CHAPTER – II

REVIEW OF THE RELATED LITERATURE

2.1. Introduction
2.2. International Studies on Cost and Academic Performance
2.3. National Studies on Cost and Academic Performance
   2.3.1 Economics of elementary education
   2.3.2 Economics of secondary and higher education
   2.3.3 Economics of college education
   2.3.4 Economics of higher education
   2.3.5 Economics of professional education
2.4. Cost Benefit Analysis
2.5. Other Related Studies

Conclusions
CHAPTER II
REVIEW OF RELATED LITERATURE

2.1 Introduction

The importance of review of related literature was rightly pointed out by Mouly (1982), "The survey of the literature is a crucial aspect of planning of the study and time spent in such a survey invariably is a wise investment."

To get an insight into the problem, related research designs, variables, probable hypotheses and tools, techniques and methods of analysis, the researcher undertook a review of related studies. While publications and studies relating to 'financing of education' occupy substantial space in economics of education literature, specific studies relating to cost of education still remain in relative obscurity. The Indian experience is no exception to this. Though various issues relating to financing of education in general and school education in particular, have not adequately been highlighted, problems under taken in the present study find rare mention in the contemporary literature available. Cost studies on education, especially of 'unit cost' and 'institutional cost' have been undertaken in many countries of the world and in India too since the 1960s. Most of these are found to be following a very general approach, covering a very broad area of study.

There are quite a few studies on 'cost of education' in general and 'unit cost and institutional cost' in particular which offer insights into the problems of calculating costs in education and also discuss the conceptual difficulties involved with cost studies in the field of education. Most of these are studies are studied by individual researchers with very little institutional involvement. International studies, on the contrary, have mostly been done on behalf of institutions like the International Institute of Educational Planning (IIEP), Paris.

Although interest in economic aspect of education is said to date back to the time of Plato, its close relationship to the financing of education went almost unnoticed till about the middle of the 20th century.

As it was noticed in the second survey of research in education in India, the first study in the area of economics of education was conducted in 1959. In India,
Buch (1991) has recorded a total of about hundred studies under the banner of "Economics of education", specially in the area of cost.

A few studies have been recorded under cost and academic performance, first by Singh (1969), then Datta (1970), Sapra (1973) and Manvikar (1986) highlights their findings on these aspects. At international level, a lot of work has been done on cost and academic performance specially by Farrell (1937), Grim (1938) Mort and Cornell (1940), Smith (1954), Griffith (1955), Bloom and Statler (1957), Brickell(1958), Joseph (1968), Ellsworth (1969), Charles (1973), Osteberg (1977) and Eduful (1980). In India, more work is not been done on cost and performance at school and higher education level. However, the related studies conducted in abroad and India are mentioned below.

2.2 International Studies on Cost and Academic Performance

Farrell (1937) in his study entitled, "Relationship between current expenditure and certain measures of educational efficiency in the graded school system" found a strong relationship between efficiency and expenditure when efficiency was defined as (1) attracting and holding power of schools (2) the training experience of teachers (3) pupil-teacher ratio and finally (4) the school year.

The above study indicated that causal expenditure is related to the school efficiency and also, it pointed out some of the factors, which can be included in the measurement of efficacy.

Grim (1938) studied in detail educational opportunities in relation to their costs in 24 elementary school districts in Illinois which established a direct relationship between cost and efficiency of education.

Grace and Moe (1938) found that educational efficiency could not be achieved without high expenditure. The commission on the legal structure of Rhode Island public education observed that improved school practices were found most commonly in the high expenditure and least commonly in low expenditure schools.

Mclures (1938) study of 100 schools showed that low expenditure resulted in serious losses in educational returns.
Mort and Cornell (1940) inferred that money was nevertheless an important factor in educational adaptation but it was not the only factor.

A study by New York State Education Conference Board (1945) on over 100 schools using standardized tests and observing classroom practices and procedures concluded that top expenditure schools averaged highest in educational achievement as measured by the tests.

Smith (1954) in a cost and quality study on 229 central rural schools of New York attempted to find the relationship between school quality and the following five major characteristics:

Quality of administration
Type of community
Size of school system
Geographic location
Level of expenditure

He found that all the above five characteristics were related with quality and level of expenditure was more closely related to school quality than the other four characteristics.

Griffith (1955) studied school facilities at three levels of expenditure. It was reported that educational service consistently increased with increasing expenditure. Majority of the above studies indicated that expenditure and a few factors of school quality or efficiency are significantly related. Only one study failed to establish any relationship and one study emphasized the importance of other factors other than expenditure.

The committee on school education for public schools (1957) in USA in their report indicated, that more money spent per pupil did not necessarily provide better education.

Bloom and Statler (1957) studied the factors associated with educational achievement. There appeared a significant relationship between achievement and
financial support for education. But they appraised importance of other factors beside expenditure. They pointed out that teachers personnel and school facilities were means of achieving better education, which they had not measured.

Brickell (1958) found that small expenditure items had considerable relationship to efficiency. His findings suggest that good schools do not spend more money on everything and there is a high correlation between some items of expenditure and efficiency of education.

Joseph (1968) of State University of New York tried to develop mathematical models for the allocation of school funds in relation to school quality. The study related financial inputs of school systems to a measure of school quality (pupil achievement) and developed mathematical models of these relationships as guidelines for the allocation of school funds.

The above study indicates that spending patterns of the school may vary depending upon the quality of the education the school offers.

Walter (1968), University of Arkansas tried to find out the relationship between enrolment size and certain factors of cost of effectiveness of Arkansas public high school. The purpose of the study was to find out the optimum size range for secondary schools and to find out which of 16 variables were significantly related to school size.

Cost factors included in this study were:
1. Per pupil cost for professional salaries,
2. Per pupil cost for administrative and special services.
3. Per pupil cost for each unit of credit.

Pupil factors included in the study were:
1. Pupil-teacher ratio.
2. Percentage of pupils suspended from school.

The teachers factors included in this study were:
1. Percentage of teachers.
2. Percentage of teachers with master's degree holders and beyond.
3. Average experience.
Administrative factors included in this study were:

1. Principal with masters degree holders.
2. Professional experience of principals, present school.
3. Years of professional experience as principal in other schools.

Institutional factors included:

1. Breadth of curriculum
2. Availability of administrative and special personnel.
3. Average teaching salary.
4. Classification method.

200 schools from 75 countries in Arkansas were included in the sample. The regression was used for statistical analysis. The result indicated that null-hypotheses were rejected on 12 of the variable studied.

Ellsworth (1969) of university of Minnesota conducted a study to find out the relationship between expenditure per pupil and achievement in English. In this study cost input in education was measured as independent variable and achievement in English as dependent variable and scholastic aptitude and socio-economic status as co-variable. An adequate sample of students were drawn from 46 schools. Multiple regression analysis was used for statistical analysis. The results indicated that there was no significant relationship between per pupil expenditure and achievement of English of pupils.

Raymond (1973) of university of Illinois studied relationships between school and district size and parental attitudes, achievement and expenditure. The purpose of the study was to examine the relationships if any, between the attitudes of parents in four districts of varying size with students at four junior attendance centers of varying sizes. In addition to parental attitudes, educational fund expenditures and student achievement on standardized test were also examined.

The results indicated that there was correlation between the three factor of expenditure achievement and parental attitudes. The study indicated that school
quality in terms of achievement is more likely to be related to other factors other than expenditure alone.

Donald (1975) of Columbia University studied equality and efficiency in the allocation of resources among schools in ten countries. These were England, West Germany, Finland, France, Israel, Japan, Netherlands, Scotland, Sweden and the USA. In each group means and standard deviations were computed for achievement, expenditure per student and selected physical resource. Efficiency in allocation of financial resources among physical resources was examined with in groups by comparing the partial correlation for physical resource and variable regressed on expenditure. Inefficiency was a common characteristic with in the groups of schools at all secondary school level in all the countries. The study indicates that efficiency of allocation of the funds is more responsible for the higher achievement than spending more funds.

Eduful (1980) of Indian State University tried to find out the relationship between sources of school revenue and factors pertinent to quality of education. The purpose of the study was to determine the relationship between fiscal variables and quality related school inputs. The fiscal variables were sources of school revenue, state and local. Factors considered pertinent to quality of education were teachers, experience index, elementary pupil teacher ratio, secondary pupil teacher ratio, administrative/pupil ratio and cost per pupil. It was found that proportion of state support to school corporation affected teacher pupil ratio and per pupil cost, but it was found that it did not significantly affect the other indicators of quality.

