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CHAPTER II
EDUCATIONAL EXPENSES AND THEIR DETERMINANTS

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References
2.1 Introduction

The view that expenditure on education is investment expenditure has revolutionised the thinking on various economic aspects of education, especially on the financing of education. Earlier, educational output was measured by costs. Hence stress was laid on devoting a higher and growing proportion of national income to the development and expansion of education. Now more attention is focused on the effectiveness and efficiency of public expenditure incurred on education. The study of this aspect is of great significance. The education commission of 1966 came out with the main finding that the facilities in education were being underutilized. Optimum expenditure policies can favourably affect the pace at which more resources can be raised not for financing the reconstruction of education alone but for financing other development programmes also. Carefully directed social expenditure can have a higher total yield than types of expenditure which may result in some imposing variable structure, but whose effects on output in other sectors of the economy are zero or negative. One must determine one's educational expense in terms of unit cost.
2.2 Unit Cost and Methodology of its Measurement

Unit cost studies occupy an important place in the field of educational finance. Analysis of unit costs, especially institutional costs, gives us an idea of "internal efficiency" of an educational institution expressed in terms of utilization of inputs entering education such as teachers, buildings, equipments, student's time, etc. This type of studies has an added significance in a resource hungry country like ours. Looking to the leeway that is to be made up in the reconstruction of education, it will not be an easy task for the government to mobilise resources of the magnitude required. "Even with the mobilization of maximum resources for education, the funds will still be inadequate to meet even the minimum needs of educational reconstruction". 

Claim of education for more resources can be more easily justified if resources already invested and facilities created have been fully utilized. Unfortunately, inputs that have gone into education industry seem to have been underutilized. Precisely, that is why the Education Commission has suggested that "there is urgent need to examine continually the relationship between cost and quality and developmental programmes which would obtain the highest possible quality for a given level of input (or minimise inputs for a given level of quality)."
All these points suggest that there is a need for economy in the use of resources ensuring maximum gains with given costs or inputs. This implies that cost effectively should be aimed at.

2.3 Classification of Costs

Unit cost is an important tool in education as in any developing sector of an economy. It helps to study cost-quality relationship and in the planning of educational development within the four walls of available resources.

The cost of education consists of two components:
(a) Opportunity Cost and
(b) Social Cost.

Social cost can be further sub-divided into:
(i) Student Cost and
(ii) Institutional Cost.

Unit cost for any course of studies will, therefore, comprise opportunity cost together with the cost incurred by a student (or his parent/guardian) on his education and that incurred on him by the institution or institutions which are involved in the organization of that course.
Opportunity Cost

Opportunity cost consists of the loss of income that a student would have earned, had he gone in for employment instead of pursuing education. The earning potential of persons with different educational attainments being different, this cost will vary at different levels of education.

In full-employment economics it may not be very difficult to estimate this cost, but in the context of the present Indian economy, which is afflicted with a lot of unemployment and a great deal of under-employment, it is problematical whether this cost can at all be estimated with any reasonable degree of reliability. However, if employment is assumed in each case—a very unrealistic assumption, indeed—one way of assessing this cost would be to study it by taking a suitable sample of all employed persons with given educational qualifications. Or, perhaps it will be still better to take the model value of starting salaries of various jobs where persons with the given educational qualification are recruited. For instance, if unit cost is intended to be worked out for post-graduate studies in Arts (M.A.), it would involve opportunity cost of an Arts graduate (B.A.) which might be arrived at by
taking into account the remunerations of posts where Arts Graduates are usually employed.

(b) **Social Cost**

Social Cost can be further sub-divided into:

(i) **Student Cost**, and

(ii) **Institutional Cost**.

(i) **Student Cost**

Student cost consists of four parts:

(a) **Tuition and other fees**

(b) **Cost of books, equipment and stationery**

(c) **Cost of maintenance (board and lodging)**

(d) **Other sundry expenses**

(a) **Fees**

It consists of the tuition fee, laboratory fee, examination fee, admission fee and other fees and charges that a student has to pay to the school or college and to the other educational authorities concerned, such as the Board of Secondary Education or the University. However, it would exclude hostel fee and hostel charges as well as all refundable security deposits.
Since this payment on the part of the student becomes the income of the institutional cost, it has to be omitted from one place while calculating the overall unit cost to avoid double counting.

