CHAPTER- I

INTRODUCTION

This chapter deals with the statement of problem relating to the costs of education, cost efficiency, objectives of the study, hypothesis, scope of the study, methodology adopted in gathering data, significance of the study, and review of related literature.

ABOUT THE PROBLEM:

The present problem is a case study in per pupil unit costs of education and internal efficiency of the costs in the context of the elementary schools run by the Government of Manipur in two districts of Imphal i.e., Imphal West District and Imphal East District. The general background of costs of education and cost efficiency with reference to the present study is discussed as follows:

THE COSTS OF EDUCATION:

In education, the word 'cost' includes expenditure incurred on running the educational institutions and the economic use value of infrastructural and manpower facilities, such as land, building, equipments and other physical assets, teachers, etc., used in the teaching-learning process. These costs of education have three major components: Institutional Costs, Student Costs, and Opportunity Costs.

First, the institutional costs include non-recurring costs and recurring costs. The non-recurring costs include land, building, playground, equipments including teaching aids, whereas the recurring costs include salary and allowances of teaching and non-teaching staff; interest on General Provident Fund
(GPF) contribution; gratuity, pension and other retirement benefits; annual purchase of library books, newspaper and journals; current repairs to building, furniture, equipments, etc., stationery and co-curricular activities; costs on taxes of land, electricity, water, etc.

Second, the student costs include costs of books, stationery, apparatus, transport to and from school, clothing, fees, pocket money, etc.

Third, the opportunity costs or foregone earnings which is the amount of money the students would have earned, had they gone in for employment instead of attending school.

Of the various costs of education, the present study focusses only the salary and allowances of teaching and non-teaching staff and fees paid by the students or their families. It may be noted that it would have been better to exclude the fees paid by the pupils from costs analysis as these are very nominal costs as compared to the recurring salary costs. But since the fees are a part and parcel of Student Costs, it has been included in the unit costs analysis.

It may be mentioned that the study excludes opportunity costs or foregone earnings as these costs cannot be applied to the children of compulsory education. As suggested by Cohn¹, "since individual under the age of 14 are prohibited by law from obtaining most types of jobs (except for some restricted part-time employment), earning forgone for that age group are practically non-existent." Similarly, Perlman² observed, "There are no private costs or foregone earnings for children subject to compulsory education and child labour laws."

Estimation of Unit Costs

The average expenditure from all sources per student is called the unit costs of education. As stated above, the items of costs included in this study are: salary and allowances of teaching and non-teaching staff and fees paid by the pupils or their parents. Accordingly, the unit costs is determined on the basis of these items of costs. Attempt is also made to estimate the average per working day and hour unit costs, and the difference in the unit costs per pupil between created enrolment size and actual enrolment. Thus, in the present study, the unit of measurement is in the following items:
i) Per pupil unit costs on salary and allowances of teaching and non-teaching staff.

(ii) Per pupil unit costs on developmental purpose.

(iii) Per pupil unit costs on library.

(iv) Per pupil units costs on examination.

(v) Per pupil units costs on games and sports.

(vi) Per working day and hour unit costs.

(vii) Difference in unit costs per pupil between created enrolment size and actual enrolment.

(viii) Per pupil unit costs on total teaching inputs over 8 years period.

In the light of the above items of the costs, the calculation of the unit costs is made following the steps given as below:

(i) School-wise and year-wise unit costs per pupil on salary and allowances of teaching and non-teaching staff.

(ii) School-wise and course-wise unit costs per pupil on Student Costs: Developmental Purpose, Library, Examination, and Games and Sports.

(iii) School-wise and year-wise unit costs per working day and hour as planned and actually worked.

(iv) School-wise analysis of wastage due to inability to utilize full enrolment capacity.

Estimation of Internal Efficiency

It is suggested that there are two types of costs efficiency: external and internal. "By external efficiency is meant the ability of the educational system to contribute to the manpower required for economic growth and influence attitudes and motivations of the people in the direction of rapid economic growth"³ "The internal efficiency of the educational system may be viewed as the capacity of the system to turn out graduates in the most efficient way"⁴

The present work focusses on the study of internal efficiency of the elementary education system. The internal efficiency of the education system can be defined here as its ability to utilize the available physical and human
capacities to the fullest possible extent. Thus, the internal efficiency or inefficiency in the educational system is estimated in the light of the following conditions:

(1) Input-Output Ratio,

(2) Teacher-Pupil Ratio,

(3) Working Days and Hours as Planned and Actually worked,

(4) Potential Economies.