The alone study also indicated that the fiscal variables do not seem to relate significantly to indicators of quality.

Vaizey (1967) looked into the importance, scope, choosing the basis of costing etc. Costing any educational plan is important, because it is very much essential to know costs of alternative courses of action before taking a decision. In any costing exercise a 'unit' has to be chosen. It could be the number of schools or teachers or pupils. But careful attention and thinking are needed before choosing the 'unit' because no one unit is suitable for all kind of purposes. After a suitable unit is
chosen, it is then important to find out what expenditure figures are to be included in costing in order to get true cost figures. Because, there are number of activities on which expenditure have been incurred, although those activities are quite unrelated educational functions as such. Naturally, those expenditures are to be excluded from the study, the author opines. Further, the division between capital and current expenditure is arbitrary and the identification of capital outlays is frequently more often an exceptionally complex and difficult task. Government budgets and financial statements are drawn up for particular administrative and political purpose. Therefore, those are to be carefully checked and studied for appropriate economic analysis.

After identifying various components it is then necessary to assign such components to particular parts of the education system to get an idea of unit costs of education at different levels and also of different types. It is also necessary to check and analyze the source of receipts in order to match them against the expected pattern of future expenditure. It helps the planner, says the author, to get an idea whether the pattern of receipts is sufficient to meet the expenditures that are expected and also to see whether the pattern of receipts in the education system of the economy is what is socially and economically desirable. Vaizey’s work mostly concentrates on the theoretical aspects of the importance, needs and problems that are connected with cost-analysis although totally unexpected and unknown problems may arise during actual cost analysis, which has been promptly mentioned in the second part of the study.

Hallack (1969) examined the basic ideas underlying the methods of costing and the techniques use by the costing experts for analysis and projection of costs, as a part of the diverse skills that are deployed in educational planning. He analyzed the definition of costs while considering educational costs as a special case. He describes the methods of assessing the total cost of education, various cost components and the variables influencing cost trends. He also discusses the methods
of establishing total costs and unit costs from data collected from sources of finance and from the accounts of educational establishments.

Hallack starts with analyzing the concept of cost as used in economics and distinguish between ‘real cost’ and ‘direct production expenditure’ as other economists like Marshall have done earlier. He mentions that the concept of cost is generally used in the production of goods or services and it can be expressed in terms of money or in non-monetary terms and it affects a specific economic transactor: producer, seller, buyer and consumer etc. The problems in calculating costs and fixing operational definitions because of the special character of the education are also discussed. The difficulties in including the ‘opportunity cost’ while calculating the ‘total cost of education’ are also mentioned and keeping these difficulties in view the author prefers to study the money costs which can be estimated in terms of actual expenditures.

The author makes an over-all analysis of total money costs in order to show the flow of educational finance in terms of actual expenditures by constructing a long time series and makes a detailed analysis of total and unit costs by type, level and purpose of education. Then the author talks about methods of educational costing to estimate total expenditure and unit costs. In this two methods of estimation are mentioned (a) estimating expenditure on the basis or information derived from sources of finance and (b) on the basis of the accounts of educational institutions.

While deriving data from sources of educational finance the total expenditure can be calculated by taking the contributions made by different sources into account. Expenditure can further be calculated by type, level and nature of all such expenditure. While calculating unit costs the choice of an appropriate unit becomes important as the author says. He therefore, mentions various units like, cost by the level of education attained, cost per graduate, cost per pupil and cost per class etc. The author concludes discussing the importance of cost analysis for planning the educational budget of a country in order to meet various quantitative and qualitative targets.
Coombs and Hallack (1972) describe the important needs being served by cost analysis. Cost analysis, they say, has no special magic to remedy for faulty conditions, but it is a powerful and necessary tool for modern educational management and effective educational planning. It can contribute importantly to getting more and better education from whatever resources available. The authors put forward an argument that any measures taken to improve educational quality or opportunity without prior examination of its cost consequences can easily prove self-defeating. In most situations, costs have little meaning or value until they are set against educational results.

They say that paying attention to costs for budget making is not cost analysis in the real sense. The analysis of costs should encompass the purposes of evaluation, planning, policymaking and general improvement in cost-effectiveness.

Psacharopoulos and Woodhall (1985) have looked at different ways of defining, measuring and analyzing educational costs and at the methods used for estimating future costs of educational investment and for identifying their determinants in order to reduce and control them. They have underlined the importance of opportunity costs, which is not measured by actual monetary expenditure, but by the alternative opportunities forgone when scarce resources are invested in education. They further mention, as educational investment involves both social and private opportunity costs. They also make a case for applying different cost and analytical techniques because they are needed for a diverse type of decisions.

They have also analyzed some trends in total costs in education for some periods, the importance of teachers' salaries in reflection of educational costs, the pattern of unit costs in developed and developing countries, the relationship between average and marginal costs concerning education and finally, have made arguments for the need of cost reductions.

Coombs and Hallack (1987) again emphasize that in the face of adverse financial circumstances, the central challenge to educational managers everywhere is to find ways to use their limited resources more efficiently and effectively and to
augment these resources by tapping new sources of revenue. Cost analysis, they opine, is a versatile and potentially powerful tool to meet this challenge, as it helps educational managers to see the various options and trade-offs available to them more clearly, and assess their relative merits and feasibility. It can reveal the possible advantages of redeploying limited resources between different levels and types of education and between different categories of inputs. Cost analysis can uncover serious internal waste and inefficiency and possible ways to eliminate them.

They discuss the key elements of an education system, define efficiency and productivity in education and suggest the ways to improve a system's internal efficiency and external productivity. In their opinion, educational costs in itself have little meaning. It should be united with the educational system's inputs and its objectives, outputs, and benefits that they reveal how efficiently and effectively the system is functioning various types of costs like opportunity costs, factor costs, current costs, capital costs, unit costs and institutional costs are mentioned and are expressed in different ways to express and measure educational costs.

The determinants of educational costs and revenues are also analyzed. Regarding determinants of educational costs they take account of educational demand, educational technologies, teacher salary structures, drop-out and repeater rates, utilization rates etc. In analyzing typical cost patterns and problems, the authors say, (i) personnel costs dominate total educational costs because, education is a highly labour intensive industry and it does not benefit from the higher labour productivity made possible else–where combining growing amounts of capital and advanced technology with declining elements of human resources; (ii) unit–costs for the same type and quality of education rise in the long run because, (a) real income of the personnel working in this sector must follow the rising real income of equally qualified people in other employment if educational systems are to attract their share of talents to produce new generations of talent and (b) the need for material and other types of inputs increase in course of time; (iii) unit–costs are higher at each successive educational level because, (a) teacher salary increases at each successive level, (b) pupil teacher ratio decreases at higher levels and (c) requirement of expensive equipment and large libraries at higher stages and (iv) unit costs decline
as the size of the activity expands up to a point because of operation of the economies of scale.

They also pronounce some suggestions regarding the methodology of cost analysis and have listed the relative usefulness and shortcomings of various sources of data. A few basic guidelines for analyzing recurrent and capital costs are also provided. Though their work is comprehensive from the point of view of planners there is a tendency towards generalization of things, which sometimes could be misleading in particular cases. The need to establish a linkage between costs and finances has been overlooked. This particular study is an extension of an earlier work done by the authors (1972), which have been mentioned above. In the earlier study they had started with a discussion on how cost analysis has been used to test the economic feasibility of educational plans and how cost analysis has helped to reveal the future consequences of proposed educational reforms. They have undertaken a brief discussion of educational systems of various countries like Tanzania, Ceylon, France, Thailand etc. and the level of their 'cost-consciousness' in the sense of analyzing their costs for purposes of evaluation, planning, policy making and general improvement of their cost-effectiveness. Costing exercises done in countries like Ivory Coast, Madagascar, Norway, Sweden, Barbados etc., which were undertaken in the light of 'planning for change', and to measure the cost of educational reforms, innovations and alternatives have also been discussed. The authors have cited case studies of nations like Uganda, United Kingdom, Canada etc. where educational systems have used cost analysis in search of greater efficiency amidst severe resources scarcities and rising unit costs. These studies are made with a view to evolving the total educational plan and therefore do not inspire micro studies or sub-sectoral studies, which look into specific problem of a particular branch of the educational system. After finishing particular country studies, they have shifted to discuss the various types, nature and anatomy of educational costs and the methodological techniques to be employed while making cost analyses. They have repeated these concepts, techniques etc. in their subsequent work, which has already been reviewed above.
Thomas (1990) laid emphasis on 'cost-effectiveness', 'efficiency', 'value for money' and 'performance indicators', which have a contemporary salience for educational managers at national, local and institutional levels. The emphasis on making the most effective use of resources can be traced to the reason of the financial crisis at various time periods, which made governments more cautious over the commitment of more resources to education, the author says. Then the author describes how opportunity costs can be used as an effective tool of measuring educational costs and how its effectiveness is inescapably linked with the outcomes of educational activities. The author also made a distinction between institutional, individual and social cost-effectiveness. Finally, the author emphasizes for an organized system of information within educational system to provide better evidence on costs and quality in education.