(b) Cost of books, Equipment and Stationery

The items which go under this head are obvious and easy to evaluate. This head, therefore, needs no further explaining.

(c) Maintenance

As regards maintenance, the students can be divided into two categories:

(a) hostellers and

(b) day-scholars.

The day-scholars can be further divided into two parts:

(i) Those who stay with their parents

(ii) those who make their own arrangements outside the hostel.

The cost of maintenance of all these categories will be different. For hostellers, it is easy to arrive at a correct estimate of cost, but it is not so easy in the case of day-scholars of either description.
In this context it is also questionable whether this cost should at all be taken into account because the student would, in any case, have to maintain himself or be maintained by his parent or guardian whether or not he is receiving any education.

(d) Other Sundry Expenses

These include clothing, pocket money, entertainment and other miscellaneous expenses. The cost of these items would vary considerably according to individual tastes and habits and the economic status of the student or his parents. One way of estimating it will be to have a sample survey, after identifying items to be considered under this head, and taking the model value.

(ii) Institutional Cost

Institutional cost can be divided into two parts:

(i) non-recurring and

(ii) recurring.
The non-recurring cost can be further subdivided as:

(i) capital cost and
(ii) equipment cost.

Similarly, recurring cost can also be divided into:

(i) non-divisible recurring cost and
(ii) divisible recurring cost.

(i) **Non-recurring Cost—Capital**

It includes the value of land and buildings of the school or college, hostels, staff quarters, library, laboratory, hospital if any, etc.

In this case, one could take the annual depreciation or amortization cost into account to be distributed equally over all the students under instruction in the institution. But since sometimes there is appreciation in the value of land and buildings in course of time, it would be better if the rental value, of the buildings is taken into account instead of their annual 'depreciation.'
(ii) **Non-recurring Cost-Equipment**

This should include items like stock of library books, laboratory equipment including gas plant, printing press if any, and so forth. The annual recurring expenditure on the purchase of book for the library, consumable store for the laboratory, etc., will, however, have to be omitted from here as these items, which form part of recurring cost (non-divisible), are being considered in a subsequent paragraph.

The annual amortization cost of the stock of books in the library and the equipment in the laboratory, etc., distributed equally over the entire student body receiving education during the course of the year, would provide the unit cost on this account.

(ii) **Recurring Cost**

As already said, recurring cost can be divided into two parts—non-divisible and divisible. Non-divisible cost would comprise those items of expenditure
which are incurred for providing common services to all the students of the institution and as such should be equally shared by them from the point of view of the unit cost. For instance, salaries of administrative staff, contingent expenditure, etc. Divisible cost, on the other hand, may be defined as the expenditure which is incurred for providing services to a group or part of the student body and as such the expenditure is to be distributed over the members of this group only to calculate the unit cost on this account. Items like recurring expenditure on consumable stores for the laboratory (which is for science students only) or the recurring expenditure on the school bus, etc., are the cases in point.

It is difficult to be precise about the allocation of items of recurring expenditure under one or the other sub-head - divisible and non-divisible - because the same item would fall under the first sub-head in one type of course and under the second in the case of
a different course. For instance, expenditure on salaries of teaching staff may be non-divisible in a primary school and divisible in a University teaching department or a college, or recurring expenditure on the purchase of library books may be non-divisible when the books are meant for the University library and divisible when these are meant for the library of a teaching department, and so forth. In order, however, to clarify matters, a broad classification of recurring expenditure between the sub-heads is given below: However, it would be advisable to consider each item on its merits in the context of the given situation.

(i) **Recurring Cost - Non-divisible**

It would cover the following main items:

(i) salaries and allowances of administrative and establishment staff including library staff;
(ii) gratuity, pension, provident fund contribution and insurance of the entire staff; leave salaries of the staff;

(iii) annual purchase of library books, periodicals, journals, etc.,

(iv) expenditure on extra-curricular activities like gymkhana, library, N.C.C., contribution towards running of hostel, organisation of social functions, etc.,

(v) rent, interest and administrative charges,

(vi) rates taxes, electric and water charges,

(vii) current repairs to buildings, furniture, etc.,

(viii) contingent expenditure like postage, stationery;

(ix) expenditure on organizing examinations;
(x) scholarships, stipends and freeships;

(xi) miscellaneous recurring charges.