(1) Input-Output Ratio: It is one of the indicators for determination of internal efficiency of the education system. In this analysis, we examine whether a school is able to produce the maximum number of children who have entered the system in a particular year and completed the course or reached a particular class in the optimum time with the minimum wastage.

(2) Teacher-Pupil Ratio: If a school is able to maintain the optimum teacher-pupil ratio, the school may be said to be working efficiently. This contention is made on the assumption that if this ratio is higher, the effectiveness of interaction between the teacher and the pupil would be poor, hence the teaching-learning process would be poor; and if the ratio is small, as the teacher can pay more attention to each child, the quality of education would be good.

(3) Working Days and Hours as Planned and Actually Worked: If a school is able to work the maximum number of working days and hours, the school may be said to be operating efficiently. In fact, the contact time between teachers and pupils is very important from the viewpoint of effectiveness. If the teacher does not teach the pupils, whatever may be the teacher-pupil ratio, the effectiveness may be almost nil. In this context, one might argue that a teacher may go to a class but may not teach the pupils properly and effectively. But it may be a rare phenomenon. Even if it is a general one, it is beyond the quantitative economic analysis. It is, therefore, important to ascertain whether the prescribed number of working days and hours as planned are met or not? If not, what is the gap and wastage, if any, arising out of it? The gap itself or the wastage would determine the degree of effectiveness.
(4) Potential Economics: If a school is able to use its created enrolment capacity to the full, the school may be said to be running efficiently. If the school fails to do so, it is examined, what is the gap and wastage, if any, resulted from the gap? The gap or wastage itself would determine the magnitude of the efficiency or inefficiency. In our analysis of potential economies, other aspect, i.e., the economies of scale is also examined. In this analysis, we examine whether the economies of scale exist in the school system. If so, at what size of enrolment is unit cost least?

For each indicator of efficiency the school-wise efficiency is first determined and then the efficiency in the context of the whole schools under study is estimated.

OBJECTIVES OF THE STUDY

The problem was undertaken with a view to:

(i) determining per pupil unit cost;

(ii) measuring the internal efficiency of the costs; and

(iii) paving the way for "Costs Control" and "Costs Consciousness".

HYPOTHESIS

A huge expenditure has been incurred on elementary education programme for fulfilment of the constitutional obligation for providing universal free and compulsory education to all children in the age group 6-14 years. But this has not yet been materialized because of various factors, inter alia, wastage and stagnation and under-utilization of available physical and human resources.

"Consequently, the costs incurred on elementary education programme in Manipur is cost-ineffective".

SCOPE OF THE STUDY

It is suggested that cost study can be made referring to all the levels of education or with reference to its particular level, such as primary, secondary and higher. Cost study can be longitudinal covering a period of time for an institution. It can also analyse various components of costs: institutional, student
and opportunity costs. It can also be done as a case study analysing in-depth every aspect of the cost. In this way, there are many ways of doing cost study.

In terms of scope of the present problem, the study is limited to examining the unit costs of education and the internal efficiency as a case study in 14 Government elementary school. The study of unit costs covers a period of 8 years i.e., the duration of elementary education (classes I-VIII), starting from the 1992-93 academic session till the completion of the course in 1999-2000. As stated earlier, the study excludes capital costs and some items of institutional recurring costs and student costs because of the factors cited earlier. It is attempted here to make an in-depth analysis of the available data on recurring institutional costs and some items of student costs. The scope of the study of internal efficiency is restricted to quantifiable variables which are normally useful in economic analysis. The choice of the period of study was dictated by the need to examine the magnitude of costs and its internal efficiency during the eight years of compulsory elementary education.

METHODOLOGY

For this case study, purposely, 14 elementary schools having classes I-VIII in the same school building were selected as samples of the study. Of these, 5 schools were from Imphal West District and 9 schools from Imphal East District. For want of adequate classrooms, the classes in these schools have, however, been divided into two shifts: one in the morning and the other in the evening.