Study conducted by Ahmed (1991) stressed that although cost has been variably defined, for this specific study it may be defined as the money, effort and other resources required to be spent in order to achieve a pre-determined end. The basic objective of cost analysis is to achieve efficiency in resource allocation. Comprehensive cost analysis is a multi-tier process for pooling costs into well-defined cost centers, which can in turn be attributed to cost-objectives. Normally, in a traditional system, cost centers are institutes, colleges, facilities and departments. Cost objectives are instruction, research, public service, student service, institutional support, operation and maintenance of facilities, operation of enterprises, etc. The purpose of the cost analysis of various activities and operations is to allocate costs to appropriate cost objectives and their outputs. The study mentions certain principles of cost-analysis for efficiency purposes viz. objectives for incurring costs are to be specifically identified and use consistently. Costs have to be classified into defined categories for consistent use. 'Centers' to which, incurred or to be incurred costs are to be allocated have to be similarly identified and used. All costs then have to be allocated to defined cost centers as well as cost objectives simultaneously and presented in a tabular form; and defined output measures are to be used for calculating unit costs. Costs are classified into various types of budgeting like incremental budgeting, open-ended budgeting, quota budgeting and formula-based
budgeting etc. are mentioned which can be employed for allocation of resources. The study also highlights the basic steps to be taken for achieving a scientific allocation of costs and resources.

There is a need to predict students enrolment and retention patterns as well as retention rates in various departments or divisions along with graduation requirements. As instruction workload creates a demand for resources, various related needs should be planned for, so as to optimize costs of instruction in terms of faculty, cost per course and per student. As administrative support services for instruction are needed for decision-making processes, it has been suggested to apportion administrative cost similarly to the cost centers. Student support services need consideration also. The minimum that should be achieved is to recover operational costs, if for socio political reasons full cost is not recoverable.

Community services and auxiliary enterprises do not qualify for any diversion of resources and may indeed be used for generation of revenue. Such cost exerciser, as the study mentions, will free planners from notions of helplessness in a resource constrained situation and provide understandings of variations in cost per unit instruction, student, research services and the like.

Regarding the cost-efficiency principles to be used it is suggested that (i) as uniform pricing of instructions is not cost-efficient, it is necessary to price 'instruction' differentially according to different courses and levels; ii) as student enrolment and progression have implication for costs instruction needs to be so designed as to attract at least a minimal number of students; iii) faculty-mix and the mix of teaching/non-teaching load are also to be suitably adjusted so that faculty-mix of 'growth' and 'revenue generation' centers help growth of the university/institution while other departments could afford order of faculty-mix; iv) general administration costs need to be routinely checked in terms of load, speed and cost of decisions; v) all services should be costed to recover at least operational costs and vi) policy decisions for subsidization should be taken consciously under defined criteria by the appropriate authority, while making provisions for sources for such subsidy.
Though this study has been made for countries of Asia and Pacific region, yet some of the suggestions made in the study are un-implement able, keeping in view the service orientation approach of some countries like India. The suggestions look too general and specification of prescriptions in relation to particular problems of costs and resource allocation seems to be lacking.

If one tries to synthesize the main themes and discussions carried out in the studies at the international level one would distinctly identify that all these studies have tried to grapple with intricate theoretical issues and problems associated with cost analysis in education. Another commonality found in their respective approaches is that, they have made efforts to bring policy issues to the forefront. It is perhaps one of the advantages of looking at various national educational systems with an international perspective, study their similarities and dissimilarities and then making some broad generalizations and suggestions. However, the matters at the micro level very quite a lot and there arise many problems, which do not have any readymade theoretical solutions. This is one of the chief demerits of such international studies, because they study national systems look into things with a global perspectives and unfortunately these studies can't go beyond that because they do not have any such agenda. The diversities existing within national systems are overlooked in the process. It is therefore, particularly necessary to focus upon empirical studies at the lower levels to bring out the relevance and usefulness of such policy prescriptions and broad theoretical discussions and generalizations and then find out whether modifications are necessary in certain cases to find viable solutions to the problems being faced by higher educational institutions in the present circumstances and also using these results and experiences to safeguard these institutions from facing untold difficulties in the future. However, irrespective of certain demerits of these studies which arise more because of the nature of their mandate than anything else, their contribution in constructing a larger and broad theoretical framework certainly helps building theoretical paradigms at other levels to carry out costing exercises for making decisions in the days to come.
2.3 National Studies on Cost and Academic Performance

Singh (1969) studied the cost and quality relationship of Delhi schools. In this study the criterion of quality of education was the performance of pupils judged by the marks secured in the higher secondary examination.

The costs taken into account separately were (1) Instructional (2) Administrative (3) Auxiliary (4) Co-curricular and (5) Library costs. The multiple regression models with quality as the criterion variable and the above-mentioned categories of cost as predictive variables were applied. No significant relationship was found between costs and quality variables. The author suggested that all intervening variables should be conceptualized, identified, described, measured and controlled to get meaningful relationship of cost and quality of education.

Dutta (1970) undertook a project to study economic of education in West Bengal colleges with special reference to size, techniques and location. In this study, student output was measured in terms of the number of graduates of various qualifications. On the basis of stratified random sampling procedure 22 colleges under Calcutta University were selected for study. The data was collected on the basis of questionnaire and available reports. The numbers of regression equations were fitted to the sample data to discover the extent of correlation between the quality of student on one hand, the quality of student output and the college environment on the other hand.

The study revealed that quality of student input could closely determine the quality of student output. Costs declined with the increase in the size of the college. Students from higher income levels showed remarkably better results than the poorer students.

Sapra (1973) conducted a study to find out the relationship between costs and efficiency of secondary schools. The purpose of this study was to examine the relationship between size, costs and efficiency of the schools. 51 full-fledged schools were drawn for the study on a systematic sampling basis taking every fifth school from the list of Delhi secondary schools. A draft questionnaire was developed and modified on the basis of tryout in two schools. The final version of
questionnaire was mailed to 51 schools out of which 26 schools responded. Data from 5 schools was incomplete so the data from 21 schools was processed for the purpose of analysis.

To obtain a more meaningful and reliable index of efficiency, the educational efficiency was adjusted for each school in relation to six important school factors.

- Average size of the class.
- Status of school building.
- Age of teachers.
- Qualification of teachers.
- Experience of teachers.
- Achievement of pupils.

The results indicated that:

- The costs per pupil decrease with the increase in the enrollment.
- The size was not significantly correlated with the efficiency.
- The relationship between cost and efficiency is not significant.
- Both the above reviewed Indian studies also failed to establish significant relationship between cost and efficiency.

Manvikar (1986) in a critical study of relationship between expenditure patterns and efficiency levels of secondary schools of Bangalore district revealed that Bangalore city and rural secondary schools differed in respect of expenditure pattern and efficiency. City schools spent significantly more than rural and also the city schools were significantly more efficient than rural schools in terms of total efficiency. He also found that total efficiency and total expenditure were not significantly related in cases of city and rural secondary schools. He also concluded that in city schools expenditure on furniture and equipment, contingency and co-curricular activities were associated with total efficiency, whereas in case of rural schools, only contingency expenditure was associated with total efficiency. He also
revealed that none of the school efficiency was found related to expenditure on salary. Finally, he found that in city schools, large schools were more efficient in terms of their total efficiency than smaller ones and in rural schools, large schools had better utilization of resources.

The above study helped the researcher in deciding to use correlations between the items of expenditure and performance as a method of statistical analysis for the present investigation. Rest of the studies does not reflect the aspect of performance or efficiency of the institute but are merely based on cost aspects, those are even important to review here to get an idea about the survey and their findings.

