
- They are source of funding for important education inputs (such as textbooks) that promote education quality;
- They contribute to inequality and inequity in education;
- They affect the relative efficiency between state schools and private schools (Tsang, 1995)

The resource mobilisation and inequality/inequity impact of private costs can be a source of dilemma for education policy-makers considering a shift towards private financing of education.
**GRAPH-1.1: Cost Analysis in Education**

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**Behavioural Studies of Education Costs:**

These studies are concerned with the relationship among education inputs and the utilisation of education inputs in the education production process, with the purpose of ascertaining the behavioural patterns of education costs and the extent of under-utilisation of scarce education resources. They include studies on education expenditures and unit costs, surveys of utilisation rates of education resources and studies of economies of scale in education. Previous studies have found that in both the less developed countries and developed countries, public investment in education had been phenomenal in the 1960s and 1970s but has slowed down or levelled off since the 1970s. The slowdown could be attributed to three factors: slower rates of economic growth; a relative decrease in the demand for education; and a change in government attitude towards education. Per student expenditure has some common patterns across education systems:

- It rises with the level of schooling;
- It is dominated by personal costs;
- It is higher for boarding schools than day schools at the secondary level;
- It is generally higher for vocational/technical education than general/academic education;
 It is higher for engineering and sciences subjects than for arts and humanity at the tertiary level;
 It has a built in tendency to rise over time.

Low rates of utilisation were reported for secondary schools and universities in a number of studies of less developed countries. Econometric studies of developed countries such as Canada, United States and United Kingdom have found that there are economies of scale in primary, secondary and higher education. Economies of scale have also been reported for China and other less developed countries.

Cost-Benefit and Cost-Effectiveness Studies in Education:

Cost-benefit studies in education are studies which compare the benefits of education (such as increased productivity and earnings) with the costs of education; and cost-effectiveness studies are studies which compare the effects of education (such as student learning) with the costs of education. Both are conducted for choosing among alternative education investments so that scarce education resources can be allocated more efficiently. A large literature exists on cost-benefit studies in education in less developed countries and developed countries. The stylised findings across countries are:

 Investment in education is profitable, with rates generally above the 10 percent benchmark rate;
 Primary education has the highest rates of return among all education levels;
 Private rates of return are higher than social rates of return;
 At a given level, the rate of return is higher for less developed countries than for developed countries;
 Female education has higher rates than education for males;
 At the secondary level, the rate of return is higher for academic education than for vocational/technical education (Psacharopoulos, 1994).

However, other analysts point out that the above cost-benefit studies focus on the quantity of education and fail to take account of the quality of schooling, thus resulting in biased findings. The social rate of return to quality of schooling could exceed the social rate of return to quantify of schooling (Behrman and Birdsall, 1985).
Thus it may be more profitable to invest in the quality of education than the quantity of education. Moreover, in countries with rapid industrialisation and rapid educational expansion, the rate of return to schooling can increase with the level of schooling (Ryoo et al., 1993). A recent review has documented the methodological and conceptual difficulties of these studies (Hough, 1994).

Compared to cost-benefit studies, the applications of cost-effectiveness analysis to traditional education are relatively few, especially in less developed countries. Among the few applications are studies on textbooks, teacher training, mathematics curricula and computer-assisted instruction (Levin, 1995). A prominent application in non-traditional education is in the area of new educational media.

Looking ahead, there should be continued and even increased interest in cost studies in education, in the light of the need to improve education quality and expand education access under tightening budgetary constraint. These cost studies may include, in particular, analysis of quality basic education for marginalised populations, analysis of new educational technology (e.g. computers and communication through the internet) and analysis of life-long learning for adults in various settings. To facilitate the use of cost analysis in education decision-making, there is a need to strengthen the informational base for cost studies, to encourage more research on educational costs, and to increase the awareness of education policy-makers about the usefulness of educational cost-analysis.

1.5 HISTORICAL BACKGROUND OF COST- BENEFIT ANALYSIS

The methodology of cost-benefit analysis has been in existence since the turn of the century and was, for example, incorporated in the USA's River and Harbor Act of 1902. Its use mushroomed in the 1950s, again in the USA, in connection with attempts to rationalize the large-scale development of major river valleys.

Subsequently, applications were extended to virtually all areas of public sector investment, including in the nationalized industries, health expenditures, housing schemes, traffic networks, land-use and town planning problems, and regional development, and also in the private sector. The technique developed extensively in
the USA, was then applied increasingly in the UK, and became commonly used throughout developed and developing countries (Press and Turvey, 1965).

Well-known examples in the UK include the cost-benefit analyses relating to the original M1 motorway, the third London airport, London's Victoria Line underground, the Morecambe Bay Barrage project, and the re-sitting of London's Covent Garden market (Button and Barker, 1975), and in the USA reservoir construction and disease control (Mishan, 1971).

By extension, as part of the developing interest in the economics of education, cost benefit analysis was applied to investment in education, where it increasingly became known as "rate-of-return analysis". The term "Benefit-Cost Analysis" is also used, including in the most widely-read text on the economics of education in the USA (Cohn and Geske, 1990)

The many theoretical problems relating to cost-benefit analysis received extended treatment (Layard, 1972; Mishan, 1971; Peters, 1973).

The founding date of the economics of education as a subject area is usually taken to be the seminal lecture given by Professor Theodore Schultz to the annual meeting of the American Economic Association in 1960, in which he advocated the concept of human capital - investment in people could be as important, and as expensive, as investment in physical capital and appealed to his fellow economists to take seriously this neglected branch of study (Hough, 1991). Previous references can also be found in the writings of earlier economists, dating back to Adam Smith.

Once human beings had come to be seen as a form of capital, akin to items of industrial machinery, it was inevitable that economists would endeavour to apply to them the same kinds of calculations of investment criteria, profitability, and rates-of-return as had previously been familiar in the worlds of public sector investment or industrial economics. Therefore, calculations of rates-of-return to investment in education soon followed, among the earliest being those by Professor Hansen relating to USA males, published in 1963.
Subsequently there has developed a large literature, seeking to answer such questions as: "Should investment in education be increased (or decreased)?", "Would we do better to concentrate more resources at the primary school end of the process rather than on higher education?", or "How does the performance of one country in this respect compare with those of other countries?"

Perhaps the peak of official acceptance of the value of the results of cost-benefit studies in the UK was their inclusion in the White Paper on Higher Education issued by the Department of Education and Science in 1985 (Cmnd. 9524) and their use in the 1988 White Paper on Top-Up Loans for Students: in the latter the fact that private rates of return exceeded social rates of return was used to justify the introduction of student loans.

1.6 PROCESS OF COST- BENEFIT ANALYSIS IN EDUCATION

The conventional economic approach to the study of education is to treat education as a production process (Hanushek, 1979; Lau, 1979). The same approach can also be applied to the study pre-service teacher training programme. The objective of teacher training is usually to teach new skills or to upgrade existing skills in order to raise trainees’ productive capacity in a job. A primary goal of government-sponsored teacher training often is to meet the required manpower needs of the economy. Inputs to teacher training include the student teachers’ and teacher educators’ time, instructional materials, equipment and physical facilities. The direct and indirect resources devoted to these inputs constitute the costs of pre-service teacher training programme.