In the morning shift, classes I-V are operated and in the evening classes VI-VIII. The nomenclature of the former is officially called primary education and the latter upper primary education. Since the classes I-VIII are run in the same school building, the pupils who had completed the primary education course got admitted to class VI of the upper primary education in the same school. Though two different levels of education are functioning in different times, the school is treated as one and it is called Junior High School. Such a sample was made with a view to enabling us to find a separate enrolment and expenditure figure accurately for the 8 years' duration of elementary education programme with reference to the schools under study. Moreover, it would facilitate to examine the progress of the pupils from year to year till the completion of the elementary course without any break. Therefore, the schools having elementary
classes I-V or upper primary classes VI-VIII separately were eliminated from selection of sample.

DATA PROBLEM AND SOURCES OF DATA

The major hurdle in the process of data collection was the non-availability of accurate and adequate data in a systematic manner and at one place. It was found that neither the government nor the schools did maintain proper record of the expenditure incurred on various items in an organised form, except that of the data relating to salary and fees.

Thus the present work is entirely based on the past and present records maintained by the concerned sample schools and the government departments. The basic sources of information from the schools were from the Admission Registers, Attendance Registers of pupils, Examination Registers, Attendance Registers of Teachers, and school Time-Table, prescribed curriculum and syllabus (class I-VIII). These records were, fortunately, kept in order except the Attendance Registers of pupil. The data on salary and allowance of teaching and non-teaching staff was gathered from the monthly Pay bills for eight years. The salary bills are prepared by the Department of Education (Schools) , Government of Manipur, for all the teachers and after its encashment they are disbursed among teachers. The Service Book of each and every teacher was examined to see their respective date of joining the service, pay at the time of joining, and the dates on which their increments and superannuation fall. The office of the Accountant General, Manipur, was also consulted in gathering the relevant data. The interview and observation methods were also adopted, wherever necessary. During the course of the investigation, some photographs depicting some infrastructural facilities of the schools were also taken. The thesis is written in both ethnographic past and present tense, wherever necessary. Notes and references are given at the end of each chapter.

It may be noted that the amount realised from admission and development fees debited to the State Government account was reported to be utilized in the 'development purpose' of schools in the State. Therefore, when we estimate "per pupil unit costs on development purpose", it includes admission fees. The average per working day and hour costs is calculated by working out the number of working days prescribed by the Department of Education, Government of
Manipur, for an academic year for elementary schools and the number of days and hours actually worked in a year.

**Calculation of Input-Output Ratio:** The input-output ratio is examined as a case study with reference to the pupils who got enrolled in class I in the year 1992-93 and who were supposed to complete the course in 1999-2000, i.e., 1992-1999 cohort. This calculation is made with a view to understanding the magnitude of educational wastage due to stagnation and drop-out for every school under study. The input-output ratio is worked out through Students' Flow Method, one of the most efficient methods being adopted in the estimation of input-output ratio. In this method, we trace the movement of those admitted to class I in 1992-93 till all of them either complete the course or reach a particular class or leave the system. All those who complete the course or reach a particular class may not do so within the ideal time of 8 years course of elementary education. So, it is calculated the average number of years taken by those pupils to complete the course or reach a particular class.

**Examination of Economies of Scale:** In analysing the economies of scale the following hypothesis is tested with the help of Regression Analysis.

**Hypothesis:** "Per pupil operating costs decline as enrolment increase till the point where created facilities are fully utilized. Unit costs per student increase with the increase in the number of students beyond a certain enrolment size. That is to say, there is a sort of 'u'-shaped cost curve in providing education services".