Panchamukhi (1977) has raised certain questions in the background of the financial crises in education like i) whether individual institutions are making efforts to mobilize their own resources ii) if they are spending funds efficiently and economically, and iii) whether it is possible to introduce reforms in education which may require less finances as compared to present system of educational finance etc. The study presents an examination of some of these questions in the context of university education in India. The study has made some sincere attempts to develop some theoretical insights into the working of the finances of universities as non-profit institutions. His method of analysis of the finances of one of such non-profit institutions, viz. Bombay University is useful and incisive. He has dealt with the basic issues of raising resources like private endowments, student fees, grants-in-aid and miscellaneous receipts, which meet different kinds of an university’s expenditures. But the study has not looked into educational costs, which has important implications on educational finances.

Tilak (1979) says that studies on unit costs are of particular significance. They help us in optimal allocation of resources and efficient costing of educational plans. Costs of education consist of two major components: private and public costs. Due to non-availability of reliable data on private cost of education the author restricts the study only to analyse the public costs of education, which also includes fees paid by the students. Official data on expenditure on education in India consists of two parts (i) direct and (ii) indirect, which are again subdivided into various other
components. The study covers all the states and union territories of India as given in the Education in India 1975-76 and is confined to higher education only.

A student on rolls is taken as the ‘unit’ in his analysis though it is sometimes said that only students who successfully complete the courses should be taken as the basis. Aggregate unit costs are worked out by three different components i.e. teacher cost per unit, non-teaching staff cost per unit and other cost per unit for general, professional and other education. An attempt is also made to examine the relationship between unit cost and different variables in higher education. Several alternative functional forms are tried in estimating the cost functions. The important findings of this study are: (i) there are wide disparities in the unit costs of different types of education and between different states/union territories (ii) similar disparities are also found in the component wise unit costs around different states/union territories and as well as between different types of education (iii) size of institutions which is generally regarded as a dominant variable in explaining differences in unit costs, is not found to be that important; (iv) of all the variables student-teacher ratio and average salary of the teacher are dominant; (v) higher student-teacher ratios reduce unit costs and increase in average salary of the teachers results in increase of unit costs.

The study suggests that unit costs may be reduced by controlling salary of teachers and student-teacher ratio. But, given the practical limitations in reducing the salary of teachers, the policy makers can only control the other variable. The study points out, while the differences in unit costs between different types of education can easily be understood and need no efforts to be minimized, as they are not undesirable, differences in unit costs of a given type of education between different states/union territories should be eliminated, as this creates inequality in the quality of education as the different component of costs reflect the qualitative aspects of education. Though the study is instructive, it does not say exactly how optimal allocation of resources can be made using the unit costs. It does not also say whether unit costs could be used as a means of determining the grants given to various institutions of school education in general and higher education in particular.
Chalam (1986) attempts to evaluate the finances and productivity of school and higher education in Andhra Pradesh with the help of macro and micro data of the existing system in the state. He begins with a description of the state of school education in the province with a historical background, information regarding enrolment in various schools, courses and data of teaching staff and of educational innovations, which have taken place in the state. The pattern of finances in higher education of the state has also been discussed with support of data regarding expenditure on general, professional and technical education, expenditure on various direct items like salaries of teachers and non-teaching staff, equipment and appliances, etc. in all branches or education. All the recurring expenses are grouped under direct expenditure and expenses on buildings, hostel, equipment, scholarships etc., which are relatively non-recurring in nature, are included in indirect expenditure. Data relating expenditure by different levels, expenditure per student and the proportion of the state’s domestic product spent on education are also presented. The sources of financial assistance given to the institutions have also been identified along with a discussion on the grants-in-aid system operating in the state, the role of the University Grants Commission (UGC) in financing higher education and the revenue raised by the educational institutions from various sources other than governmental assistance.

Institutional and governmental costs have also been calculated on the basis of data available from various sources of the state government, central government, and the UGC. Both types of costs have been shown with respect to Degree Colleges, university colleges and other professional courses. The theory and methods in estimating unit cost of education have also been discussed on the basis of studies done by other scholars. The private cost of higher education in Andhra Pradesh along with its socio-economic analyses has been presented with regard to private cost per student and private unit cost in different courses by item of expenditure. Variables like income, occupation and caste background, which influence private costs, have been discussed. Net personal-cost of scholarships holders has also been calculated.
Total resource-costs of education and projected expenditure on higher education in the state are analysed with the help of different concepts developed by well known scholars in the field. Productivity and efficiency, both internal and external of higher education in the state have been estimated with the help of input and output measurements. External productivity has been compared with internal productivity from available data and the causes of a declining trend in internal productivity have been ascertained. The author has concluded with making various policy recommendations regarding higher and school education in Andhra Pradesh.

Nanjundappa (1987) examines the structure of university finances in relation to cost and performance. He has also analyzed the financial relations between the universities and the UGC and between the government and universities. The author argues that there is a growing gap between the costs of higher education and the fees charged despite the severe maladjustment between the output of the university and the needs of the economy. He examines the possibility of removing this maladjustment by bringing about a closer alignment between courses and fees. The author questions the appropriateness of the direct method of financing university education by means of grants, and advocates an indirect system whereby a proportion of public funds is transferred to the students as loans to cover the full cost of education subject to a contract to repay the loan out of their future earnings. Such a system preserves the autonomy of the university better and also serves the major plan objective of bringing about better income distribution.

Azad (1988) investigates the financial problems of higher education in the four states of Haryana, Gujarat, Andhra Pradesh and Orissa, each representing a region. His study pertained to certain problems such as the broad policy framework of financial assistance, dimensions of the central and state assistance for university institutions, linkages of state assistance with other central bodies, and the mechanism of financial management of higher education. The author makes a comparison between the central grants given to the states and the grants which are available from the state exchequer for their own plan provisions, to high light the inconsistencies and incongruities of the present system with special reference to the
financial inadequacies. However, the study is not exhaustive, as it concentrates only in four states and overlooks the cost aspect of higher education in those states.

Khadria (1989) examines the issue of public subsidies to higher education by looking into the economic rationale behind state financing of higher education and then putting these rationale to various tests. He points out that unquestioned subsidization of higher education in developing countries would be a difficult proposition in the days to come although total withdrawal of such subsidies may be out-of question at least in near future. He mentions the Strong Privatization Argument (SPA) which argues for full cost recovery of higher education from its users. This argument is tested thoroughly by looking in to various aspects of such a proposal and its operational feasibility. The cases of educational loans, discriminatory pricing, internal linkages of education and human capital formation, sequential and circular interdependencies of various levels of education, vocational education and brain-drain are also discussed vis-à-vis public subsidies. The subsidy-taxation proposal in terms of a Weak Privatization Argument (WPA), suggesting the recovery of subsidies provided during one’s education when one starts earning has also been discussed along with other related arguments like choices-distortion effect of public subsidies amongst lower income groups during the education process, reduction of relative income differentials because of such subsidies, shifting of burden from indirect to direct taxes, the opportunity to repay with less difficulty, the operational and political feasibility subsidy-taxation proposal. In order to develop an effective financing policy, the need of cost-analysis in education and developing appropriate cost-data has been highlighted. Finally, the author concludes with the suggestion of social ranking of educational objectives because, the choice of public policy instruments for educational finance would eventually depend upon such ranking.

Nair (1990) has made an attempt at estimating costs and benefits of higher education. He has briefly discussed the growth of enrolment, colleges and universities along with growth in public expenditure for higher education in India. He identifies the problem facing higher education under the following three categories.
1. Problem of unplanned and rapid growth.

2. Problems related to financing of higher education.

3. Problems connected with costs and return of higher education.

The author chooses the third category as his area of research and identifies four broad types of costs. (i) Private costs (ii) public costs (iii) opportunity costs and (iv) social costs. He has categorized benefits of education as direct and indirect. Direct benefits are those that accrue to the students themselves in the present as well as in future and indirect benefits being external to the students accrue to others. As per the private cost of education the relevant information was collected directly from the students who completed various courses like M.A., M.Sc., and Ph.D. from Calicut University. As per public costs, the information was gathered in the form of annual reports, annual accounts, financial estimates and other published and unpublished records of the university. The costs of students studying indifferent years of their respective programmes have been estimated with further categorization of various types of students receiving fellowships and those getting no financial support from the government. The main findings of this work are:

1. For all categories of study programmes boarding and lodging constitute the highest item of expenditure.

2. The average private costs for those enjoying fellowships are less than the rest.

3. The average public cost and average social cost in case of sciences are higher than that of Arts and Humanities.

4. The overall average total private cost per student in the two streams is more or less the same.

However, the study does not include the financial implications of these cost variations, effect of cost analysis on efficiency of the school financial matters and using institutional costs as a determinant of financing various courses.

