CHAPTER III

COST-BENEFIT ANALYSIS IN EDUCATION

Introduction:

The significance of human capital in economic development has been realised much earlier.¹ But the evaluation of investment in human capital began only since the middle fifties when leading economist like T.W.Schultz, G.S.Becker, Jacob Mincer, H.P.Miller, M.J.Bowman attempted to calculate rates of returns to education to different types and levels of education. Extensive use of CBA in the field of education started later in sixties by the studies presented by the leading economist like M.Blaug, M.Woodhall, R.Layard, Lee Hansen. The findings of these studies have facilitated the developing countries including India, to adopt the technique of CBA to evaluate educational investment projects.

¹ A.C.Pigou in his 'Wealth and Welfare' argued that marginal net product of resources wisely invested in persons is higher than that of resources wisely invested in the material capital, Pp. 355-356.
Distinction may be made between the application of CBA in educational investment and that in other physical investments of the government. It is applied to physical projects in the ex-ante sense, while to educational projects in the ex-post sense. In other words the objective of CBA in physical projects is to know the 'economic' efficiency before the projects are implemented and thus CBA here becomes a criterion to accept or reject the project. On the contrary CBA is used in educational projects as a measure to know the extent to which there has taken place over- or underinvestment in education. Thus it helps to correct the investments in future. That is to say, it becomes a tool for 'educational planning' in future.

Rate of Return to Education:

CBA is a synonymous term to 'Rate of Return Analysis' (i.e., Internal Rate of Return). Internal Rate of Return criterion is now very widely used to evaluate educational projects because the present value method of CBA demands calculation of 'shadow prices' for benefits which is rather very difficult especially in developing countries due to absence of required data. Moreover the choice of
the rate of interest to discount the future streams of benefits and costs to present value, is mostly arbitrary. Therefore, present value method does not fit in CBA of educational projects.

Returns from investment in education are of two types viz. private and social. Private Rate of Return is the benefit that accrues to the individual or his family directly. This benefit enables him to know the worth of his money investment in his education in terms of increasing his future earning capacity as compared to the benefits of other alternative investments. Thus private rate of return helps the individual in choosing the best form of investment. Social Rate of Return to education on the other hand, is the benefit that accrues to the society in general. Calculation of social benefits helps the government in comparing the benefits (rates of return) of other alternative forms of social investment and thereby to frame the future educational policy also. Besides, social rate of return calculation in one particular type or level of education is useful to compare it with the rates of return to other types and levels of education which provides the information as to the extent of economic profitability of educational
expenditure by the state. Generally these rates of return are marginal i.e., marginal rates of return to marginal levels of schooling. These marginal rates of return are measured with reference to the costs involved in marginal level of schooling and the earnings (benefit) associated with the particular level. In our present study also the rates of return calculated are marginal in nature because, marginal rates of return are more meaningful in comparing the different levels and types of education with the previous levels. This comparison gives us the idea of efficiency of past investment and provides guidance to future allocation of investment in still more efficient manner.

**Objections to Rate of Return Approach:**

In spite of the superiority of rate of return approach over other approaches in evaluating educational projects it is not without its critics. Many objections have been raised against the use of this approach to investment in education by many economists like J.Vaisey, T. Balogh, P. Streeten, H.G. Shaffer, Reddeway, S. Merrett. Objections are on the following lines:
(i) Earning differentials at different educational or age levels are not due to the effect of formal education alone but also are the outcome of other associative variables such as differences in natural ability, social status, on-the-job training, non-formal education, sex, occupation, experience, education of parents, family income (which makes possible more education) and other factors.

(ii) The assumption of the approach that the given wages of the employees measure their respective productivities is wrong. Individual earning differentials do not reflect the marginal productivities of employees because of immobility and other various market imperfections.