The outputs of teacher training include its effects on the student teacher and the benefits to the student teacher, to the family and to society. These effects on the student teacher refer to the increments in both cognitive and non-cognitive skills that are required in the workplace. The benefits of teacher training to a student teacher include both pecuniary benefits (such as increased earnings, enhanced probability of getting the first job and more stable employment) and non-pecuniary benefits (such as positive attitude towards teaching, improved self efficacy and increased job satisfaction). Benefits to the family of the student teacher include inspiration for other
members to join this training, improved relationship with other family members, more consciousness about his/her sanitation, academic help to younger siblings and provide guidance and counselling to siblings. Benefits to society include availability of more skilled teachers, improvement in quality of teaching learning process, counselling for weaker students of the society, extra academic help to students of society and increased social cohesion in communities.

The relationship between inputs and outputs is represented by the formula of internal rate of return.

The main purpose of a CBA is to analyse to what extent the resources are used efficiently for the society as a whole. This means that it is the utility of all citizens that should be considered. This involves estimation of costs and benefits for the individual and for the society. Generally, the benefit of education is the (higher) production value (income) that follows from individuals increasing their human capital and productivity. The costs that are relevant to consider in a CBA are the alternative costs, i.e. the values of the production resources in an alternative use. This means that all resources that are used in the education must be seen as an input in some other activity.

One important aspect of the analysis is to consider effects, or outcomes, for different stakeholders (students, universities, policy makers etc). Although an investment may be beneficial for the society as a whole, the outcome, or pay off, for different stakeholders constitutes important incentive structures. This raises the question of how costs (and benefits) should be divided between stakeholders in order to create the correct incentive structure.

1.6.1 Structure of Cost-Benefit Analysis

The structure of a cost-benefit analysis may differ between different applications. Below the researcher has listed some general steps that should be included in a CBA:

A. Identification of benefits.
B. Identification of costs.
C. Quantify the costs and benefits.
D. Calculation of net present values.
E. Decision criteria.
F. Sensitivity analysis

A. Identification of benefits:

The main benefit from education is that individuals increase their human capital and their productivity, meaning that higher production and income levels may follow. Other benefits may also arise, e.g. some individual specific utility from receiving education, however, this kind of benefit is difficult to identify and quantify. It may be difficult to measure this effect since we rarely have data on individual’s life earnings when we conduct the CBA. Furthermore, it may be difficult to estimate the income that the individual would have received without education. Thus, the estimate of future production increases that follows from education necessitates that we first estimate the expected earnings after education but also the earnings that would have been observed without education. Both these estimates are associated with uncertainty.

It may be difficult to measure the actual output from education, i.e. increased human capital. However, we try to compare performance between groups, education programmes, universities, etc. with respect to the length of the study period, number of credits etc.

B. Identification of costs:

Education requires resources in different forms. The costs that are considered in a CBA are the alternative values of the resources, i.e. the production value that would have been observed in the alternative case. For example, the cost associated with teaching personnel is not the wage cost; it is the production value that would have been observed in the alternative case. However, the alternative case is not observed, so this production value has to be estimated. One approximation that can be used is the wage cost since it is reasonable to assume that the value of these resources (the teachers for example) is the same in the alternative case. Such approximations may also be used for other costs.
Taxes and transfers are generally not seen as costs in a CBA. The reason is that taxes and transfers represent flows of income in the economy between individuals and sectors. They do not represent a reduced production value. However, there are costs associated with tax funding. Taxes may result in negative externalities in the economy; these externalities should be considered as a cost in a CBA.

Below the researcher has listed some categories of costs associated with education:

- Production losses
- The value of the personnel in the alternative case
- The value of the buildings in the alternative case
- Depreciation of inventories
- Goods and services

**Production losses**

The production loss arises when individuals chose to study instead of working. The production loss is smaller when an unemployed individual chose to study. However, individuals also have utility from leisure which should be considered in a CBA. If it is assumed that the labor market is in equilibrium we know that an individual who chose not to work, has an utility from leisure that is at least as large as the wage they would have received if they had chosen to work.

**The value of the personnel in the alternative case**

An education programme requires resources in the form of working hours for university teachers. It is not possible to obtain information about their activity in the alternative case. However, a reasonable assumption is that the value of their contribution to the production in the alternative case is the same as their present production (income). If a project hires unemployed labor force, the alternative cost is lower and is represented by the values of individual’s utility from leisure.
The value of the buildings in the alternative case

The cost for buildings is the value of the buildings in an alternative use. Different alternatives may be observed, e.g., the use of existing buildings or investments in new buildings.

Depreciation of inventories Depreciation of inventories must be added to the costs.

Goods and services associated with the education programme

A number of goods and services have to be included in the calculation of the total cost. These costs are represented by administration, cleaning, security etc.

C. Quantify the costs and benefits:

This is maybe the most difficult part of the cost benefit analysis. First, the magnitude of the effects has to be determined, e.g. the need for teaching personnel. Second, all effects have to be translated into monetary values.

Surveys, budgets at the universities, labor market statistics, etc., may be used as data sources.

D. Calculation of net present values:

The implementation of an education programme give rise to costs today and the main benefits arise in the future. Future costs and benefits have to be discounted to the same point in time in order to be comparable. A project requires resources today which mean that consumption opportunities today are restricted. A positive discount rate implies that individuals prefer consumption today compare to consumption in the future. The basic criterion is that the discount rate should reflect the individual’s time preference discount rate. In a perfect market economy the time preference rate equals the interest rate in the money market which perfectly reflects the individual’s choice of consumption today and in the future. In reality there is no unitary interest rate. Since the choice of discount rate to some extent is arbitrary, the effect of different rates should be analysed.
E. Decision criteria:

There are different decision criteria that can be used in cost benefit analysis. One of the most common is to use the net present value, meaning that the costs and benefits are discounted to present values and if the discounted benefits exceed the discounted costs, the net social benefit is positive.

F. Sensitivity analysis:

Cost benefit analysis is often associated with a high degree of uncertainty. The analyses are often based on restrictive assumptions, e.g. concerning individual labor market behaviour, choice of discount rate, etc. The high degree of uncertainty necessitates the use of sensitivity analysis, i.e. by varying uncertain parameters it is possible to evaluate how sensitive the final result is to such changes, e.g. the use of different discount rates.

1.6.2 Benefits of Education

Education is one of the important factors which enable human progress. It not only helps individuals in achieving economic prosperity but also in acquiring more satisfaction and happiness from their life. It teaches everyone how to be a good human and advance morally and materialistically. This is the reason why education is considered as the most essential part of growth and development policies around the world. Education benefits individuals and the economy in many ways. Economists have classified education’s benefits in two broad categories,

a) Market benefits; and
b) Non-Market benefits.

The market benefits of education are well documented in the economic literature (Psacharopoulos, 1973, 1985, 1994; Psacharopoulos & Patrinos, 2002). At micro level education increases individual’s labor market earnings by increasing his/her marginal productivity, which results because of more accumulation of human capital which in turn is a result of more education. At macro level education affects, both directly and indirectly, the economic growth of the country. But this well documented benefit of education ignores the non-market benefits. Non-market
benefits are far more important than the market benefits. This is because they are the real manifestation of overall improvement in the quality of life. Human development is reflected in the form of overall freedom, good health, knowledge, improvement in standard of living of people, improvement in political freedom, a secure life, a healthy environment and forests, wildlife, air and water, lesser crimes, protection of basic human rights etc. All theses aspects of human development are also non-market benefits of education.