Sulochana (1991) examined the financial problems of school education in Andhra Pradesh. The patterns of income and expenditure of the education system are
discussed in historical perspective and the impact of various changes in the constitution are also examined. The study stressed the need to augment revenues from internal sources like fees and other user's charges as well as to rationalize the system of budgeting so that a close correspondence between the available resources and effective utilization is established. Finally, audit control in the education system should be made effective, the study suggested.

Tilak (1993) describes financing of education system in India as a complicated problem due to theoretical and practical problems. Theoretically, education being a 'quasi-public good' has been largely a state funded activity with about three-quarters of the total expenditure being borne by the government. This excessive public subsidization has given rise to inefficient use of public resources to a considerable extent. As the public budgets for education system can't expand rapidly, it has necessitated a search for alternative sources for mobilization of educational resources, which is being termed as 'privatization'. Tilak distinguishes between various forms of 'privatization', which has been categorized as four types, viz. extreme, strong, weak and pseudo forms of privatization. An extreme version of privatization implies total privatization of higher education while a strong one means full cost recovery in education. A weak version of privatization implies public provision in education mixed with a reasonable level of finances raised from non-governmental sources and pseudo-privatization implying private provision of education with public finances. Of these four, on principles of sound welfare and economic standards, Tilak recommends the third one as the best, i.e. a mix of government and non-governmental financing. He describes a discriminatory fee structure as it provides additional resources and equitable as well. This fee structure as he recommends can be based on (a) the cost fee disparity, (b) the share of fee to the expenditure per student across disciplines and levels (c) the family income of students and (d) the likely benefits for a given kind of education. He refuses the idea of floating student loan facilities due to their possible adverse effects on poor students since education does not guarantee employment; the idea of loans in general are not welcome in Indian society; and the bad experience relating to
recovery of loans. More over, if loans are introduced with out rationalizing the fee structure, the rich may get benefits out of it.

He favours voluntary contributions, if these are free from the strings of affecting the autonomy of the institutions concerned. Higher education characterized by mixed financing is found to generate more support from the community, than full private or full-public financing, he says. Last but not the least, he emphasizes an effective utilization of resources as a sizeable proportion of education budgets in India are "wasted". As a disproportionately large proportion of expenditure is spent on teacher’s salaries and other commercial items, he feels that the scarce resources can be better utilized. Tilak’s paper deals almost every expect of the recent trends and policies of Indian education system except the fact that it does not touch upon the subject of per-student cost analysis which is very important to devise a rational fee structure.

The report of Punnayya Committee (1993), which was constituted to examine the financial state of institutions of higher education, describes the role of government in financing higher education and the present pattern of funding of various universities. The report made some proposals for funding central university in future by establishing some norms and efficiency standards. It also looked into the various sources through which university can generate income and utilize such income properly. It also reviewed the existing schemes of financial assistance for needing students’ free-ships and scholarships.

Regarding state funding of higher education the committee pointed out, "The committee unequivocally reiterates that the state funding must continue to be an essential and mandatory requirement, to support higher education. It is the perception of the committee that state must continue to accept the major responsibility for funding the essential maintenance and development requirements of the universities".

Regarding tuition fees the committee observed that, "tuition fee have not been revised for a very long time in-spite of the costs of all services going up."
Tuition fees may be revised up words with immediate effect and may be periodically adjusted, keeping in view the rate of inflation.

The committee also recommended "the unit cost system of calculation of eligibility of grants should replace the existing incremental system which may be retained till the end of the current five year plan period. Mean while the universities may be asked to develop unit-cost system and try to bring costs to uniform patterns of similar activities with in the universities."

In the Report of Rajaraman (1994), which was constituted by the Jawaharlal Nehru University (JNU), to examine the Punnayya committee recommendations, it is said that, "which government must continue to play a major role in the funding of universities, the latter in turn must prepare themselves to live with a proportionately smaller fraction of state funds than in the past. This, they are urged to do partly by generating other sources of funds through a mixture of donations, endowments, projects and judicious increase in fees etc., and partly through a more efficient utilization of resources and a redistribution of expenditures under different categories." JNU response to the Punnayya Committee report was in broad agreement with various recommendations of the latter, i.e. regarding opening of a planning, monitoring and information cell, unit cost norms for maintenance grants, subject wise variations of unit costs, classification of expenditure items, teacher/non-teacher ratio, teacher/student ratio, etc. In some cases, however, the Rajaraman Committee expressed its reservations and concerns where it felt that the recommendations are either not feasible or not desirable given the academic goals, autonomy and pursuit of excellence at JNU, viz., with regard to work load of teachers, renting out of auditoria and play grounds, endowments and consultancy, shifting the basis of UGC funding to University for funding the students etc.

Salim (1994) has made a study on unit-cost of higher education on the basis of a limited case study of a few colleges and their students under the university of Kerala. He proceeds with defining the concept cost, which has been used in the study while explaining recurring costs, capital costs and private costs. The author says that the expenditure incurred by the parents and the public/government
constitute cost of education. He uses secondary sources for collection of data and has undertaken a field survey of two Engineering colleges and two Arts and Science colleges along with their students under the University of Kerala. He analyses the cost per student by taking the number of students on rolls for the academic year 1989-90. The researcher has used statistical techniques for analyzing various types of costs such as, annual unit recurring cost of education, annual recurring cost by levels of education, annual costs and net institutional cost per student, average private academic cost by components etc. To conclude the author says that the society spends two times higher an amount to educate a student of engineering than his counterpart in general education. The author suggests that the government should take steps to bring down the wide gap existing between the expenditure incurred on technical and general education.

Sadha and Muzammil (1994) say that prior to the era of reforms, ‘more’ was said to be better and now ‘less’ is considered better in the government sector. Therefore, the government is considering to financing higher education institution less and less, which may endanger the autonomy of such institutions. They mention three reasons for a basic change in the direction of financing of higher education as given below:

1. State planned and centralized decision making processes are becoming gradually impossible owing to international integration of economies.

2. Poor performance of public sector.

3. Excessive politicization and wasteful practices in ever-expanding process of government financing.

With dwindling sources of finance, reliance on government grants has gone up. With increasing deficit budget of the government itself, the financial crunch in education sector is about to become much more severe in future. They raise three questions regarding this:
a) What are the reasons for which such a situation arises?

b) How are other countries facing such situation to make their education system self-sustainable?

c) What should be the course of reform to tackle this?

In relation to the first question they say: Lack of internal fund raising sources and the unwillingness of the government to finance education system except to the basic education in an ever increasing manner, applying market theory to education which considers education as an economic good having a cost and a price for it, call for ending state monopoly in education and emergence of a need for rationing and discriminations, are some of the factors responsible for the situation which has emerged now.

Regarding the second question they mention: the education system, especially the high schooling and higher education of the countries like England and China are gradually depending less and less on the government to finance their requirements. They charge student’s fees, which are more or less equal to the actual per pupil cost of providing various courses.

Regarding the third question they suggest the following measures:

1. Applying the theory of Market in higher and technical education, with the limitation that some seats in the institutions should be provided to meritorious and the poor, keeping in line with the Supreme Court Judgment.

2. Introduction of the self-financed academic programmes, which should be preceded by a well-planned publicity campaign to avert misunderstanding.

3. Generating grants for education by exporting education and mobilizing additional funds through sponsored research and consultancy.

4. Publishing in house journals and setting up university publishing houses.
Tilak (1995) highlights the importance of analysis of costs of education in educational planning and describes the taxonomy of costs of education. Various concepts of 'unit-costs' are discussed along with the concepts of fixed costs, variable costs, average costs, marginal costs, etc. He distinguishes between 'expenditure' and 'cost', which are often synonymously used. Estimates of costs, the author says, are essential for estimating the resources required for the educational sector and also for various sub-sectors of education. They also help planners to find out whether the resources allocated to education reflect the optimal level or not, and within education, whether resources are optimally allocated among different layers of education.

Tilak refers to different types of costs such as, institutional costs, private costs, average costs, marginal costs, recurring and non-recurring costs, opportunity costs and social costs etc., of education. Units cost has been described in a variety of ways viz. cost per pupil enrolled, cost per successful student, cost per pupil actually attending the institution, etc. It is cost of an educational unit, no matter in whatever way an unit is fixed. It is also said as nothing but average cost of education. The study emphasizes that statistics on costs of education should refer to a time period.