(ii) Recurring Cost - Divisible

The main item under this head would be:

(i) salaries and allowances of teaching staff,

(ii) recurring expenditure on science laboratories,

(iii) expenditure on the school bus, etc.

Sometimes there arise complications in calculating unit cost due to the administrative organization of the course in question or the institution concerned. For instance, a postgraduate course may have federal teaching by various colleges and also by the university or again a college may have provision for both postgraduate and undergraduate courses in various faculties and sometimes it may have been even
attached classes in faculties alien to the main character of the institution (e.g., an arts and science college having classes in agriculture or teacher training). Here, the allocation of the recurring cost in suitable proportions to different courses has to be done very carefully and one cannot just go by averages or pro-rata proportional distribution of expenditure without involving risk to the accuracy of the results.

2.4 Determinants of Educational Expenses

Factors determining unit cost are many varied in nature and in a sense interdependent also. Some of them are listed below:

(a) Size of a School

Of the factors effecting unit cost the most important is the size of an educational institution measured in terms of enrolment of students. According to the observation of the Education Commission, "the size of schools has an important effect on their costs
and efficiency and it is, therefore, important to evolve a suitable policy in this matter. How is the cost influenced by size? Is there an increase or decrease in cost with the decrease or increase in size? Can a school be fruitfully compared with a firm in a manufacturing industry? If like a firm, a school is assumed to be enjoying economies of scale, as the size grows average cost begins to decline till the facilities originally created are fully utilized. Afterwards, enlargement of the size may result in diseconomies indicating rising cost per pupil. However, in a school where the increase in size simultaneously necessitates creation of additional facilities, average cost instead of falling may begin to rise.

(b) **Age of the School**

Age of the school can be taken to influence cost via enrolment. As the school grows older its size increases, and if what is observed above with regard to the size and cost relationship is valid, the cost tends to decline. Thus the age of the school via enrolment tend to influence unit cost negatively. On the other hand, it may also be argued that when the school is just established emphasis will be invariably on teaching facilities. The provision and expansion
of other facilities such as library, games and sports, and co-curricular activities come later. This may raise cost. Moreover, once an institution becomes well-known and reputed with the passage of time, to maintain and enhance its reputation, it may of its own offer higher starts to better qualified teachers thus inflating an important component of total cost, viz., teacher cost. The increasing number of senior staff may also have a similar effect. Thus it is difficult to postulate an a priori relationship between the age of the school and unit cost.

(c) Pupil-Teacher Ratio

Pupil-Teacher ratio refers to the number of students catered to by a teacher. Change, either increase or decrease, in the number of teachers in a school is not as frequent as it is with regard to pupils. Then, number of pupils can be taken as a variable factor and teachers can be taken as a fixed factor at least in the short-run. Then, with the increase in the number of pupils (without at the same time an increase in the fixed factor-teachers), the average teacher cost begins to decline. This may or may not cause a significant fall in the over-all average cost, depending on the importance of teacher cost relative to other types of cost.
2.5 **Rationale for Government spending on Education**

It is worth spending money on education because it assists the economy. Why? Mainly because it provides a skilled and resilient body of workers at all levels, who help to keep a highly fluid economy going. This is difficult to prove in any precise manner.

Education helps in reducing unemployment. According to Panchmukhi, apart from creating more suitable manpower for the economy, a properly planned education industry helps to ease the employment problem.

Let us consider a situation, where the problem of unemployment is very severe as is the case in many developing countries. Let us imagine that education industry completely closes its operations. Then it would be evident that consequences of this on the employment situation of the country would be extremely serious. All the erstwhile students would flood the labour market, bringing about a serious confusion in it and in the wages. Education detain many people within itself and prevents them from bringing about this chaos. Hence this alternative effect of education on the employment situation of a country is very important. This impact of education on employment can be measured by considering the total number of students above fourteen years of age who are held back from entering the labour
market. Though here education has an unfavourable effect on the employment from the point of view of an individual the total effect is certainly favourable from the point of view of employment in the economy as a whole.