**Non-Economic Benefits of Education**

Education is not merely a means for better income and employment opportunities for individuals or for higher economic growth potential for their nations. Education leads to better health care, smaller family norms, greater community and political participation, less income inequality, and a greater reduction of absolute poverty. The major impact of education is felt inside the household in the form of better quality of child's health and education, better quality of husband’s health and some impact on spouse’s labor market earning and better health of the individual possessor of education. A brief discussion on these benefits follows:

*Intra-family productivity:*

The evidences suggest that there is a positive relationship between wives’ schooling level and husband’s labor market earnings. This impact is likely to be stronger in the entrepreneurial families. This impact can work directly or indirectly. Indirectly by keeping a peaceful environment in home, by taking care of husband’s health, and by providing moral support to husband, educated wives can impact husband’s labor market performance.

*Child quality (Health and Education):*

The evidences here reveal a positive relationship between parents’ education and children’s education (cognitive development) and health. Both mothers’ and fathers’ education is important in this regard but from empirical evidences it seems that mother’s education weighs little heavier than father’s education. Educated mother will directly involve herself into her children’s education, she will provide nutritious
food to her kids, and she will also have a better health related knowledge, which will help her in keeping her child healthy. Apart from parents, even grandparents’ education has some influence over their grandchildren’s education. This is likely to be the case in urban areas where both parents are working and thus kids are spending most of their time with grandparents. Neighbours also have some impact on child’s education. This is known as “the neighbourhood effect”. Studies have indicated that this effect operates through the socio-economic composition of the schools.

**Own health:**

There is considerable amount of evidences which suggests that one’s own schooling positively affects his/her health, increases person’s life expectancy, lowers the prevalence of severe mental illness and improves the ability to deal with the stressful events. All these effects are enhanced as the person ages.

**Consumer choice efficiency:**

Research work shows that educated people are efficient consumers. They waste little resources like time, money while shopping. There are little chances of them being cheated by the sellers.

**Labor market search efficiency:**

Educated people are efficient with regard to labor market search for the job too. Educated people know different sources of information regarding job openings like online job portals, employment exchanges etc. They are also likely to migrate to distant places for the jobs without any hesitation. This is because most of the time, they have already migrated longer distance for their education itself. It is also seen that the labor market turnover is considerably low for the educated women.

**Marital choice efficiency:**

There is also some evidence that with increased level of schooling, people tend to sort their partners much more efficiently in the marriage market. The incidence of *assortative mating* is seen more widely amongst educated people. All these reduce the cost of marriage considerably for educated people.
**Attainment of desired family size:**

The use of contraceptive measures by the educated people reduces their family size. With education, the evidence shows that, women fertility rate declines. This effect works in two different ways. One, the increasing opportunity cost of having more children for the working women and second, the increased desire of the educated mother to concentrate the family resources on a single child.

**Charitable giving:**

Evidence suggest that educated people are also likely to donate more of their time and money to different charitable activities like voluntary work, Non-Government Organisation (NGO) membership etc.

**Increased saving:**

More schooling is also associated with higher savings. Educated persons are likely to have higher earning which is sufficient for their present consumption needs. The leftover income is thus saved for the future.

**Technological change:**

Technological change, both invention of new techniques as well as its usage, has a direct link with education. Research and Development activities are education intensive. It takes lot of skilled manpower for developing new technologies. With this, the diffusion of technology also required a skilled labor force.

**Social cohesion:**

One of the very important non-market benefits of education is that it encourages social cohesion. The evidences suggest that with increased education people show a tendency of not resorting on violence during the period of protests. They are also likely to oppose the repression of government. Education enables individuals in making informed political decisions. Education also improves trustworthy relationships between individual members of the society. It makes them more aware of the benefits of voluntary peaceful cooperation.
**Independence:**

Evidence also shows that educated people are more self-reliant. Studies show that during their prime working years, educated people are less likely to rely on various social security schemes like unemployment insurance, subsidies from the government, widow-pensions, etc.

**Crime reduction:**

Education also has some profound impact on crime reduction. By increasing person’s opportunity cost of involvement in criminal activity it reduces the incidence of crime.

**Population growth rate:**

An educated society generally has a lower rate of population growth. This is because education often leads to higher income, greater liberation and empowerment of women, more uninhibited access to family planning services, a dramatic fall in fertility rates, and much smaller family size.

**Propensity to save:**

Among other indirect or non-economic effects of education is one concerning the propensity to save. The survey of household income, saving and consumer expenditure shows that in both rural and urban household sectors in India, the propensity to save increases with every level of education. Saving not only ensures the security to individual (who saves), but also accelerates the economic development.

The other non-economic benefits of education include the role of education in breaking the barriers of caste, class and gender by ensuring social mobility. Education introduces the child to its society’s culture and widens its participation from local to national bounds. Education is the guardian of culture and the tonic of society. “It makes an individual more civilized and cultured.” It acts as an agent of social change because an educated individual learn to carry the heaviest responsibilities. An educated individual commands respect and enjoys dignity, high self-esteem and social status in the society as against his uneducated counterparts.
Berhman and Stacey (1997), McMahon (1997), Wolfe and Zuvekis (1997) and Wolfe and Haveman (2001) provide recent surveys of the literature that attempts to quantify the social and non-market effects of education. This research analyzes data from both developed and developing countries. The empirical studies that these authors survey generally find considerable impacts of education on a wide variety of non-market and social benefits, even after controlling for such factors as income, age and race.

Educated individuals develop competence to meet the challenges of society. Their mental horizon would be widened. An educated individual possesses scientific temper, rationale and capacity to make better judgements. Education brings about change not only in cognitive domain, but also in affective domain by transmitting specifically those skills, motivation, values and attitudes needed to transform the society in the prescribed direction.

Education is not only important from an individual’s point of view but also from the societies’ and state’s point of view. The development of civic sense and peoples’ mobilisation for civic causes, constructive participation in electoral and other decision-making processes, increased efficiency in productivity, concern for sustainable development, health and hygiene, adoption of small family norms, maintenance of peaceful and constructive neighbourly relations and promotion of just and equitable social order are the spill over benefits of education. Along with this, there are a number of unaccounted, not easily tangible (measurable or quantifiable), non-economic benefits, that education brings.

It is these broader influences of education, beyond merely the economic rates of return, which make investment in education such a critical decision for every society. In fact, there is no other decision that requires greater attention from policymakers.

1.6.3 Combining Benefits and Costs: The Rates of Return to Education

The concept of rate of return was popularised by the human capital theorists with the objective of projecting the significance of investments in education, which empirically attracted returns “in the neighbourhood of returns to non-human capital”
The first systematic estimates of rates of return, an application of marginal productivity theory, came from empirical studies of Becker (Becker, 1975). The skewness in income distributions was attributed to the differences in productivity, which resulted from skewed distribution of schooling (Chiswick, 1970; Mincer, 1979). The income skewness found empirical relation to rate of return and years of schooling. It was argued that formal education is one of the activities that improve human capabilities to adjust to changes in job-opportunities associated with economic growth. Another viewpoint regarded both education and labor market experience as important factors in determining earnings.