This economies of scale hypothesis is tested on the year-wise expenditure data 1992-93-99 for 14 schools on input cost i.e., salary costs; in put costs + students welfare (i.e., salary costs and games costs), and expected unit cost (i.e., total costs on salary and Student Costs). It is on the basis of the Regression Results that we examine whether, given the structure of a school, economies of scale exist in operating the school system. If so, at what size of enrolment is unit cost least? Thus, the optimum size of enrolment and the minimum unit costs per pupil per annum is worked out. The 'U' - shaped costs curve is determined through computer.
SIGNIFICANCE OF THE STUDY:

In view of the need to fulfill the constitutional commitment for universalisation of elementary education, we require huge resources. On the other hand, the demand for education has been increasing with the increase in population. In order to meet the expenditure on fulfilment of the constitutional obligation on the one hand and the demand for education both at present and in future on the other with limited resources available, we will have no other alternative except to plan from now onwards and to make the cost-benefit analysis of the investment made in educational industry continuously. Because investment in education knows no bound as it is a life-long process. We, therefore, need to utilize even a single paisa wisely, precisely and efficiently. Now a pertinent question arises: "Are we getting much return from the investment in education?" Investment seems to be made at random in the sense that education is good; and there is no "cost control" and cost analysis. Inspite of huge expenditure incurred on education, very unfortunately, very little or no attempt has so far been made to know how efficiently and effectively the resources are actually utilized. In fact, there is serious lack of "cost consciousness" amongst the educational planners and policy makers. As a result, no serious efforts have been made to examine the cost of providing education service precisely and economically.

It is, therefore, extremely necessary to know how much will it cost in opening a new institution for a given number of students; how much will it cost in making provision for an extra class; how much will it cost to educate one extra student; how much benefit can we get out of the cost; and so on. The answers to these questions can be given by the study of costs and costs efficiency. If so, costs analysis in indispensable. Costs analysis helps us in the planning process, working out financial allocations, studying the level of efficiency, ensuring optimum utilization of resources, indicating how and where to economise, and minimising inputs and maximising output.

The present study was undertaken in the light of the above justifications. It is a study in per pupil unit costs and its internal efficiency. The findings of such a study may help us most particularly in determining the utilization level of resources, the productivity level of an educational institution, the size and cost relationship, and the allocation of resources to the institutions. The study is
probably the first of its kind in Manipur which seeks to examine in depth the unit costs of education and the internal efficiency with a view to analysing the productivity of education. Although the scope of the study is limited to case study of unit costs and internal efficiency in the case of very few sample schools, the findings emerging from this piece of work may be helpful to the sincere educational planners and policy makers in realizing economics in the working of schools and effective utilization of given resources. In short, one can very easily understand from the findings of this study: the way in which how we are investing money in education; the manner in which how we are utilizing the resources; and the quantum of benefits which we are getting from huge investment in education. It is felt that the findings of the study may be safely generalized in other similar schools throughout the country or elsewhere.

REVIEW OF RELATED LITERATURE:

Education is not only the birth right of every human child, but it has also become constitutionally the fundamental right so as to enable us to do social justice. But the resources at our disposal are limited, and, at the same time, we also want better education. If so, what is to be done now? It is in this context that many studies have been made in various countries of the world. But unfortunately, in India, cost study in the field of education industry is a very new area of interest amongst the educationists, economists, administrators, planners and policy makers. Most particularly in Manipur, even the existence of such a problem of study seems to be unknown. Fortunately, for the first time in India, a beginning has been made in this direction by the Indian Education Commission 1964-66. Since then some studies have been made in this new field and their research findings have been published. Here, some of the most important studies conducted in India and abroad are briefly reviewed as follows:


The Commission examines a few major issues relating to the financing of education in India. Some of the important findings of the study are:

(a) The average annual cost per pupil/student during 1950-51 does not show appreciable increase except in professional colleges and vocational schools.
(b) At the pre-primary stage, the cost per pupil has remained almost stationary. It implies that in real terms, the investment per student has gone down very greatly.

(c) At the lower primary stage, the cost per student has gone up by 50%. The non-teacher costs per pupil have actually fallen, even at constant prices. That is why our primary school are so dull and drab. In fact, in many primary schools, we give hardly any thing except the teacher. The picture at the higher primary stage is similar.

One of the main findings of the Education Commission was that the available facilities in education were being under-utilized and that the fuller utilization would reduce the costs of education.