Though, costs are generally calculated per year, it is not unreasonable to calculate the costs over a short period or by the duration of a given level/type of education. It is also useful to find out various determinants of unit costs. The study concludes by saying that in the current economic climate of scarce resources cost analysis is necessary for cost reduction, increased efficiency and for a host of other purposes which have an important bearing on the educational planning process. However, the study is limited and un-wholesome the sense that it fails to study cost effectiveness which is an important part of any educational planning.

Panchamukhi (1996) again highlights issues relating to financing of education system, especially the higher education with a focus on university education in particular besides examining the role of the state in the general context of financing education. He says, that with the growth in the number of educational institutions in the country, the financial difficulties of these higher educational institutions also kept on rising.
The lack of the basic principles of financial soundness bears testimony to this fact. Such principles are:

1. **Principles of adequacy of resources.**
2. **Principles of built-in flexibility of the resources.**
3. **The principles of autonomy in respect of resource mobilization and resource use.** The financial troubles of education system are further manifested through budgetary deficits, inelasticity of incomes from own sources, excessive dependence on the government grants, etc.

Among causes responsible for financial crisis in higher education system he finds:

1. **Unit cost of higher education is very high but per unit resource mobilization is relatively low and former rises faster than the latter.**
2. The schools and university own fund raising sources are sticky upwards.
3. **Government assistance, which is considered, inevitable for running the educational institutes has, more or less, remained niggardly and uncertain.**

Regarding the suggestion put forward by some that funds be diverted from higher education sector to elementary education, the authors finds it unwise to do so because we will lose vital inputs of human capital which are urgently required for the development of the nation. His suggestions for overcoming the current state of financial crisis include:

1. **Education institutions should have a high degree of freedom to mobilize their own funds in such a way that their dependence on the government is increasingly reduced;**
2. **Establishing a linkage between the institutions of higher education and the beneficiary sectors of the economy;**
3. **Earmarking needed percentage of education sector's outlay for various level of education;**
4. Efficient use of existing resources at institutes' disposal;
5. Introducing a simple mechanism to integrate planning of finances of the educational institutions with monitoring and implementation;
6. Restricting enrolments in order to restrict flow of funds to education institutes.

Though some of these suggestions are worth-implementing, others are quite impractical considering the socio-political milieu of the county and therefore, look far-fetched. The paper says nothing about fixing a definite pattern for financing the schools and does not prescribe a limit on the extent of states role in financing education system in general or particular.

Prakash (1997) makes a description of various economic function of education. He enlists different functions of education like, an agent of growth, knowledge and innovation, equalizer of opportunities, the basis of human capital formation etc. Then he gives the idea or different types of costs as has been used by different economic theoreticians, including that of unit cost, institutional costs and its analytical uses in this area. The author discusses the ideas of physiocrats, classical and modern economists regarding human capital and various theoretical implications of such ideas. Prakash highlights the economic concepts of production function, factor inputs, factor proportions, factor productivities and cost, firms optimizing behaviour and equilibrium, cost minimization, cost functions, economies of scale and the application of all these concepts in calculating cost of education in various circumstances. Mathematical functions have been used by the author for estimating educational cost. Various distinguishing features of education are mentioned along with the multiple products and by-products of education. He discusses the educational production system, complexity of educational technology and items of educational costs. The author also calculated the unit cost of college education in Punjab by using various information regarding enrolment size and unit cost by type of college, interrelation between cost and size, unit cost variability, optimum institutional size and unit cost etc. Pattern and structure of educational costs also find elaborate mention in the work. Recurring and non-recurring costs,
recurring unit costs and size and their interrelationship, item-wise recurring cost functions, item-wise recurring unit costs, pattern of costs have also been analyzed. Cost of elementary education has been discussed besides data on the share of educational expenditure in the public budgets of various regions/group of countries. Empirical experiments with U-shaped unit cost curves have also been done with mathematical formulae and graphs. The author also highlights relationships between unit costs and teacher inputs, quality of education and costs.

In general, while all these studies differ in their basic objectives, scope, coverage and time frame, they have attempted to examine the aspects of the growth of educational expenditure with performance of students in relation to the increase in aggregate national income and expenditure, the sources and methods of resources allocation, the assessment of the adequacy or otherwise of the machinery of financial management in different institutions and analysis of educational costs and expenditure.

A general consensus, which has emerged from the above studies relating to India, is that the system of financing education in our country is iniquitous, inefficient and the provisions for funds and facilities are not based on requirements of educational institutions (EIs). As educational institutions differ a great deal in respect of administrative, financial and academic structure, the generalization of conclusions derived from these studies and for purposes of appropriate policy interventions, has always been somewhat less acceptable for want of rigorous and comprehensive analyses of financial data. Without an extensive and intensive retrospection of the policy of pricing of education, particularly against the back drop of prevailing social-economic milieu and recent political considerations, it is not possible to suggest prescriptive measures for reforms to system of education, which fall under the purview of the center and the state governments ruled by different shades of political parties. More importantly, most studies have however not been able to quantify the nature and extent of deficiency in funding of education system in general and school education in particular and the actual costs involved in it with students achievements.
The present study is an attempt towards addressing the relevant issues that have been identified in the existing literature on the subject, apart from covering some new grounds. By employing an empirical approach of analyzing data relating to the two blocks of Gurgaon district of Haryana in question and formulating an institution cost approach with students' performances, the study hopes to be another step forward towards examining the problem of restructuring the funding pattern of these institutions and drawing policy lessons for other educational institutions of other blocks and districts of schooling in India.

2.3.1 Economics of elementary education

Gounden (1965) in the study entitled education and economic development revealed that cost of primary education was financed more by the public than by the students. The growth of human capital over the period from 1950-1960 amounted to Rs.1355 crores. The rate of return to education was 15.9 percent for literature, 15.3 percent for primary and middle, 12.1 percent for matric, 8.9 percent for professional degrees.

Dutta (1971) studied the unit cost at primary education in Haryana. For the sample, three schools one good, one average and one poor were selected, data were obtained for five years from 1965 to 1969 pertaining to capital, equipment, opportunity and recurring cost. He found that the capital cost came to Rs.365 per school per year or Rs.2 per student per year. The equipment cost came to Rs.0.60 per student, recurring cost Rs.84 per student. The total visible expenditure per student per year was Rs.255 and invisible was Rs.21 per year per student.

Bose (1976) conducted a survey in 1588 schools of West Bengal to determine unit cost of elementary education. He concluded that the average recurring cost per student on non-teacher items is not much and has not shown any remarkable increase over the years. The recurring expenditure per student in an elementary school in West Bengal was Rs.57 and Rs.51 among schools in Calcutta and in the remaining schools during 1969-1970 respectively.

Subramaniam (1977) in the study of economic aspects of growth of primary education in Tamil Nadu tried to compute the unit cost in primary education and
studied other economic aspects of growth. He suggested that the variations in enrollment were influenced by the school facilities. The comparison at all India level growth trends showed that the progress in Tamil Nadu was more impressive. The unit cost was Rs.30 at lower primary and Rs.10 at primary. The coefficient of efficiency was found to be 0.55. The cost of wastage was Rs.211 lacks.

Somiah (1980) attempted to calculate and compare the effective costs incurred at elementary stage from 1974-79 in Karnataka. Data were obtained from statistical department. He concluded that there was a tremendous decrease in the effective cost within the period under study, which could be attributed to the various incentive programs of the state. The effective costs of girls education was higher than that of boys, which could be remedied by increasing incentives to encourage girls to remain in schools. The higher percentage of wastage between classes V and VII indicated that the curriculum should include work experiment and SUPW.

Gupta (1982) in private cost of schooling girls at the elementary stage found that the girls under different management schools were required to pay different fees ranging from Rs.19 and Rs.32. Total costs on books and related materials also differ in different management schools ranging from Rs.18 and Rs.27. Over all private costs of schooling a girl in all the standard in different management schools located at different areas differ significantly like that in standard I to VIII it ranged between Rs.151 and Rs. 353.

Mishra (1984) in the study entitled, Education Finance for primary education in India after independence tried to calculate per student cost and compare it with different states. The findings were that the main source of finance was grants from the state, local bodies etc. About 93 to 97 percent of the total expenditure was spent on salary of the teacher. Per student cost on primary education in 1975 was twice the expenditure in 1965. Progress of education in Kerala, Tamil Nadu, U.P. and Maharashtra was the best and lowest in J & K, Bihar and Orissa.