Costs and benefits can be combined in several ways in order to do a cost-benefit analysis. The most common methods are rates of return, cost-benefit (and benefit-cost) ratios and net present values. The estimation of internal rates of return on investment, i.e. the interest rate that equates the present values of benefits and costs (Psacharopoulos and Woodhall, 1985), captures the complete picture of the costs and benefits of education and, therefore, it enables to know which forms of investment produce the best value for money.

The rate of return to investment in education is a measure of the future net economic payoff to an individual or society of increasing the amount of education taken (Carnoy, 1995). It is calculated by setting the discounted value of costs \( C_i \) and benefits \( B_i \) over time equal to zero and solving for the implicit discount rate \( r \):

\[
\sum_{t=0}^{T} \frac{B_t - C_t}{(1 + r)^t} = 0
\]

We will estimate private rates of return for individuals and rates of return for society, in which private benefits are added to those accruing to firms and society, and private costs are also summed to costs incurred by firms and society.

From the individuals’ standpoint, for estimating the private rates of return private costs and benefits must be computed. The benefits of additional education are the additional income the individual earns because of it, the non-economic consumption benefits that educational investment provides over a person’s life, and
the direct consumption benefits derived from the educational process. However, in measuring private rates of return, economists have limited themselves to the earnings benefits of education (Carnoy, 1995).

From society approach, social costs and benefits must be estimated. Social benefits are usually estimated by using the same average earnings streams as in the private rates of return calculation but corrected for income taxes.

Therefore, we will have to estimate two different types of discount rates:

1.) The private rate of return to education (rp) through the discounted value of private costs (PC) and benefits (PB):

\[ \sum_{t=0}^{T} \frac{PBt - PCt}{(1 + rp)^t} \]

2.) The social rate of return to education (rs), defined as the relation between social costs (SC) and benefits (SB):

\[ \sum_{t=0}^{T} \frac{SBt - SCt}{(1 + rs)^t} \]

Where: 

SB = PB+UB; UB = Benefits accruing firms and society.

SC = PC+UC; UC = Costs incurred by firms and society.

1.6.4 Estimating rates of return: Theoretical Models

There are two principal methods used in estimating rates of return to education: the “traditional method” and the “Mincerian” one.

The traditional method takes into account calculated annual costs and earnings by education level. To estimate private returns to education direct and indirect costs carried by individuals are added to opportunity costs (earnings foregone). And these types of costs are added to public costs to estimate annual social costs for the social rate of return estimate. Annual private and social benefits are calculated from the
difference in average earnings of those who have different levels of education. Income differences are estimated net of taxes for the private rate, but not for the social rate. These annual costs and benefits are inserted into equation (1) in order to estimate the discount rate that makes costs and benefits became equal.

The Mincer method uses regression analysis to fit a Mincerian human capital earnings function. The classical specification used to estimate the effect of individual schooling on wages has been the following (Mincer, 1974):

\[
\ln W_i = \alpha + \theta S_i + \gamma E_i + \mu E_i^2 + \phi X_i + u_i
\]

Where \( W \) is the wage (earnings), \( S \) the years of schooling, \( E \) the experience, \( X \) a set of individual characteristics, and \( u \) the variation in log-wages not captured by the computed variables. The parameter \( \theta \) measures the percentage increase in wages associated with an additional year of schooling. Under certain conditions (which include the assumption that there are not direct costs of education) \( \theta \) can be interpreted as the private rate of return to schooling. This is why \( \theta \) is known as the Mincerian return to schooling and also as the schooling wage-premium or as the gross return to schooling (de la Fuente and Ciccone, 2002).

The reasoning of this procedure is that partial differentiation of \( \ln W \) with respect to \( S \) gives a method of the calculation of rates of return (Carnoy, 1995), in a continuous form:

\[
\theta = \delta \ln W / \delta S
\]

And also in discrete form:

\[
\theta = \ln W_s - \ln W_0 / \Delta S
\]

Where, \( W_s \) and \( W_0 \) refer to the earnings of those individuals with \( s \) and \( 0 \) years of schooling, respectively.

Therefore, marginal rates of return to particular levels of education can be estimated from Mincerian regressions by substituting a string of dummy variables for each level of schooling.
Rates of return have been estimated for a large number of countries, by types and levels of education, by gender, and, for some countries, over time (Psacharopoulos and Patrinos, 2004).

**Table-1.1:** Returns to investment in education by level, full method, regional averages (%), 2003

<table>
<thead>
<tr>
<th>Region</th>
<th>Social</th>
<th>Private</th>
<th>Social</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
<td>Higher</td>
<td>Primary</td>
</tr>
<tr>
<td>Asia*</td>
<td>16.2</td>
<td>11.1</td>
<td>11.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Europe/Middle East/North America</td>
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<td>9.7</td>
<td>9.9</td>
<td>13.8</td>
</tr>
<tr>
<td>Latin America/Caribbean</td>
<td>17.4</td>
<td>12.9</td>
<td>12.3</td>
<td>26.6</td>
</tr>
<tr>
<td>OECD</td>
<td>8.5</td>
<td>9.4</td>
<td>8.5</td>
<td>13.4</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>25.4</td>
<td>18.4</td>
<td>11.3</td>
<td>37.6</td>
</tr>
<tr>
<td>World</td>
<td>18.9</td>
<td>13.1</td>
<td>10.8</td>
<td>26.6</td>
</tr>
</tbody>
</table>

*Non OECD


Social returns to Investment in Education by Income level is graphically represented in Graph 1.2.

**Graph-1.2:** Social Returns to Investment in Education by Income Level

The return to education is negatively related with the level of economic development of the country. This relation is observable at all the education levels (primary, secondary and higher education) but is most observable in the primary and secondary level of education. Nevertheless, the major return to education of the primary and secondary education is a common pattern during the years and across the countries. Indeed the classical pattern of falling returns to education by level of economic development and level of education are maintained (Psacharopoulos and Patrinos; 2004).

From the private benefits point of view, and following human capital theory approach, the increase of individuals’ level of educational attainment is consistent with an increase of their productivity in the labor market, what explains higher wages for more educated workers.

Moreover there is a relation between the labor market experience, major education attainment and higher earnings. As we can see in the table below, 10 years of market labor experience increase real earnings by approximately 16% for employees with less than upper secondary education, 30% for employees with upper secondary education and 40% for employees with tertiary education. These data make evident that earnings grow with experience significantly faster for the more educated employees than for less educated.

1.7 PRESENT TEACHER EDUCATION SCENARIO

The unprecedented expansion of teacher education institutions and programmes during the past few years characterizes the teacher education scenario of today. With increasing school enrolments and the launch of pan-Indian primary education development programmes such as the SSA (2002) to achieve UEE, the Operation Blackboard (OB) 1986, and the District Primary Education Programme (DPEP) 1995, there was an increase in the demand for teachers. Added to this, the backlog of untrained teachers in the system and the essential requirement of pre-service teacher certification for appointment as a teacher led to mounting pressure on existing institutional capacity. With the demand far exceeding supply, market forces have taken over causing unprecedented rise in the number of teacher education
institutions in most parts of the country. The escalating demand for trained teachers and the belief that a training certificate acts as collateral against future unemployment has made teacher education a lucrative business proposition. It has also led to a large scale mushrooming of teacher education institutions.