(iii) In practice rate of return is calculated on the basis of age-education specific earnings profiles constructed with the help of cross-section data at a particular point of time which considers only the present demand and supply of educated people. What we need is the age education specific prospective earnings. If in future demand and supply increase, actual rate of returns differ from the evaluated earnings at the present value.
Moreover earning structure reflects the impact of past supply and demand conditions. To infer from the past the future situation is highly hazardous. The earnings structure of today reflects the average situation, while ideally what we are interested in is the incremental situation. In other words, in trying to assess the productivity of education on the basis of the existing earning data, we are not only projecting past into the future but also are assuming that average and marginal returns are the same.² This objection is more relevant to developing countries where different socio-economic factors play significant role in determining the future earnings of the people.

(iv) This approach considers, in the calculation of the rates of return, only those costs and benefits which are measurable and which can be transformed into monetary terms. But education may give rise to certain consumption benefits and also non-monetary returns such as improvement in the quality of life, decency, higher standard of receptivity to new ideas and techniques etc. which are excluded in the calculations of returns.³

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³ Ibid., P. 27.
Further education has been accepted as a means for promoting social good and cannot be therefore assumed as leading to consumer loss. Education in fact enriches our life and adds to consumer satisfaction. Evaluation of such benefit is also ignored.

(v) This approach overlooks spillover income gains (which are learned as 'intangibles') to persons other than those who receive extra education. These benefits are in the form of increase in the productivity of other people also other than the educated.

(vi) Individuals seldom choose education from financial point of view. In other words monetary return is not a motivating factor for the individuals to choose education. Therefore private rate of return calculation is meaningless.

(vii) It is argued that the validity of assumption of 'opportunity cost' (inclusion of the earnings foregone by the individuals during their extra level of education in the cost of education) is questionable because, when imperfections in the labour market (a large burden of...
educated unemployment and underemployment) prevail in underdeveloped countries like India how much value should be attached to such costs becomes a problem. The opportunity cost argument holds good only under the assumption of full employment and thus has partial applicability.

(viii) Prevalence of juvenile employment may render the calculation of returns to education difficult because, children of the age group 9-14 help their parents to work at home or outside even while they are studying especially in poor countries. Therefore foregone earnings of these children while in schools should be reckoned with in the calculation of return.

(ix) Finally, on the return side there are comments that externalities, the special economic characteristics of education, obstruct the estimation of human capital and the rates of return. For example H.G. Shaffer argues that

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maintenance costs arising during the period of investment enhance the difficulty of determining the return on investment in education. 5

All the above objections seem to be valid. Therefore, unless adjustments are made for these objections, they are likely to cause either upward or downward bias in calculations of private and social rates of return.

Suggested Solutions:

Attempts are made for the adjustment of these objections and refine the analysis of the rates of return which are as follows:

(1) Rate of return exclusively to education can be calculated by isolating the effect of education on the earnings from the effect of other socio-economic variables. For example, in India the effects of education on the earnings is assumed as two-third of the total

5 Ibid., P. 66.
earning differential. In yet another study, rates of return are calculated by dividing age-earnings profiles into adjusted and unadjusted where all variables affecting earnings in addition to education are taken into account by using regression analysis. They have classified variables into (a) Educational variables, (b) Socio-economic variables, (c) Job-related variables. Even in U.S.A. not all the earning differentials is attributed to education. Controlling for ability, it is found that only two-thirds of the earning differentials can be attributed to education by deflating these earning differentials by a suitable fraction to exclude the influence of other co-relative factors.

(ii) Although the differences in the relative earning are the effect of the imperfections in the labour market, they also reflect the differences in the marginal

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6 See M. Blaug, R. Layard and M. Woodhall: The Causes of Graduate Unemployment in India, Allen Lane, The Penguin Press, 1969, P. 32. They multiplied the earning differential by an alpha co-efficient of 0.65 and 0.5 to get the exact return to education.


efficiency or productivity of the workers. CBA assumes that wages are paid to the workers according to their marginal productivities i.e. the equity of marginal productivity and wages. This is true in the case of most of the government offices and recognised firms. In the absence of market prices, shadow price or accounting price which reflects mostly the real productivity of workers can be used to evaluate costs and benefits. Attempts are being made in this direction.