In 1967 the National Council of Educational Research and Training (NCERT), New Delhi, for the first time in India organized a seminar on "Measurement of Cost Productivity and Efficiency of Education". As a result, a volume edited by H.N.Pandit was brought out by the NCERT in 1969. In this volume, a number of interesting papers on cost analysis have been incorporated. Some of the findings of the studies relevant to the present study are given below:

Ruddar Datt : "Unit Cost of Education : A Case Study of Haryana Colleges", pp.92-113. In H.N.Pandit (ed.) ibid. Ruddar Datt conducted the case study of unit cost of education in the 28 college in Haryana in 1965-66. The main findings of the study were : the unit cost of education was highest in the case of state college i.e., Rs. 403-424; private women's colleges had the lowest unit cost of Rs. 252-268; and the unit cost per student for the Haryana college was Rs. 311-337 for the period of the study.


In this study, Kulkarni's findings have shown that main items of college expenditure are teachers' salaries, furniture, library, rent and scholarships; and teacher's salaries account for 40% to 50% of the total cost of education.

In this study, the authors have studied the economics of education of the 22 colleges of West Bengal with special reference to size and location of these institutions. Some of the important and significant effect on output is the student input, and some colleges can produce better output not because they have better environment but because they have better input.

*Pattern of Expenditure and Per Student Cost in Indian Institute of Technology, Institute of Applied Manpower Research (IMAP), New Delhi, September, 1975.*

This report deals with the size-cost relationship. In this study, the cost of education of the I.I.T. student at the under-graduate and post-graduate levels are estimated and the returns to scale are also measured in terms of cost elasticity. Some important findings of the report are: optimal enrolments worked out in almost all cases were higher than the actual enrolments; fixed costs of undergraduate training are higher than fixed costs of post-graduate classes; and linear average cost curve reveal economics of scale for both under-graduate and graduate course.


These authors have studied the costs of education for school and colleges education in Gujarat. The study states that out of every 13 colleges of Arts only two of them have an optimum enrolment. This situation is not better in commerce and other colleges. The main findings of the study are: training in professional courses like, Engineering, Medicine and Education is costlier than Commerce and Law; the size-cost relationship evaluated by fitting a second degree curve indicating a tendency of the average cost of decline with the increase in enrolment till it reaches the optimum size. After it starts increasing the average optimum size of enrolment was calculated at 960 students for a college in Gujarat, and size, age and pupil-teacher ratio are the three important determinants of cost of education.

G. D. Sharma has studied the cost and efficiency of the university system in India. He has analysed the cost in terms of teaching inputs, student services, administration and supporting services. He mad a comparison of unit costs between general, professional, residential and affiliating universities. He has found that the size of enrolment, where the lowest unit costs per student are estimated in Rs. 1332/- provided the number of students is 3043. Universities with such an enrolment level may be said to be working at the optimum level and the enrolment more or less than this numbe are suffering from diseconomies of scale. The important finding of the study is expenditure on administrative and supporting services accounts for more than the expenditure on teaching inputs.

G. D. Sharma, Mirdula; Economics of College Education, A Study of Hindu College, Delhi, Association of Indian Universities, 1982.

Sharma and Mirdula studied the unit costs and internal efficiency as a case study in the Hindu college, Delhi, for three years degree course during the period 1973-76. Some of the broad conclusions from this study are as follows:

(a) The unit cost per student for the three years was Rs. 5145/-. As 46% students failed to complete their studies, the effective cost of producing a graduate worked out to Rs. 6097/-.

(b) The study found under-utilization of inputs. The College could not utilize the enrolment capacity thereby leading to increase in unit cost. The college have increased the enrolment by 7% to 13% in these years. The number of lectures taken per teacher worked out to 100 to 132 as against 540. If 540 lectures be taken as the norm, the cost per lecture comes to around Rs. 33/- per lecture. Since the mean of the lectures taken works out at 116, the cost per lecture works out to around Rs. 115. As a result, the unit costs are always high.

(c) There is correlation between the quality of input and quality of output. The rate of wastage in the Social Sciences was 54% whereas it was 39% in B. Com. Honours; 89% in B. A. (pass) course; and 78% in B. Sc. (General); and 49% in the various Honours course respectively.

In this book Vaizey tried to apply economic analysis to education. He deals comprehensively with the economic problems that an education system gives rise to. He place education in an economic context and pointed out the special aspects of economic analysis which are relevant to the subject. In this book he analyses various aspects of economics of education, such as education as consumption or investment; returns to education, expenditure on education; finance of education; manpower; teachers and their salaries, etc.