The number of courses offered at different stages – pre-primary, elementary and secondary – face-to-face and distance modes of teacher education; programmes of M.Ed, face-to-face and distance modes, C.P.Ed., B.P.Ed. and M.P. Ed. have increased from 3,489 courses in 3,199 institutions in March, 2004 to a whopping 14,428 courses in 11,861 institutions in March 2009. The student intake has likewise increased from 2,74,072 to 10,96,673 during this period. This expansion has taken a heavy toll on quality parameters of infrastructural provision, faculty qualification, learning resources and student profile.

Till December 2009, as many as 31 Institutions of Advanced Studies in Education (IASEs) and 104 Colleges of Teacher Education (CTEs) were sanctioned and all of these were functional. Of the 599 districts in the country, District Institutions of Education and Training (DIETs) were set up in 571 districts, of which only 529 are functional. Thus, 42 DIETs are yet to become functional. The main problem facing DIETs is non-availability of qualified faculty. Presently, the faculty appointed does not possess qualifications or experience in elementary teacher education. A good number of CTEs face faculty shortage, poor library facilities, spend more time on initial teacher education while research, development and innovative activities are yet to take concrete shape. The same is the case with IASEs. The capacity of both CTEs and IASEs in performing their mandated roles has more recently come under serious scrutiny.

The larger reality of school teaching not being a preferred option among students and the dilution of emphasis on public investment in initial teacher education since the 1990s has led to a large scale recruitment of unqualified and under-qualified persons in the formal school system. Para teachers pose a far more serious challenge to the provision of free and compulsory education of quality to all children. An attitude of resignation towards initial teacher education and piecemeal in-service training courses have become an integral part of state provisioning for elementary education.
This has led to further degradation of the status of school teachers and diluted the identity of teacher as a professional. Major initiatives during the mid-1990s including the DPEP were focussed only on in-service training of teachers. This has accentuated the divide between pre-service and in-service teacher education. School teachers continue to be isolated from centres of higher learning and their professional development needs remain unaddressed.

On the positive side, with a view to achieving coordinated development of teacher education, the National Council for Teacher Education (NCTE) took up a number of initiatives during the last decade. It joined hands with the National Assessment and Accreditation Council (NAAC) to foster quality assurance and sustenance and with Distance Education Council (DEC) to ensure integrated development of in-service teacher education under the Open and Distance Learning (ODL) mode. It also entered into collaboration with the Rehabilitation Council of India in 2002 and in 2005 to develop curriculum on inclusive education and make it a part of the general teacher education programmes.

The National Knowledge Commission (NKC) has observed that teachers are the single most important element of the school system and the country is already facing a severe shortage of qualified and motivated school teachers at different levels. It is urgent to restore the dignity of school teaching as a profession and provide more incentives for qualified and committed teachers. Non-teaching official duties such as election-related responsibilities should not be allowed to interfere with the teaching process. Forums that allow and encourage teachers to exchange ideas, information and experiences including a web-based portal should be developed. At the same time, there should be transparent systems for ensuring accountability of school teachers. As far as possible, teachers should be recruited to particular schools.

The training of teachers is a major area of concern at present as both pre-service and in-service training of school teachers are extremely inadequate and poorly managed in most states. Pre-service training needs to be improved and differently regulated both in public and private institutions, while systems for in-service training require expansion and major reform that allow for greater flexibility. There exists a wide variation in the status of teachers and the need for teachers at different levels of
school education across the country. It is important to develop a broad framework that can address some of the crucial issues common to teacher education across different levels with a view to enable states to respond to needs specific to their contexts. Moreover, the diversity in the institutional arrangements for school education in terms of alternative schools, government and private schools places its own demands and will also need to be addressed. Diversity also exists in terms of the set of agencies that conduct teacher education programmes. These include state institutions, university-based institutions and private institutions that have grown enormously in number in the recent past, contributing to the commercialization of the process of teacher education.

1.8 TEACHER EDUCATION: CURRENT STATUS

India has one of the largest systems of teacher education in the world. Besides the university departments of education and their affiliated colleges, government and government funded institutions; private and self-financing colleges and open universities are also engaged in teacher education. Though most teacher education programmes are nearly identical yet their standard varies across institutions and universities. In certain areas, the supply of teachers far exceeds the demand while in others there is an acute shortage as qualified teachers which results in the appointment of under-qualified and unqualified persons. In the situation as it obtains manpower planning becomes an imperative.

A large number of professionally qualified teachers are required under the RTE. The importance of Teacher Education Institutions (TEIs) cannot be over emphasized in the present context. For the elementary sector, the District Institutions of Education and Training (DIETs) provide pre-service teacher education and in-service programs along with the Block and Cluster Resource Centres (BRCs and CRCs). The teacher education system in India is multi-layered, ranging from DIETS to CTEs, SCERTs, IASEs, university departments of education, schools of education etc. Given the huge task of teacher preparation ahead, there is need to strengthen, streamline and strongly interlink TEI, and tie them together towards quality school education.
While there are several teacher education institutions run by the private sector, there are indications that many of the private institutions who have received permission from NCTE to start TEIs are reportedly engaged in commercialization, and allegedly going so far as to enable degrees/diplomas for high fees without students ever having participated in the programs.

Recent analysis by the Department of Education shows that at present there are 523,000 vacancies of school teachers at the elementary level, and the provisions of Student Teacher Ratio specified in the Schedule of the RTE Act will lead to additional requirement of around 510,000 teachers. Moreover, around 774,000 teachers are untrained, that is, they do not possess the prescribed qualifications. Further, there are large inter-state variations in terms of percentage of untrained teachers, vacancy of teacher posts, and additional requirements of teachers under the RTE and the capacity of the institutions to prepare professionally trained teachers. Assam, Bihar, Chhattisgarh, Jammu and Kashmir, Jharkhand, Orissa, Uttar Pradesh and West Bengal together account for 606,000 untrained teachers and 973,000 teacher requirement. The problem is compounded due to the paucity of appropriate Teacher Education Institutions (TEIs). There are 5.23 lac teacher vacancies at the elementary level. 7.74 lac teachers already working in the school system are untrained. There is therefore the need to train 12.84 teachers in the 12th FYP period. These 12.84 lac teachers represent a quarter of all the teachers in the country. Assam, Bihar, Chhattisgarh, J&K, Jharkhand, Orissa, Uttar Pradesh and West Bengal together account for 6.06 lac untrained teachers and 9.73 lac teacher vacancies.

Taking the whole school system together, this represents around 26.6% of teachers in the school system. The introduction of such large number of teachers in the school system provides challenges, but also a unique opportunity for qualitative improvement. Teacher education has taken on a special urgency. To prepare 9.73 lac teachers, 22,500 teacher educators per year are required. The present institutional capacity is only 3775. An additional 19,000 teacher educators are urgently required (MHRD, TE-EFC, 2011).
The Rashtriya Madhyamik Shiksha Abhiyan (RMSA) launched by the MHRD aims to universalise education at the secondary level by 2016-17. This calls for additional preparation for teachers and teacher educators.