(iii) Rate of return calculations at different points of time even with changes in demand and supply of educated labour can be made. Some have opined that this approach is less sensitive to inaccuracies in the measurement of benefits in the distant future than to those in the early years of working life of a person. However in a recent study pertaining to income corrections to this objection are made by calculating cross-section data corresponding to the assumed growth of real earnings in the future which have some distinct advantages over genuine life cycle data.9

(iv) Schultz\textsuperscript{10} is of the opinion that consumption benefits can be incorporated in the rate of return calculation either by subtracting a notional consumption component from educational costs or by adding some estimates of the consumption benefits to the monetary return. Consumption benefits are the benefits accruing at present or they may accrue in future in the form of investment benefits. But since the rate of return is calculated considering the present value of benefits by discounting, no problem arises to incorporate them in the rate of return calculation.

Non-monetary (non-pecuniary) benefits are ignored in the calculation of returns due to the reason that they are treated as part of earnings. It is said that these benefits affect only the supply of labour and not the demand for it. As such it is argued that ignoring them does not distort the relationship between earnings of a person and his productive contribution to national output. But when such benefits are in the form of

fringe benefits some problem may arise for the reason that they cause a downward bias to both private and social rates of return. But for the time being and for all practical purposes this problem can be overlooked because such benefits occur only in respect of peculiar industries which are education intensive. Moreover, downward or upward biases to rate of return are not due to such benefits alone but they spring from different causes.

(v) The comment that the age-education-earnings profiles in the rate of return calculation have failed to internalize the 'spillover income gains' (intangibles) which accrue to people other than the recipients of education can be corrected by explaining them as explained by Becker, Vaizey, Weisbrod and Blaug and with relevance to a country like ours.

(vi) It is a fact that education changes the expectations and values of educand brings a sense of satisfaction of elated life in society to him, provides opportunity for his personality development and helps him to develop moral and ethical attitude towards life. But these limitations to the value of private rates of return do
not in anyway imply that financial return is not a motivating factor for education. In other words, to argue that the prospects of achieving more subtle satisfactions from education are more compelling to many people than the prospects of great financial success is only a caricature of reality especially in countries where individuals and families decide to spend for some kind of education either in themselves or in their children with any eye on the earnings they expect from such expenditures on education. The mad rush for admission to various courses in a developing country like India is in itself an adequate observation of the responsiveness of the consumers to the returns from education. 11

Moreover calculation of private rate of return is essential to know how much profitable it is for an individual to invest on his education considering his lifetime earnings in comparison with the investment in other areas like purchase of shares, starting a business etc.

(vii) Opportunity cost is the private indirect cost

constituting the earnings foregone by students during their study period. From the practical point of view, to have a complete picture of the costs of education, inclusion of foregone earnings seems to be justified because, a person certainly loses the alternative earnings (during his education) which he should have earned depending on the employment structure of the country. 'A student does not work for pay while in school but may do so after or before school or during vacations. His earnings are usually less than if he were not in school since he cannot work as much or as regularly'. The difference between what could have been and is earned is an important and indirect cost of schooling. In the case of workers receiving on-the-job training, even all costs may appear as foregone earnings.\textsuperscript{12} As such by all counts inclusion of foregone earnings seems not unjustified. While calculating such costs necessary adjustments can be made for unemployment.

\textsuperscript{12} \textit{Ibid.}, P. 67.
Problem posed by unemployment in developing countries in measuring the benefits can be tackled by adjusting it as suggested by Woodhall. The adjustment would be to measure benefits in terms of earnings adjusted for differences in the rates of unemployment and labour force participation of workers with different levels of education.

(viii) Correction for the earnings foregone by the juveniles while in schools in poor countries may be adjusted. To the extent that their earnings add to the value of production, the parents will have to hire workers or make alternative working arrangements if their children are not to assist them. Then, a better measure of value than earnings obtained would be the cost of hiring a worker. These are to be subtracted from the estimated earnings flow attributable to education.