Dandvate (1986) in the study cost of Primary Education in Greater Bombay 1960-1980 tried to observe the cost of primary education in 1960 –80 and study the trend of total expenditure. In the sample of 200 schools he found that cost of
education in private schools was higher than that of municipal schools. The size of schools, teacher salaries and maintenance expenditure acted as major determinants of primary cost. In the period 1960-80, the costs of education were continuously increasing.

Rajaiah (1987) conducted a research for the purpose of studying the progress of primary education in Andhra Pradesh from 1956 to 1979 and the investment and wastage in primary education. He found that the enrollment rises from 724 in 1963 to 933 in 1976 out of index of 10,000. The public expenditure on education rose by 678 percent while unit cost increased by 228 percent. The average annual per pupil total public support increased from Rs.28 in 1956 to 108 in 1979. The wastage rate in respect of girls were found to be higher than that of boys. The stock of human capital was increased from 41 lakhs to 160 lakhs in this period. The total costs of teachers in 1979 was estimated at Rs.132 crores.

2.3.2 Economics of secondary and higher secondary education

Kumar (1968) studied the cost of secondary education in Rajasthan. The sample was taken from 101 schools of the state. He found that there were five classes from VI to X with 35 students in each. The teacher pupil ratio was 1:20. Most of the uneconomic schools were situated in habitations having a population of less than 5000 persons. The cost of per student was Rs.470 a year.

Malaiya (1977) conducted a research for the purpose of studying the finance in secondary schools. He found that the socio-economic and geographical conditions demanded more financial inputs in the school education. The trends in financing secondary education shifting local burden towards state. Cost in private school is less in comparison to government schools, fees form the main source of income. The increase of total expenditure was 49.8 percent during five years for all types of schools.

Thatte (1977) examined the cost of secondary education in Maharashtra. Main sources of data were the records in the office in the Directorate of education. He concluded that the per pupil total expenditure in classes I to V in greater Bombay was Rs.238, in Vidarba Rs.120 and in Marathwada Rs.195.
Kumar (1983) conducted a study of economic aspects of higher secondary education in Delhi, to find out school inputs and school output, relationship between input and output, classification of school expenditure and also the economies of scale. The effectiveness of the school was examined by school effectiveness model. He found that the socio-economic status and per capita income had a significant effect on achievement; laboratory of teacher and experienced teachers contributed more towards the student's achievements. Efficiency of education was found directly related to costs. Schools were running below their optimum size. The optimum size of school was 1624.

2.3.3 Economics of college education

Gogate (1979) in the study unit cost of higher education for arts, science and Commerce College in Maharashtra found the cost per student and studied the sources of grants. He concluded that the colleges generally received funds by means of fees, grants and donations. The sources of grants were the state and UGC. By and large, colleges 75 percent expenditure was in the form of teacher's salaries and rest on miscellaneous items. Average per student cost in a college with a strength of less than 2000 was Rs.1009 in 1973 and Rs.2170 in 1977 and for a college with students strength more than 2000, it was Rs.458 in 1973 and Rs.792 in 1977. During 1973, the per student expenditure in a college with arts, science and commerce was Rs.486 and in 1977 Rs.1453, corresponding figures for a science college, was Rs.1017 in 1973 and Rs.1539 in 1977. For a commerce college it was Rs.373 in 1973 and in 1977 Rs.481.

Sharma and Mridula (1982) conducted a research of Hindu college, Delhi on its economic aspects like students and teachers in put, effectiveness of the institutions and unit cost of education for the period 1973-76. She examined that the college admitted a fairly large number of students who had done well at their higher secondary level. The student teacher ratio was 30:1. The main components of costs were salaries of teaching and non-teaching staff, cost of library and maintenance. The per student cost on teachers salaries was Rs.1095 to Rs.1514. The per student institutional cost varied from Rs.1617 to Rs.2258. The average per unit cost for graduating a student was around Rs.5145. The rate of wastage among the students was more than 50 percent.
2.3.4 Economics of higher education

Rizvi (1960) studied the finance of higher education in less-developed countries. The purpose of the study was to investigate the question of financing educational facilities of higher education. The findings were that the problems of resources allocation were real. There was disagreement as to whom or which institutions should perform the process of valuation. In view of the economic development the university or the state should invest more in scientific and technical education. Creation of new universities, expansion of courses and enrollment were the highlights of the post independence era. There had been a continuous rise in educational expenditure. The expenditure on higher education and its distribution between the different types of education was of a size and character that was well below the optimum level of investment.

Panchamukhi (1965) in the study entitled operating cost of higher education in the Bombay University examined the unit cost of higher education. He concluded that the expenditure per student on academic administration was Rs.17 (1963) and Rs.18 (1964) and in physical culture was Rs.2.61 (1963) and Rs.2.77 in (1964). The recurring expenditure in science and technical education was higher than in arts and commerce. The costs grow two to three times more in case of medical education. The per student expenditure was found to vary inversely with the institutional size namely the number of students.

Singh (1973) studied the unit cost of higher education in university for science and non-science students of the years 1969 to 1971. He found that total current costs per science students were Rs.3163, Rs.3330 and Rs.4145 for three year respectively. Capital costs per science student came to Rs.1138, Rs.1124 and Rs.1206 in the three years respectively. The current costs per non-science students were Rs.1166, Rs.1357 and Rs.1746 in three years respectively. The capital costs per non-science students were Rs.188, Rs.204 and Rs.225 in three years respectively. Unit cost per science student were worked out to be Rs.3979, Rs.4455 and Rs.5346 in three years respectively. Unit cost per non-science students came to Rs.1354, Rs.1561 and Rs.1970 in three years respectively.
Jha (1974) studied the finances of Patna University for the period 1953 to 1973. The study revealed that the major sources of the University finances were grants from the state and the UGC. The grant from state increased from 6 percent in 1948 to 53 percent in 1953. From 1965, university was running with increasing deficit budgets. During 1953 to 1973, due to large increase in enrollment at undergraduate and post graduate levels, the universities remained under constant pressure of increasing seats in all classes. The finance committee due to absence of rules, shortage of funds failed to function properly.

Mathew (1974) conducted a study of Kerala University finances for the period 1948 to 1971. The study revealed that revenues were derived from state government, UGC, government of India. There had been a rapid expansion of expenditure due to pay revision and expansion of courses. The overall expenditure increased by 17 percent per year. In terms of finances, university was entering a period of stringency.

Mukherjee (1974) conducted a study of Calcutta University finances. The study revealed that the examination fees, grants from the state form the largest part of finance. Teacher salaries increased by 19 percent and other expenditure remain stable. The University did not have any formal legal support from the government in respect of financial liabilities. The trusts and endowments funds went a long way in the past to sustain the finances.

Nigam (1975) conducted a study of the finances of the university of Rajasthan for the period 1961 to 1971. The study revealed that source were fees, grants from state and UGC. The prevailing conditions curtailed the university to reallocate the funds for their optimum use.

Nanjundappa (1976) conducted a study of university finance for the purpose to study the working of the university finances, pattern of allocating funds, relation of university with UGC. His findings were that the revenues increased from Rs.1.45 lakhs (1949 –50) to Rs.178 lakhs (1972-73) showing an annual growth of 42 percent. The economic – cum functional classification showed that there was a non-optimal allocation of funds among the different items of expenditure. The
establishment of UGC and its introduction of four tier pattern of grants was a boon and a life saver in approved schemes helped the university to reduce reliance on the state government.

Trivedi (1977) conducted an enquiry into the motivation for and cost of postgraduate education at Saurashtra University. 1277 students formed the sample of the year 1972. A questionnaire and data schedule was designed for collecting data. Trivedi found that the intrinsic motivations were operative through an interest for advanced study. The extrinsic motivations were to enhance employability. In costs, faculties ranked in order as medicine, science, education, arts and commerce. Institutional costs per annum showed a gradual rise.

Shah (1980) examined the unit cost of post-graduate education in the university of Poona. He concluded that the income and expenditure had steadily gone up and the university had a deficit budget. The per student expenditure had gone up by 50 percent from Rs.2369 in 1974 to Rs.3462 in 1978. The cost per student in science was the highest and lowest in humanities. The cost of education of one MA/M.Sc./LLM/Ph.D., student was Rs.6033 per year in 1974 and Rs.11056 in 1978.