Teacher education is a vital part of school education. It is the single most important factor for meeting quality parameters in schools. This sector is responsible for preparing teachers prior to entering the school system, and for continuous professional development of teachers who have entered the system. 45.34% of the 4.7 lac teachers in the elementary (Class 1-8) school system have not studied beyond class 12 and a quarter of them have not studied beyond class 10. Only 35% teachers are graduates, 12% post graduates; 0.4% have M.Phil./Ph.D. degree (Mehta, A.C. 2006). The failure to build sufficient teacher education institutions has been compounded by the induction of under-qualified and un-trained teachers into the school system, even while lacs of graduates with B.Ed. remain unemployed outside the system. Quality issues in teacher education continue to remain a cause for concern. As has already been mentioned, teacher educators required for preparing so many teachers would be around 22,500 in the states with largest teacher training requirement. A slew of statutes (NCTE), policy directions (NPE 1986) and the centrally sponsored scheme for re-organization and re- structuring of teacher education consisting of IASEs, CTES, SCERTs, DIETs are in place.

Teacher education programmes are essentially institution-based. Their students need to be exposed more and more to the realities of school and community. Internship, practice of teaching, practical activities and supplementary educational activities need to be better planned and organized more systematically. The curriculum, pedagogy and evaluation of teacher education programmes need to be made more objective as well as comprehensive. Despite improvement of service conditions and perks, the profession is yet to attract the best talent.

For preparing teacher educators, the most popular programme is M.Ed, though a few universities provide M.A. (Education). The M.Ed. programme by and large is of general nature and does not train specialists in different areas. The same course meets the requirements of schools, teacher education institutions and administration, there being little differentiation. The standard of research, whether at M.Phil., Ph.D.
or Project level deserves greater attention. It is distressing to observe that research in our universities and institutions is largely conducted for obtaining a degree and much of it is repetitive and incapable of improving theory or practice of teacher education or general education sometimes they are replicas of forum researches, the recent promotional rules of University Grants Commission have tended to have a considerable adverse impact on the level of research. The present system of teacher education needs to demonstrate greater sensitivity to its educational as well as social contexts.

1.9 QUALITY MANAGEMENT IN TEACHER EDUCATION

Applied to the field of Teacher Education, quality refers to the totality of features and characteristics of the student teacher acquired as a result of the teachers education programme. If the expectations of the schools, students, parents and the society are met that indicates that the right type of teachers have been prepared by the teacher education institutions. And if the teachers continue to improve themselves then there is value addition in education (Feigenbaum, 1951). Such teachers will continue to meet the needs of the society. There is fitness of educational outcome and experience for use (Juran and Gryna 1988). There will be defect avoidance in education process (Crosby 1979) of teachers in a quality teacher education institution.

In any educational institution there are three aspects to be managed-academic, administrative and financial. Besides these there are the human and physical resources to be managed to their optimum level. In other words management of input-process-product is of utmost concern of the system of teacher education. If every component is of good quality then the final product i.e. the teacher will be perceived as fulfilling the needs of the consumers.

*Quality in teacher education can be indicated by the educatedness’ of the products of the institution i.e. the student teachers. Quality teachers are indicated by their educatedness’ that they have achieved through their education and training. The teachers are well informed and possess knowledge about facts figures, concepts in their subjects. They are cultured and possess integrated personality which is warm, empathetic and ethical. One level ahead of being cultured is
emancipation wherein teachers are individuals who rise above the known artificial boundaries of religion, caste, creed, gender, linguistic and geographic belongingness, social mores, cultural traditions and forms and treat their students fairly. Finally, teachers should achieve the best of potential already in them. However, if the following questions are answered by the educational institutions in general they will be able to achieve quality.

Quality refers to basic and essential character, the distinguishing element or characteristic of a product, service, organization or entity. Quality is a matter of perception, it is relative, subjective, and attainable, measured inferentially, and is applicable to the system and its parts. Providing quality education to large numbers at affordable costs is the primary concern of developing countries. If the expectations of the schools, students, parents and the society are met that indicates that the right type of teachers have been prepared by the teacher education institutions to impart quality education. The three aspects to be managed are academic, administrative and financial as well as the human and physical resources. In other words management of input-process-product is of utmost concern of the system of teacher education.

1.10 GENESIS OF THE PROBLEM

India has a long tradition of learning and education has always been valued. Accordingly, education has been assigned high priority in the national development strategy and conscious efforts have made towards the massive expansion of educational facilities in the country. In absolute terms, the educational system created in the country is vast when viewed in respect of the number of institutions, students and teachers and the variety of educational activity. However, effective utilization and success of educational set-up to produce quality output has been a subject matter of concern. Several commissions and committees who examined the functioning of educational set-up in the country have expressed concern about the quality. The Education Commission (1964-66) observed, “The destiny of India is being shaped in her classrooms” and that ‘as is the teacher, so is the nation’ to emphasize about the importance of the teachers. The commission further observed that all the different factors which influence the quality of education and its contribution towards national development, the quality, competence and character of teachers are undoubtedly the
most significant. The National Policy of Education (1986) recognized the crucial role of teachers and stated that the status of teacher reflects the socio-cultural ethos of a society. It further expressed that no people can rise above the level of its teachers and the government and the community should endeavour to create conditions which will help motivate and inspire teachers on constructive and creative lines.

In general, teachers lack status in the eyes of students and teachers themselves, and this has a negative influence on the profession of teaching. It leads to a low intake of students in teacher education programmes, and the students who do enroll have little capacity or motivation. The government recognizes the need to invest in teachers and to raise the status of teaching, although perhaps not enough.

Tight government budgets and unmet demands for education and training have increased the urgency of controlling the costs of education and training and of improving efficiency. Thus, better information on the costs of teacher training is essential to estimate the total cost of a teacher training programme and to evaluate its economic feasibility. Detailed information on both the costs and benefits of teacher training programmes are needed to evaluate their cost-effectiveness (Tsang, 1988).

It may be relevant to mention that in the present scenario of education in our country one comes across candidates with relatively superior qualifications and adequate professional degrees getting entry into the teaching profession; yet the problem of deteriorating education standards both qualitatively and quantitatively seems to be assuming alarming dimensions. Therefore, there should be some other important determinants of this phenomenon besides academic and professional qualifications of teachers; such determinants appear to be job satisfaction, attitude towards teaching and teaching self-efficacy.

Many studies have done to evaluate cost benefit of any programme but teacher education is still neglected area of interest. *Beside this, qualitative aspect of teacher education programme with economical evaluation is almost untouched area of concern. Therefore, the researcher fined this topic relevant and exactly wants to know the costs and benefits of pre-service teacher education programme at secondary stage with qualitative approach also.*
1.11 RATIONALE/ SIGNIFICANCE OF THE STUDY

The question of returns to higher education, within the human capital theory framework, has been a subject of considerable debate. Since the 1990s, returns to education have acquired greater significance as indicators in policy documents of countries to guide reforms in education. The emphasis in several World Bank policy working papers on financing of education, particularly in the developing world (Psacharopoulas et al, 1986; World bank, 1994), has been on recovering the public cost of higher education from the users and expansion of private institutions. The rationale is application of cost-benefit analysis.

Low levels of literacy and educational attainment, large gender disparity in enrolment, completed education, and labor market participation are important features of the Indian economy. Large-scale unemployment among the educated population has led to the widely held belief that there is a surplus of education in the economy and the productivity of the labor force is low. Accordingly it has been questioned whether investment in education in India is profitable.