(ix) As for the externalities which are said to obstruct

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the estimation of rates of return, it can be said that some of them are reasonably identifiable while others are widely diffused in society. For example, the returns to community from expenditures on research that results in addition to knowledge may be measured. Although all the externalities and their long run effect on future effects present difficulties of identifying, it is to be noted that through their income distribution consequence, they result in higher social returns.\(^{15}\)

**Practical Utility of Rate of Return Analysis in Education**

Since in all countries of the world, including the developing ones vast amount of resources are invested in education, questions naturally arise as to:

(i) What are the returns from education?

(ii) What is its allocative efficiency between different types and levels of education?

(iii) What is the efficiency of private decisions in the sense whether students respond to the

variations in the returns to different types of education?

Answers to these questions are being provided by this approach.

Nonetheless, rate of return analysis certainly serves as an instrument of educational planning and policy. It is assumed to be the sine-qua non of CBA especially to determine the allocation of resources in education in terms of the total amount of resources to be devoted and distribution of this amount among various types and levels of education and various other aspects of allocation.

Secondly, this approach facilitates the inter-sectoral, inter-temporal and inter-national comparison of the returns to education. This enables the comparison of the returns to education with estimates of the yield of alternative forms of social investments in the country both private and public. Comparison of the rate of return to both education at different points of time is also made possible. Besides, it enables to compare private and social rates of return of one country with those of another.
Besides various studies relating to rates of return made in other countries especially U.S.A., in India too, many studies are made and many interesting results are disclosed by them. These studies are

There are eight studies relating to rate of return to education in India:


certainly able to give some guidance to government in framing their educational policy in accordance with the needs of the society.

**Conclusion:**

Although there are many economists who argue that RRA is not an automatic and unmixed solution to the problem of resource allocation in education, it must be agreed that it provides a 'direction indicator' to invest in particular type of education. It emphasizes the need to recognize educational planning as a part of overall planning of allocation of resources because rational allocation of resources demands comparison of benefits from educational expenditures with those of other forms of expenditures. In this sense educational planning becomes consistent with economic planning. Rate of return analysis may also suggest the way of maximizing the returns from educational investment as it helps ranking the types and levels of education according to the future needs of the society. In this respect rate of return analysis may

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be complementary to manpower planning also.\textsuperscript{19}

In conclusion we can say that in line with the nature of all economic principles which hold good subject to the assumption, 'ceteris paribus' rate of return analysis also 'as an efficient' tool to government decision making, can be expected to provide solution to all problems of resource allocation provided we keep in mind its own limitations and constraints.

Costs and Benefits of Education:

As stated earlier, from the economic point of view, CBA provides us an efficient solution to the problem of decision-making by government. CBA requires that 'inputs' and 'outputs' of the programme should be systematically identified as the logical step prior to measurement or quantification. As substitutes for the words 'inputs' and 'outputs', preferably it can be

\textsuperscript{19} Ibid., P. 47. For similar view see D.M. Nanjundappa in Investment in Human Resources, \textit{Op.cit.}, P. 70.
expressed that 'costs' and 'benefits' respectively of the programme should be identified to know the effects of public expenditure.

'Input' is the resource consumed or expended and is of value (for example, men, material, money, time). Therefore it is also called as 'cost' (not restricted to money costs alone). On the other hand, 'output' may be the resources resulted or the returns or 'pay-offs'. It may also be called as a 'benefit' (monetary or non-monetary). From the point of view of the decision-making unit, if the 'benefits' of a programme are more than the 'costs' of it, the effect is said to be favourable or the expenditure programme is said to be executed efficiently. To provide a framework of analysis for our study, therefore, we shall proceed to identify the 'costs' and 'benefits' of the educational programme by government.

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21 For the economy as a whole, this is the equilibrium condition. P.A. Samuelson has put it as 'Optimorum Optimorum' condition.
(A) Costs of Education:

Every public programme in a welfare state aims at welfare maximisation of the society as a whole. Therefore, the costs and benefits of such programmes should be considered from the point of view of the society as a whole. In other words, we should consider the 'social costs' and 'social benefits' of the educational programme.