Education gives greater incentive for rural urban migration. This will have very significant influence on the productivity in rural agriculture. We know that productivity in agriculture is low and there exists disguised employment. If education paves way for the migration of some people who are in excess, from the agriculture sector, then the problem of disguised unemployment and low productivity might become less serious.

Education raises the incomes of the people and consequently the total expenditure in the economy increases. With an increasing consumption of goods and services, the inter industry linkage effects create larger employment outlets in the economy. Long run employment impacts may work through the saving abilities and thrift motives and a result of increased incomes through education.

Education alters not only the volume of consumption, but also the structure of consumption in the society. Educated people develop tastes for novelties and hence production of such goods gets stimulated. Consequently the structure of employment in the economy is altered as a result of education.
With the expansion in education facilities, and through the working of the option effect and demonstration effects consumption of education on the uneducated people. The population going in for education, rather than for cheap jobs, increase. This therefore bring about a fall in the supply of particular types of labour. The supply of domestic servants for example, has been falling these days. Educated people would rarely go in for such jobs. The pattern of employment is therefore altered through its channel also.

Education acts as an agent for redistribution of earning power and actual earnings in the economy. Consequently this, will be reflected in the redistribution of employment opportunity. Rigidity in the labour market might get reduced as a result of education, and Labour may become more mobile. Frictional unemployment would, therefore become a less serious problem with expansion of education.

2.6 Education as an Industry

With an increasing emphasis on the economic benefits of education, in recent days, in the discussions on educational development in the country, it is natural that a more materialistic view is taken of the education process itself. Several attempts have been made to calculate the rates of return of educational expenditures in different countries.
Attempts have also been made to compare the rates of return of educational investments in material capital, to assess the over or under-investment in the institutions providing education which have been following some of the tools that manufacturing industries employ for raising their efficiency. The rates of return calculations, unit cost calculations, balance-sheet concepts, income and expenditure statements, etc., are some of the concepts popularly used in the educational sector. Some educational institutions in advanced countries (U.S.A. and U.K.), for instance, have even started business offices, which function more or less like the business management offices of the manufacturing industries. Some economists have suggested that the pricing principle (in assessing fees) in educational institutions should be similar to the pricing principle in manufacturing industries. All this would suggest that education can also be considered as a business or an industry.

Educationists (who are already involved in a duel with economists for their expansionist trend towards education) would certainly frown upon this view of considering the pure field of education as an industry. It must be clarified at the outset that the epithet of industry to education in no way means that the schools and colleges are or should be essentially profit making institutions like other industries. Though the existence of the objective of self-sufficiency may not be ruled out for the educational institutions, they
do not generally keep the motive of commercial profit maximization. The educational institutions are basically 'spending institutions' unlike the commercial enterprises. The measure of efficiency for the commercial enterprises is the rate of profit that is earned. But the same cannot be said for the education industry. The measure of productivity in education industry hinges on the problem of the measurement of its output (and of inputs) which is intangible and multi-dimensional. However, it has to be examined whether the tools employed by the industries can be fruitfully used for better management of education. It is with this end in view that one may call education an industry. Before the efficiency tools of commercial firms, are applied, it is necessary to consider the outstanding features of education as an industrial enterprise. The objective of this paper is to analyse the features of education as an industry and examine its planning problems. In the first two sections of the paper, an attempt is made to consider the important features of education industry with special reference to its relation with employment problem in the country. In the section that follows, some suggestions are made for the planning of investments in education industry.

Education has been given the epithet of industry, because it produces the manpower of different skills and efficiency for the production process of the economy.
Whereas, the products of the other industries are valued for their usefulness in the production or final consumption, the product of education is valued for its productivity - in the production process. That is why Marx calls the schools as 'teaching factories'. As stated above, it is not true to say that all industry concepts can be meaningfully employed for the analysis of education as it has its own peculiarities.

a. Production Function for the Education Industry

Unlike other industries, education industry's output as well as inputs are not clearly identifiable and measurable. Socio-economic and psychic factors abound in case of both inputs and outputs. However, the major and obvious components of this production function are students' time and effort, books, teaching materials and other equipments. Educational level in general, and educated manpower in particular, is the output of this industry. Mathematical formulation of this industry, production function is complicated because of the difficulties involved in identification and measurement of all of its components. However, some general observations may be made on the peculiarities of this production function.
Elasticity of substitution between different factors of its production function is very low. Buildings cannot be substituted for teachers, and obviously teachers' effort cannot be substituted for students' effort, and so on. Substitution of teachers by modern teaching machines is possible only in a marginal way. Mechanization of education is a remote possibility, as even the modern equipments require the labour of more teachers.