National level estimates of private rate of return to education in the labor market made for urban India in 1960 by Blaug, Layard, and Woodhall (1969) convincingly show that investing in education is profitable. Their estimate of the private returns to education varies from 9–17% across different levels and the returns to most levels were higher than the expected Government of India returns of 12% from investment in physical capital (industry). A comprehensive summary of this and other early studies on monetary returns to education in the labor market is given in Psacharopoulos and Hinchliffe (1973) and Heyneman (1980).1 Although these earlier studies have made important contributions to the literature on the returns to education in India their estimates are based on an urban sample and are now dated. Since then some attempts have been made to estimate the returns to education using small sample surveys (Malathy, 1983; Tilak, 1987; Divakaran, 1996; Kingdon, 1997). More recently, Duraisamy and Duraisamy (1993, 1995) estimated the returns to higher education and also to scientific and technical education using the national level Degree Holders and Technical Personnel survey data of 1981. A limitation in these later works is that persons with higher education constitute only a small fraction of the
labor force and hence are not representative of the Indian labor market. These shortcomings notwithstanding, the existing studies in general provide evidence that the private returns to education in India or specific regions in the country confirm the stylized facts observed for several countries (Psacharopoulos, 1994). It is, however, difficult to discern any time trend from these returns as the studies are not comparable.

Education also bestows several non-monetary or consumption benefits (see Schultz (1988) and McMahon (1995) among others for a review of studies on non-market benefits of education) such as reduced family size, better health status, efficiency in home production, child care, political awareness etc. Additionally, there are external benefits of education which are rarely accounted for due to conceptual and measurement problems. In a recent work, McMahon (1999) develops a comprehensive framework to measure the monetary and non-monetary benefits of education, including the externalities of education, and applies this framework to estimate the total impact of education using country level aggregate data for East Asian, Latin American, African and industrialized nations. Ideally, for policy purposes, a measure of the total effect of education is relevant (market and non-market benefits). However the available household level data are inadequate for such comprehensive return estimation. Hence the present study, like most studies on educational returns, focuses on the reward for education in wage employment for which the wage data are much cleaner. Such estimates would be useful indicators of the reward for education in the labor market and also guide public and private investment in education. How these returns vary by gender and locations (rural-urban) at a point in time and the variation in these over a period of time will help understand the nature and functioning of labor markets and guide region specific educational investment policies.

There is considerable amount of research done in India and abroad in the field of economics of educational planning in India. However, there are not many rates of return studies on education in India. Sahota made the earliest attempt in 1962. This formed the basis for a more systematic study of Harberger (1965). This is the perhaps first systematic attempt in some detail and has been acclaimed as a pioneering study.
Another equally important early study was a doctoral dissertation by Nallagoudan in 1965. Selowsky (1967) re-estimated Nallagoudan’s estimates with a different assumption. Kothari (1967-b), Husain (1967 and 1969), Panchmukhi and Panchmukhi (1969) and Goel (1975) also estimated the rates of return to education in India. Blaug, Layard and Woodhall (1969) conducted a significant study on the returns to education, while enquiring into the causes of graduated unemployment in India. Chaudhari and Rao (1970), Paul (1972) and Shortlidge (1973) estimated the returns to certain types of education at the micro level. The study by Pandit (1972) is perhaps the most recent on Indian education. Chaudhary (1979) and Venkatasubramanian (1980) made similar attempts at the micro level.

Research on the Economics of Education and more specifically the Economics of Teacher Education are very few in India. Moreover, Government is not always completely aware of the need to invest in teachers and teacher education, as teaching salaries still lag behind salaries paid in the commercial sector, and as teacher training colleges still face financial difficulties. Since the 1960s, expenditure of 6% GDP on education has been recommended in policy documents. In the past decade, the % of GDP for education has been steadily decreasing. The Economic Survey of India (2010-2011) reports that total expenditure in 2008/9 on education was 2.89% and budget estimate for 2010/11 is 2.98%. Clearly there is need to more than double the expenditure in education. 80% of funds allocated go towards teacher salaries, leaving limited resources for institution improvement initiatives. This spending profile needs to be viewed in the context of the total budgetary requirement for running a school that provides quality education. Expenditure profiles must be made on the required funding rather than acquired funding. Revised estimates (RE) of budgetary allocations to education sector which is 21.7 percent in the budget estimation of UPAII (20010-13) is lower than the last year’s (2004-10) budget estimates of 25.7 percent of UPAI.

In a search of the literature, few empirical studies were found documenting costs of any teacher education programme, and none within the last few years. Furthermore, there was very little discussion of a relationship between costs and benefits of any teacher training programme, even for the general course.
education. Therefore, the researcher found a research gap in this area of research and decided to work on the present problem.

Beside this, there is an urge to revise the CBA analysis in the present scenario as time has changed and the base of economic indicators like National/state income deflators, Wholesale price index (WPI), Consumer price index (CPI), Education price index (EPI) etc are changed.

Another reason for this study is to draw attention to both costs and effectiveness or quality in the education sector, about which there is little awareness. One of the common accepted objectives of Teacher Education programmes in our country is development of professional attitude. One-year post-graduate bachelor of education courses is largely professional in nature. They do not expect to improve content attainment of the teacher-trainees, nor do they give him any deep insight into education as a discipline. Inclusion of many activities in the programme is justified on the ground that it would develop a healthy attitude towards the teaching profession. A teacher-trainee should go out of the course with commitment to teaching, with enthusiasm for the work for which he/she has been educated and with pride in his calling. The present study will be taken to see the impact of a Bachelor of Education course on the attitudes towards teaching as qualitative benefit of those who will have gone through it.

Teacher’s self-efficacy may be viewed as his/her belief about the capacity to influence his students’ performance. Keeping in view this significant aspect, the present investigation will be carried out to find out the presence of self-efficacy among teacher-trainees as these perspective teachers play a crucial role in shaping, promoting, and strengthen base of students’ education and towards producing good citizenries.

Teaching is an art in which feelings and emotions play an important role. If a teacher is dissatisfied with his job, he will not be able to do justice to his work. The teaching needs spontaneity of thoughts and it is possible only when the teacher is emotionally satisfied. Satisfaction is a psychological phenomenon and its concept is highly intricate and subjective. Job satisfaction describes how content an individual
with his or her job. It expresses the extent of match between the employees’ expectations from the job and the rewards that the job provides. Job satisfaction among school teachers has been considered as a vital factor for the improvement of the education system. Teacher’s job satisfaction is one of the key factors in school dynamics and is generally considered as a primary dependent variable in terms of which effectiveness of the school is evaluated. The well adjusted and satisfied teacher can contribute a lot to the well being of his/ her pupils. The present study will be undertaken to know the effect of training on job satisfaction of the schoolteachers, who form an important part of the education system.

The incentive to the present study came very largely from the practical desire to improve Teacher Education Programme for secondary schools.

Using a survey, data were collected to address the following questions:

1.) What is the institutional cost of pre-service teacher programme at secondary stage?
2.) What is the private cost of pre-service teacher programme at secondary stage?
3.) What is the private direct benefit (personal income) of pre-service teacher education programme?
4.) What are the qualitative benefits to family, society and community of pre-service teacher programme at secondary stage?
5.) What are the factors which affect the private direct benefit of teacher education graduates of pre-service teacher programme at secondary stage?