Garge (1981) conducted a study of Cost Analysis of the University of Punjab on 382 students sample. The major findings were that the expenditure showed an upward trend. The expenditure was mainly effected by inflation, displacement and development. The dynamics of internal organization in relation to enrollment, number of teachers and variations in unit cost showed that it was relatively consistent in the department of Botany, Chemistry, Zoology, Engineering, Law and English where as in Anthropology, Biochemistry, Education, History, Political Science and Sanskrit were relatively in consistent, demand for higher education was more from the people belonging to administrative and professional services.

George (1982) conducted a study of economies of higher education in Tamil Nadu. The sample constituted 17 colleges. The period for the research was from 1961 to 1976. He found that there was no correlation between cost per student and the enrollment; there had been an increase in government share of total expenditure.
SC and ST, females were still lagging behind at every stage of education. The private expenditure by day-scholars and boarders increased by 71 percent and 49 percent respectively in this period. The urban-based families benefited most from Higher education.

Kumaran (1982) examined the cost of education in Annamalai University during post-independent era during period 1948 to 1979. He found that the revenues increased from Rs.13 lakhs in 1948 to Rs.115 lakhs in 1979. Per student revenues was Rs.1040 in 1948 and Rs.486 in 1979. Fees 51.9 percent and income from other sources were 36.6 percent, which form the major sources of revenues. The administrative cost had fallen and academic cost and had increased during the period. The salaries of teaching and non-teaching staff formed 59.89 percent of the total expenditure. The per student cost was high for agriculture faculty i.e. Rs.2005 and low Rs.764 for education faculty.

Jena (1983) studied the finances of the Maharaja Sayajirao University of Baroda and found that the average share of state grants, students fees, and receipts from university activities form around 58.32 and 10 percent respectively. The grant in aid systems parameters was not adequate, efficient and specific. The share of different heads of expenditure was, faculties' 71 percent students welfare 10 percent and examination 3 percent. The expenditure on library did not receive any priority though the expenditure in university overall was increased. The university needed to explore the areas of raising funds.

Ram (1984) conducted a research entitled “An evaluation of correspondence education in terms of cost and academic performance differed from university to university. In Meerut university, per unit cost of correspondence course was less than the regular courses and more than the private course, institutional cost, student cost and non-teacher cost of correspondence course were less than that the regular course. The male students have a favorable attitude towards correspondence education than female students. Employed students had a favorable attitude and unemployed unfavorable towards correspondence education.
NIEPA (1986) conducted an enquiry for educational financing and equity of Haryana and Kerala. The conclusions drawn were that both the states presented a picture of growth. The share of expenditure on hostels and scholarships declined. Non-teaching expenditure was very low. Private initiative in education was declining. Share of elementary education expenditure increased in Haryana. A more substantial policy of compensatory finance was necessary for a break through in equity and attention to equality was equally necessary.

NIEPA (1987) conducted a survey for financing of education and equality of opportunity with reference to Uttar Pradesh and Kerala. It was concluded that there were inequalities of many kinds more in Uttar Pradesh and less in Kerala. In Kerala there was a greater tendency of equality at all levels due to free primary education, spread of literacy, supply of free meals etc. In 1984, Kerala had the highest non-plan revenue expenditure of 35.1 percent and highest per capita expenditure of Rs.110 while Uttar Pradesh had 25.7 percent or Rs.46.72 as per capita expenditure. The conclusion was that in Uttar Pradesh there was a need of regionalization of financial policies in the matter of releasing grants and funds and an appropriate planning was needed always.

2.3.5 Economics of professional courses

Chandrakant (1975) studied the pattern of expenditure and per student cost in the Indian Institute of Technology. He found that institutional expenditure accounted for about 80 percent of the total expenditure, municipal expenditure accounted for about 16 percent and rest on university functions, about 51 percent of the expenditure was accounted for by the training component. The institutes were all in the increasing returns to scale.

Ramanujan, et.al. (1978) attempted a comparative study of degree and diploma courses in engineering and technology for studying the pattern of expenditure and per student cost. He concluded that quality differentials were found to be hanging widely among engineering colleges. Per student expenditure was observed to be varying widely among all colleges. A relatively more stable pattern of expenditure was observed in government polytechnics than in non-government ones. The expenditure on training was more on engineering colleges than
polytechnics. The cost for all the polytechnics indicated that almost all the polytechnics operated in the increasing returns to scale phase.

2.4 Cost- Benefit Analysis

Pandey (1976) studied the cost benefit analysis of education in Nepal. The finding of his study were that the cost-of higher education Nepal was subsidized in comparison to India due to inadequate arrangements for higher education many students had to go abroad. High educated earnings was more which was estimated to be 23.58 percent for undergraduates, 38.53 percent for graduates and 82.11 percent for post graduates.

Madis (1982) studied the efficiency of public expenditure on social service in Karnataka. Where he found that for determining the returns (earning) the age, family income number of years of schooling appeared to be the least important variable. The investment in general in undergraduate courses was most profitable. Higher education was confined to better class peoples. On the benefit side, large variations were found in the earnings pattern of educated peoples.

Sailabala (1983) undertook a study of cost benefit analysis of higher education in Orissa and found that cost of higher education in Orissa was relatively low as compared to other states. The effect of education on earnings was 23.25 percent for general undergraduates, 30.43 percent for graduates and 35.69 percent for post-graduates. The private rate of return was always higher than the social rates of return. Investments in different levels and types of education were not socially profitable.

2.5 Other Related Studies

Pandit (1972) studied the effectiveness and financing of investment in Indian education for the period of 1951 to 1966. The study revealed that there was a centralization and state control in the financing of education. Education was found to be taking an increasing share of the total resources. Adjustments due to wastage led to an increase in social unit cost of different levels of education from 19.6 percent to 38.4 percent. The secondary and higher secondary education appeared to be unprofitable.
Sharma (1978) conducted a study on resource allocation on education of the year 1977. He concluded that in 1971, proportion of GNP spent on education was 2.5 percent. The highest expenditure of GNP was by Manipur i.e. 10.71 percent whereas the lowest contribution was of J & K, i.e. 0.36 percent in 1971. Himachal Pradesh was the highest spender on higher secondary education. The share of higher education to total expenditure on education was around 10 to 14 percent. The method of grants adopted by the state government differed from state to state.

Ramanujan (1979) analyzed the pattern of expenditure and per student cost in educational institutes in J & K. He found that at the middle school level, per student recurring cost was Rs.232, at higher secondary level Rs.271, at graduate level in arts and science Rs.382 and Rs.575 respectively. At postgraduate level in arts and science, it was Rs.2624 and Rs.3314 respectively. The per student cost at teachers training level was Rs.2075, at ITI it was Rs.566, at diploma level Rs.1691, at degree in engineering level Rs.4716, at agriculture course Rs.3018.

Chalan (1981) examined the finances, productivity and unit cost of higher education in Andhra Pradesh. He found that the enrollment in general higher education was declined as compared to professional education unit. Cost in government colleges was less as compare to private colleges. The private cost of postgraduate courses and professional courses was more than that of the undergraduate courses. Private cost of MBBS was the highest. The study shows that the rate of return of primary and secondary school education had increased.

Singh (1984) took a comparative study of cost effectiveness of low cost, audio-visual teaching aids and high cost – audio-visual teaching aids. He found that spending the high cost media all over the country results in less cost on such teaching aids. The cost on chart is very low as compare to televisions etc. Although an overage of 85.5 percent students per class was observed at the higher secondary classes, the diversification of courses resulted in higher unit cost for all the media at this stage. Because of the high unit –cost of films teaching, it was fast losing ground to vided and satellite television. Video was emerging as a serious rival to film teaching.
Conclusion

Cost has been the main focus of many of the studies reviewed above. In India, only Singh (1969) studied the cost and quality relationship where the performance of pupil judged by the marks secured in the higher secondary examination was considered as quality. Dutta (1970) undertook a project to study economics of education in West Bengal with special reference to size, techniques and location. Sapra (1973) conducted a study to find out the relationship between size, costs and efficiency. Manvikar (1986) studied the relationship between expenditure pattern and efficiency levels of secondary schools. In all these four studies, many factors influencing the academic achievement were not taken into consideration such as students and teacher, quality of students, school facilities and infrastructure, discipline, examination and evaluation etc. as pointed out by Smith (1954), Joseph (1968), Walter (1968), Raymond (1973) and Edufu (1980). Therefore, the investigator’s present concern is to study the relationship between cost of education and academic performance with all its dimensions in school level of Solna and Nuh blocks of Gurgaon district of Haryana.