This industry uses human capital intensively and produces human capital. One can say that it is engaged in the 'production of human capital by means of human capital'.

Educated people in educationn industry are teachers and administrative staff. In manufacturing sector (factor industries), employees other than workers are supposed to have higher qualifications.

In education industry production is very cheap. Educational institutions do not make demands on the scarce resources of the economy. In most of the developing countries, the required manpower is abundant. There are constant additions to the student population. The supply of teachers can be considered a scarce resource in some countries; but this scarcity
can be eliminated at least in the long run by proper organization of production in the education industry itself say, by way of suitable planning of curricula and wage and salary structures. The other main demand which education makes upon an economic system is in the supply of buildings and equipments. These (buildings in particular) can be provided mostly from the indigenous material and at low cost also. The equipments used in the education industry are generally not very costly like those in manufacturing industries.

Foreign exchange component of education is very low. This industry may at the most demand some foreign exchange resources for foreign teachers, textbooks and sophisticated scientific equipments. Even in the higher branches of education, this may amount to not more than 5 per cent of the total direct costs of education. It is thus clear that production in education industry demands very small amount of domestic as well as foreign resources. In view of the strategic importance of the output of this industry, education represents the easiest and a significant form of developmental expenditure which can be undertaken by a poor country.
The size and cost relationship for education is quite comparable with that for the commercial firms. Firms have U shape cost curves indicating falling unit costs up to a certain level of output (optimum) and rising unit costs after that level. The evidence in case of a firm in the education industry (e.g. Bombay University) supports the hypothesis that per student recurring and instructional expenditures generally vary inversely with the size of the educational institution. This may suggest that the economies of large scale production work in case of education industry also.

As manufacturing industries progress, they become more (material) capital intensive and less labour intensive. This is a general observation in their case, as machines take over the work of men. But in case of education, machines cannot eliminate manpower. Progress in education industry in fact means a higher teacher-pupil ratio indicating greater individual attention.

Some peculiarities can be observed in case of the rewards of the strategic factors receive in the education industry. The strategic factors of production in the commercial enterprises are paid highest rewards, e.g., managers, engineers, and administrative
officers etc., are highly paid. But in education industry, the most strategic factor—teachers—generally receive low rewards as compared to their counterparts in other industries. This may be partly due to the low skills of the present teachers, but it is mainly due to the neglect of the long term value of the output of this industry.

b. **Education as a Stable Business**

The commercial firms are subject to the vagaries of time. There are fluctuations in their fortunes. On account of several factors there are, what are known as business cycles. But the same cannot be said in case of education industry. It can grow without serious disturbances. The effective demand for its product (though not clearly identifiable and measurable) grows on continuously over time mainly for two reasons. Firstly, population is growing continuously, and consequently there is a continuous addition to the student body. Secondly, as education expands in the economy, there will be greater demand for more education. To use Burton Weisbrod's terminology, there is an 'Option effect' of education for still higher education. Further, the Duesenberry demonstration effect works in case of the consumption of
education also. The uneducated try to copy the educated by receiving more education.

The consequences of this fact of undisturbed growth of demand for education is that investment and employment in education industry also grow continuously over time. But it must be noted however, that demand, investment, employment etc. do not grow unevenly in education industry as in manufacturing industries.

Stability can be observed in case of the structure of the education expenditures also. For example, instructional outlays are generally a major portion of the total expenditures. They were so in the distant past as at present. In the United States, which has made great progress in recent times in design and installation of the instructional equipment and school buildings and other non-instructional factors, a study of the expenditures indicates that over the last several decades the ratio of instructional expenditures to total expenditures on education has remained constant. The average school in 1890 spent about 90 per cent of its outlays on buildings and educational equipment on building itself. The ratios are apparently about the same for schools in 1960's.
In a striking contrast to this, the structure of the outlays in the manufacturing sector is always subject to frequent changes. About 75 per cent of the total building and equipment outlays were devoted to the building by the manufacturing industries in 1890 in the United States. The remaining 25 per cent was spent on machinery and equipment. But in the 1960's the equipment outlays were 75 per cent of the total outlay, whereas 25 per cent of the outlay was on the plant (building) itself. This is exactly opposite of what was observed in the 1890's.