1.12 STATEMENT OF THE PROBLEM

Cost Benefit Analysis of Pre-Service Teacher Education Programme at Secondary Stage

1.13 OBJECTIVES OF THE STUDY

1. To analyze the current employment status of pre-service teacher education programme at secondary stage
2. To analyze the institutional costs of pre-service teacher education programme at secondary stage with reference to type of institutions
3. To analyze the private cost of pre-service teacher education programme at secondary stage with reference to:
   3.1. Type of institutions
   3.2. Gender
   3.3. Type of residences

4. To analyze the private direct benefit (personal income) of pre-service teacher education programme at secondary stage with reference to:
   4.1. Type of institutions
   4.2. Gender

5. To study the relationship between private cost and benefits of pre-service teacher education programme at secondary stage with reference to:
   5.1. Type of institutions
   5.2. Gender
   5.3. Type of residences

6. To study whether teacher education students differ on qualitative benefits (perception about individual benefits, family benefits and societal benefits, attitude towards teaching, teaching self – efficacy and job satisfaction) with reference to:
   6.1. Type of institutions
   6.2. Gender

7. To analyze the net present value of the total cost and the benefits of pre-service teacher education programme at secondary stage with reference to:
   7.1. Type of institutions
   7.2. Gender

8. To analyze the internal rate of return of pre-service teacher education programme with reference to:
   8.1. Type of institutions
   8.2. Gender

1.14 RESEARCH HYPOTHESES

1. Current employment status of pre-service teacher education programme at secondary stage with reference to type of institutions differs.
2. The institutional costs with reference to type of institutions differ.
3. There is difference between private costs of pre-service teacher education programme with reference to:
   3.1 Type of institutions
   3.2 Gender and
   3.3 Type of residences

4. There is difference between private direct benefit (personal income) of pre-service teacher education programme with reference to:
   4.1 Type of institutions
   4.2 Gender

5. There is relationship between private cost and benefits of pre-service teacher education programme at secondary stage with reference to:
   5.1 Type of institutions
   5.2 Gender
   5.3 Type of residences

6. There is difference between qualitative benefits of pre-service teacher education programme with reference to:
   6.1 Type of institutions
   6.2 Gender

7. The net present value of the total cost of pre-service teacher education programme is uniform with reference to:
   7.1 Type of institutions
   7.2 Gender

8. The internal rate of return of pre-service teacher education programme is uniform with reference to:
8.1 Type of institutions

8.2 Gender

1.15 DEFINITIONS OF THE TECHNICAL TERMS USED

Cost and Benefit Analysis:

The term “cost-benefit” analysis implies a systematic comparison of the magnitude of the costs and benefits of a form of investment in order to assess its economic profitability. It is also known as “rate of return” analysis.

The researcher can define ‘cost benefit’ as a tool, which measures, in economic terms, the benefits of education to the individual or to society. In order to use this technique, it is necessary to measure both the costs and benefits in economic or financial terms. This term is made up of two terms that is, cost and benefits both terms will be discussed in the context of the present study.

Costs:

The term cost refers to the value of all the resources that a given program could use, were they all assigned to the program. The costs of education refer to the resources used in the production of education services. They include not only public expenditures on education, but also household spending on education, donations to educational institutions from private sources, and the economic value of foregone opportunities of education (Levin and McEwan 2001). For analytical purposes the cost can be divided into two parts ((Tsang, 1995a) :

Institutional costs:

Institutional costs refer to those costs that are borne by the institution, in order to ensure effective provision of instruction to learners. It can be further divided into two parts:

i) Recurring costs:

Recurrent costs are costs of inputs that are expended in a period of one year; it consist of the costs of school personnel and non-personnel items like: Staff salary
(Teaching and nonteaching), Stationery items, Payments made for postage, Payment paid to rented building, Maintenance and repairs of building, furniture and teaching aids (like projector, computers etc), Purchase of books and journals and Scholarships.

It is further divided into two parts: a) Labor cost – payment to teaching and non-teaching staff and b) Non Labor Cost- cost of teaching material, office expenditure, cost of library services etc.

ii) Non-recurring costs (Capital costs):

Capital costs are costs of inputs that last for more than one year; it includes the costs of buildings, equipment, and land.

**Institutional costs = Recurring costs + non-recurring costs**

The present study is limited to only Recurring costs.

**Private costs:**

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. It can be also further divided into two parts:

i) Direct costs:

Direct private costs refer to household educational expenditure related to a child’s education, including tuition spending and non-tuition spending such as registration or tuition fees, examination fees, costs of tutorial sessions (if any), and the transportation to and from the learning centre (for tutorials and other administrative activities). This also includes costs of practical and replacement supplies (Belawati, 2006; Mbu 2007) also identified some other private costs that learners bear in the course of their studies, these include caution deposits and cost of uniforms for certain learners.

ii) Indirect costs:

Learners also bear indirect costs referred to as opportunity costs. Opportunity costs refer to the earnings that would have been earned, had the student chosen not to
go for education but to the job market. For instance, opportunity costs of teacher graduates are treated as equivalent to the earnings of the workers of the age-group 22-25 (i.e., the relevant age group of teacher graduates). The debate on the value of opportunity costs is unresolved, however if we consider the fact that learners can spend monies currently being invested as private costs in Teacher education programme on other things, then opportunity cost may imply the value that a resource would have in its best alternative use.

**Private costs = Household expenditure on education + opportunity costs**

The present study is limited to only household expenditure on education. Opportunity cost has not been taken into account. In the present study unit costs have been derived for private and institutional costs.

**Benefits:**

The average salary package has been taken as direct private benefit in the present study. The age earning profile will be made based on cross sectional data of pass out students of pre-service teacher education programme at secondary stage.

Perception of the pass out students whether employed or not about benefits to individual, family and society are also considered as qualitative benefits. Perception is a way to interpret views towards anything in a representative way there are lots of chance that it can be subjective in nature in the present study.

**Qualitative Benefits:**

**Attitude:** A predisposition or a tendency to respond positively or negatively towards a certain idea, objects, person or situation. Teaching attitude is the belief/disposition of student-teachers towards teacher and teaching activities like classroom interaction, pupil, occupation of teaching, evaluation in teaching and aims of teaching.

**Teaching self efficacy** may be defined as teachers’ perception about their competence in performing teaching activities in the classroom. It is teachers’ ability to use
various teaching competencies effectively. It is the confidence teachers have about their ability to perform teaching

**Job Satisfaction:** Job satisfaction is a positive or pleasant emotional state resulting from a person’s appreciation of his/her own job or experience. It consists of several facets, including satisfaction with the supervisor, work, pay, advancement opportunities, co-workers, and customers.

**Pre-service Teacher Education**

Pre-service Teacher Education is the education and training provided to student teachers before they have undertaken any teaching.

During the pre-service education program the pre-service teacher will learn how to use their knowledge to formulate lesson plans to teach their class. Common topics include classroom management, lesson plans, and professional development. A major focus during such education programs are the practicum where the pre-service teacher is placed within a school setting (either elementary or senior) and shadows an experienced teacher. The pre-service teacher will be given opportunities to develop skills through lesson plans, teaching lessons and classroom management.

**1.16 DELIMITATIONS OF THE STUDY**

- The research work is delimited to those institutions only which are offering pre-service teacher education programme at secondary stage.

- Only four type of institutions: i) Govt. funded, ii) Self financed, iii) Autonomous, iv)Deemed within the range of Allahabad city has been purposely chosen.