So far as the cost (input) of education is concerned, all components of costs should be definite to avoid any ambiguity because, cost of education is more 'operational' than 'conceptual'. All costs of education may broadly be classified under two heads as 'direct' and 'indirect'.

Direct Costs should be considered from three sides.
1) Student as the consumer, 2) Institution as the supplier plus and 3) Costs incurred by the government.

Private (student) cost on education includes spending on

fees, books, hostel, transport and stationery. Direct institutional costs are academic and non-academic. Academic costs include expenditure on salary of teachers, library and equipment, scholarship. Non-academic costs include expenditure on administrative staff, building and playground. Direct government costs on education include all types of grants to private individuals and individual institutions.

**Indirect costs** of education should be considered from two sides: i) Labour resources side and ii) Capital resources side. Labour resources costs are the foregone earnings of students. It implies the loss of output on account of the use of human capital in a particular way. Capital resources costs are the opportunity costs of capital. It implies the loss of output on account of the use of capital resources in a particular way (for example, school buildings Vs. Iron and steel factory).

(3) **Benefits of Education:**

The benefits of education are innumerable viz., intangible benefits, spill over benefits and inter-generation benefits. Hence to consider only the earnings
as the benefits of education shall under-estimate its importance. The primary purpose of investment in education which is mostly lost sight of in estimation of the earnings benefit of education, is to raise the educational level of the society, to develop the cultural faculties of the people, and to create more civilized, decent and useful citizens for the future. These things are to be taken note of in identifying the benefits of education.

Weisbrod\textsuperscript{23} enumerates the benefits of public education under two categories: benefits internal to the students and benefits external to him. A classification of benefits of education little different to that of Weisbrod is given by Hirsch et al.\textsuperscript{24} They divide the benefits into four categories viz. (i) Direct long-run benefits, (ii) Direct short-run benefits, (iii) Indirect long-run benefits, (iv) Indirect short-run benefits.

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Taking all these classification into account we may classify the benefits into two broad heads viz. (i) Immediate (programme or primary) benefits: These benefits are increase in literacy, supply of educated manpower to production activity and increase in the level of education both in terms of quantity and quality. (ii) Future (process or secondary) benefits: These benefits are many viz. (a) Increase in the productivity of the person, (b) increase in the national income through improved quality of labour, (c) increased desire for higher education for higher earnings, (d) increase in government revenue by increased taxes on higher earnings of the educated, (e) increase in public expenditure on public services rewarding those whose incomes are not higher, (f) increased mobility of labour in search of a better opportunity, (g) crimeless society resulting in decline of expenditure on law and order.

However for the sake of convenience and preciseness in measurement, a comprehensive classification of the benefits of education may be made under two heads viz. (i) individual benefits (ii) benefits to the society as a whole.

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Individual benefits may again be divided into direct individual benefits and indirect individual benefits. Direct individual benefits may be further sub-divided into monetary and non-monetary benefits. Direct monetary benefits are: increased opportunity for securing employment and also increased opportunity for more earnings. Direct non-monetary benefit is the sense of satisfaction of elated life in the society. Indirect individual benefits may also be further divided into monetary and non-monetary benefits. Indirect monetary benefit is the cost-saving in his vocations and activities. To illustrate, when a person prepares his own income tax return he performs a service made possible by his literacy. Were this service provided through the market it would be priced. Indirect non-monetary benefits is the opportunity for personality development.