The stability of the structure of the educational outlays in mainly due to the fact that the basic technology of education does not get changed frequently like the one in manufacturing industries. The simple tools like blackboard, chalks, books, maps, etc., are the basic requirements in education. The changes that can be observed here are marginal. At the most, the size of the class may reduce, finer qualities of chalks, papers, blackboards, etc., may be used. But in the manufacturing sector, the innovations of better techniques may disturb the cost structure very much. Though in education industry also, innovations of better techniques cannot be ruled
out, the changes will not involve a conspicuous reallocation of the outlays.

The above discussion would bear out that 'education clearly is not one of the unstable sectors of the economy'\textsuperscript{12}. On the other hand, investments in education are generally used as an anti-cyclical instrument. The Governments in some countries have spent during the last depression substantial amounts on construction of school buildings, and expansion of educational facilities, as a policy measure to boost the effective demand in the economy.

c. Some Other Features of Education Industry

Outlays in education industry are generally less liquid than other investments. Liquidity of outlays is a phenomenon due to the fact that material or financial investments may be more or less fluid, so that they may be withdrawn with less difficulty. Current banking accounts for example, are more liquid, but investments in shares are less fluid. Investments in education are still less liquid according to this definition of liquidity. For, if people are employed in a profession, wherein the education that they have received is not directly useful, then the funds invested on their education cannot be withdrawn.
Such investments are frozen in these people

A comparison of the education industry with the banking industry will be more fitting. Both use capital for their business; one uses financial and physical capital and the other predominantly human capital. A deposit of some human resources in this industry will transform their nature in due course of time. The longer the period for which human resources are effectively deposited in this industry, the higher will be the reward on the deposits (interest) in the future, by way of higher skills and productivity and higher employability and earning capacity. Like the banking industry, education industry not only accepts deposits and transforms their nature, but it also supplies capital. It is great reservoir of human capital. The economy can withdraw this human capital of different skills for production purposes.

The output of this industry is highly differentiated. The substitutability of one technical graduate with another is limited. For, there is a differentiation and gradation in the knowledge of the educated people. (Otherwise, there would not have been the need for interviewing different graduates before employing them.) Sources of differentiation can be in general: differences in quality, ignorance
of buyers regarding the essential characteristics of the product, and persuasive sales promotion activities of the sellers. All of these three factors may be responsible for the differentiation of the product of this industry. Genuine quality differential, or the possibility of being led away by the rank or class obtained in the examination, or the dynamism or drive and extraordinary social relations may lead to the tendency of employers (buyers of the product of education industry) to differentiate between persons with the same educational level.

Similarly the specificity of this industry with regard to some of its factors is very great. It would accept and retain for transformation only those people who would satisfy certain minimum prerequisites with regard to ability and aptitude. For example, a person with no aptitude for subjects like mathematics, will not gain much by education in those subjects and would soon be eliminated.

It is interesting to compare the nature of development and location of other industries with that of education industry. The main features of industrial development in certain developed countries are
away from agriculture, toward localization of certain industries and toward urbanization. The same is true of the development of education industry. Generally a majority of the educational institutions are situated in urban centres and they provide the manpower mainly for non-agricultural enterprises. This concentration of educational institutions may be mainly due to the demand factors.

Education industry has very close links between the firms within itself. Primary education, for example, directly effects secondary education. Higher education depends on the secondary education and so on. For this reason, the planning of the industry as a whole will have to depend upon the planning of these sub-systems.

Planning and development within the education industry have a strong bearing on the economic development of the country as a whole. It is through the effects on labour productivity that contributions of education industry to the economic development are observed. One can say that this industry's impact on the long-term development of the economy is more significant than that of any other industry. Its influence on the skills of labour and hence employ-
ment situation in the country is of great relevance to the overall development policy.
References


3. Ibid, P. 486.