Jacques Hallak in his book analyses the concepts of cost. The book deals with costing as an instrument of economic analysis and outlines the answers to various questions; how to assess the total cost of education; what is the most helpful breakdown of cost components, and what are the explanatory variables which account for cost trends? It also discusses the methods of establishing total costs and unit costs, first on the basis of information derived from the sources of finance and secondly from the accounts of educational establishments.


The authors carried out an international comparative study on management of educational costs, where the attention was focussed on how costs of education in various countries have behaved and what lessons could be drawn from their experiences, how to reduce the cost of education so as to use available resources to provide for more and better education, how such estimates could be used for effective and educational development planning. He also carried out case studies of different countries. Some of the important findings of the study are:

(i) The costs of education vary not only from one country to another but within one country from one system to another, and also within different educational systems.
(ii) A unit cost of education shows a rising trend in the long run.

(iii) Economies of scale are an important factor in improving efficiency. Cost per unit can be reduced by raising the enrolment to an optimum size. But this optimum size of enrolment will be different at different levels of education and in different institutions.

Maynard James: *Some Micro Economics of Higher Education*, (Economics of Scale), University of Nebraska Press, Lincoln, 1971.

Maynard in his study finds out differences in per student cost due to the size of institutions. The important findings of his study are:

(i) Long run cost function of I.H.L. (Institutions of Higher Learning) is traditionally 'U'-shaped.

(ii) Parabola is superior to a linear function for explaining variations in per student costs.

(iii) The size of institutions is a dominant variable in explaining variations in cost per student among similar students.

(iv) Per student cost declines over the range of 500 to 5363 F. T. E (Full Time Equivalence) students.


Under the auspices of O.E.C.D., Bottomley carried out a study of Bradford University in which he calculated economic, capital and teaching costs by departments and courses. He found that increase in class size reduced the cost per student. Some of the important findings of the study are:

(i) The total economic cost per student varies between $ 2500 and $ 4000 for per laboratory-based course (Science and Engineering) and between $ 1650 to $ 2400 for classroom-based course i.e., humanities and mathematics. This implies that lab-based courses are more expensive than classroom-based courses.
Capital and maintenance costs vary between 27% to 49% of the total cost for lab-based courses and 31% to 39% of the total cost for classroom-based courses. Teaching costs vary between 34% to 55% of the total costs for lab-based and 22% to 35% for classroom-based courses.

(ii) Substantial economies in staff costs per student can be gained by enrolment increase. Over the nine courses the staff cost index falls in between 52% and 82% of its present value when enrolment is approximately doubled i.e., to an optimum level.

(iii) Economies can be gained by changing the teaching structure of courses i.e., by increasing the teaching load on the staff by intensive and extensive use of teaching, accommodation, building and other technical and administrative staff.

(iv) In almost all the courses unit cost defined in terms of total economic cost per student can be decreased by 5% to 13%.

(v) A combined effect of an increase in enrolment to an optimum together with a 50% increase in teaching load, while maintaining the existing cost structure would reduce the full academic staff cost per student by 46% to 65%.
CHAPTER ORGANISATION

This thesis consists of five chapters and the content areas of each chapter are as follows:

Chapter I: "Introduction" in which the general background of costs of education and cost efficiency with reference to the present study has been discussed.

Chapter II: "The general background of Elementary Education in Manipur with Special reference to the Elementary Schools under Study". This chapter is divided into two sections: The first section deals with a brief account of elementary education in Manipur and the second section describes the structure of schools under study.

Chapter III: "Analysis of Unit Costs". This chapter deals with per pupil unit costs on different items.

Chapter IV: "Analysis of Internal Efficiency" deals with the measurement of internal efficiency in terms of certain indicators of efficiency.

Chapter V: "Summary findings and Policy Implications". In this chapter, some conclusions are drawn and policy implications of the study are analysed.
NOTES AND REFERENCES


4. Padmanabhan, Ibid.

5. Sharma, G. D. & Mridula: Economics of College Education: A Study of Hindu College, Delhi, Association of Indian Universities, New Delhi, 1982