Social benefits (benefits to the society as a whole) accrue in many forms. Those may be enumerated

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27 Ibid.
as follows:

i) More trained and skilled labour to the productive activity in the country.

ii) Crimeless society due to increased educational level.

iii) Hence savings in the administration of law and justice (reduced costs on maintaining law and order).

iv) Consequently reduced tax burden on the community towards the expenditure on law and order.

v) On the other hand, due to increase in earnings of people, increased tax receipts to the government.

vi) Increase in educational opportunities has not only income effect but it has income redistribution effect also. It leads to more equal distribution of national wealth. When equality of opportunity is frequently expressed as social goal, public education plays a prominent role in achieving this goal at a time when most of the people in a poor country like ours are confronted with financial and other obstacles in receiving education. Educating every one would widen the personal distribution
of earnings compared with what it would be with no education or less education.

Summary View:

(a) Costs of Education:

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<th>Private Costs</th>
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<td>1. Direct</td>
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<td>i) Fees</td>
<td>i) Teachers' salaries</td>
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<tr>
<td>ii) Books and stationery</td>
<td>ii) Other revenue expenditure on administration, goods and services</td>
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<td>iii) Transportation (Travelling expenses)</td>
<td>iii) Expenditure on books, stationery, travelling etc.</td>
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<td>iv) Lodging expenses</td>
<td>iv) Imputed rent i.e., calculation of the annual amortization of the building over its expected life.</td>
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<td>v) Other miscellaneous expenditures minus average value of scholarship.</td>
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2. **Indirect**

1) **Earnings foregone**
   (Opportunity cost)

   While receiving education minus the tax liability on such earnings.

(b) **Benefits of Education:**

**Private Benefits**

1. **Direct**

   Life-time earnings of (earnings differentials) educated workers after income tax.

**Social Benefits**

1. **Direct**

   Life-time earnings of (earnings differentials) educated workers before income tax.

Most of the indirect benefits of education are in the form of intangibles as has been mentioned in the previous paragraphs.

The main objective of CBA in education is to calculate the net benefits to different levels and types of education. For this purpose the life-time earnings differential between the two categories of employees...
(for example graduates and under-graduates) is used to measure the direct financial benefit of education for the analysis of both private and social rate of return. Likewise costs are also calculated which are incurred for the particular level or type of education only under consideration.

**Distributional Effects of Education:**

In the preceding chapter we have examined the necessity of equity consideration in any government investment project apart from its allocative efficiency, especially in countries like India where substantial divergencies in the distribution of income occur. The consideration of equity aspect of public educational investment is all the more pertinent apart from its objective of maximising returns-private and social, as education is closely related to productivity and welfare in the sense that an expansion of education leads not only to an increase in the national income but social welfare also. It is not redundant to mention here again that if education has to become an instrument of economic development and social change, revolutionary changes (both qualitative and quantitative) must be brought in the
system of education. Education Commission outlines one of the major aspects of the educational revolution as 'expansion of educational facilities broadly on the basis of manpower needs and with an accent on equalization of educational opportunities'.

In view of the existing inequity in the distribution of economic opportunities and social status, it goes without saying that education also is not distributed equitably. But planning of education using either social cost-benefit technique or manpower requirement approach is hitherto addressed itself to solve only the problem of efficiency of resource allocation assuming that the existing distribution is equitable and it will not change after allocation to education is made. But these assumptions are obviously wrong and deliberate planning process in education will have to be initiated to achieve the objectives of allocative efficiency and distributional equity.

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The equity objective either at a particular point of time or overtime implies mainly that the educational facilities should be made available to all the aspirants of education and in all regions. Further as education is considered as the most significant factor in determining the economic status and opportunities, efforts should be made to attain equity in economic opportunities overtime. Inter-regional equity of educational opportunities certainly helps in removing the imbalances in the regional development also along with bridging income differentials between different classes of people. This indicates the need to construct the educational indices for different regions of the country as a whole. In the state-wise studies educational facilities in different regions, say at the level of districts in the state, should be reckoned with so that educational supply can be properly planned to reduce inter-regional inequality.

It is important to note that mere expansion of educational facilities may not guarantee the equity effects of education. Two questions arise: Given the

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initial income distribution and working of labour markets, can the expansion of educational facilities and the educated labour force improve income distribution in the sense of reducing income inequality? Secondly, given the political system particularly in the sense of the class structure (rich and poor) and its influence on the pattern and level of educational expenditures and subsidization by the state, can educational expansion be expected to improve income distribution? The answer to these questions seem to be negative. Therefore, education being the state subject, state-wise studies in this respect both in the advanced regions and backward regions help educational planning in states.

The foregoing discussion points out the fact that the distributional effect of education should consider inter-regional equity vis-à-vis inter-class distribution as well although distributional consideration implies generally income distribution only. In rate of return analysis of educational projects also, distributional effects which have certainly some impact on educational returns are required to be considered. Although there seems to be no empirical studies on this aspect, Becker, Schultz, Weisbrod, Lee Hansen and others have made some
studies on the general nature of income distributional effect in financing education and also on the educational opportunity. The area of study made in this regard is the distribution of subsidies contributed by the government and other endowments allocated among the various groups of different educational levels and the solutions to rectify the distortions through taxes or some other appropriate measure. But in CBA in particular, no attention yet seems to have been paid on this aspect. Therefore such studies are also necessary.

The objectives of such studies is two fold. One objective is to estimate the contribution made by education to the achievement of equality in income distribution and thereby elevate the lower income groups. Other objective is to see that the educational opportunities are distributed evenly. Thus there are two way considerations in the equity aspect. (i) Distributional effect of education on income (ii) Distributional effect of income on education. It is interesting to note that in developing countries like India there is less education and less educational opportunities and large income differentials exist between more educated and less educated people. Therefore in such countries growth of educational system and the bridging of
income differentials tend to move together. It is also not surprising that in such countries education is still a class education. The economic status of a family has a considerable effect on education. For example, we find that the children of well-to-do parents are better educated than those of not well-to-do parents. So unless education is democratized it is hardly possible to attenuate the social inequality of education. In other words, assuming equality of talent in a democratic society, democratization of education only can provide access to higher education and later to high social and economic status of the people.

But sometimes fears are expressed that in a labour surplus economy, expanding of higher education by open door policy over and above the growing capacity of the national economy will lead to educated unemployment. Hence it is suggested that higher education must be subjected to selective admission from the point of maintaining and raising quality and utility of higher education as well. But this policy may come in conflict with the goal of equity in educational opportunities and may be socially and politically unacceptable.
To begin with, the family income size of the people facilities in estimating the distribution of various levels of education among lower and upper income groups. For example, if lower income groups are unable to pursue higher education they should be directly financed by government either by taxing the upper income groups or by subsidizing the higher education to lower income groups by way of free studentship, scholarship and other educational facilities. Such a study has been done in U.S.A. But it should be noted that mere expansion of educational facilities to less developed areas and to lower income groups can hardly be considered as a sufficient condition to achieve inter-regional and inter-class equality if the benefits of such facilities are not fully realised by the people in such areas and in such groups. For example, one such study in India in case of scheduled caste population has shown that despite special policies of the government, participation in and realisation of benefit of education


31 Suma Chitnis: Education for Equality: Case of Scheduled Castes, Economic and Political Weekly, 1972, Special Number.
by this section of population is extremely unsatisfactory. The study shows that mere enrolment is not an adequate measure but their performance in education must compare favourably with that of their non-scheduled counterparts. Otherwise the government policy of subsidizing education to this group becomes non-optimal from the point of view of equity consideration. Therefore, subject to the assumption that the facilities of higher education to lower income groups are efficiently and fully utilised by them, one may agree with the inference that direct financing of their higher education by government brings about inter-class equality.

Secondly, to consider the effect of education on income, comparison can be made between the earlier and present size of family income on the one hand and the estimated size of income on the other. This comparison shows the impact of education in raising the income status of the people. If the result is positive, then the investment is said to be fairly equitable. Otherwise policy change becomes imperative towards expanding employment opportunities to lower income groups to achieve the objective of equity. This factor can be incorporated in rate of return analysis by assigning
weights which shall have to be determined on the basis of socio-economic conditions in the country. But here again the value judgement plays an important role.