"The literature in any field forms the foundation upon which all work will be built. If we fail to build the foundation of knowledge provided by the Review of the Literature, our work is likely to be shallow and naive".

-Walter R. Borg
CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

The importance of related research cannot be denied in any study because it works as a guide post or a light house not only with regard to quantum of work done in the field but also enables us to perceive the gaps and lacuna in the field of research concerned. Therefore, the study and analysis of similar or related studies carried out by research workers at various levels become very important.

The present study pertains to the area of Economics of Health which is comparatively of a recent origin both in India and abroad. Often the return on investment in health is attributed to education. An increase in productivity through improved education increases the return on a life saving investment in health. Many studies have been done on education but a very few studies have touched the area of health.

2.2 EDUCATION AS A PRODUCTIVE AGENT

Treating human beings as part of human capital is by no means new. Many past Economists and non-economists have considered human beings or their skills as capital. Economists who considered human beings or their skills as capital include, such well known personalities as William Petty (1691), Adam Smith (1776), Alfred Marshal (1830), Narraw William Senior (1836).
J.B. Say (1841), William Boscher (1854), J.R. Melloch (1870), Leon Walras (1874), J.H. Thunen (1875), Walter Bagehot (1876), Ernest Engel (1883), Henry Sidgwick (1901) and Irving Fisher (1927). Although several motives for treating human beings as capital and valuing them in money terms are found in these literature, yet most of them neither attempted evaluation of human capital nor employed the concept for any specific purposes. They did, however include human beings or their skills in their definition of capital and recognised the importance of investment in human beings as a factor increasing their productivity. Although some economists included man himself as capital, most of them included only human skills. The former view has been taken by economists such as Leon Walras and Irving Fisher, whose theoretical approach did not require classification of the factors of production into the trio of land, labour and capital. The latter view, held particularly by the English Classical School, has been adopted by economists interested in the distribution of income and the theory of production. Whether or not we define skills and/or the acquirer of these skills as capital is relatively unimportant.

Basically, two methods were used to estimate the value of human beings—the cost of production method and the capitalised earnings method. The former method is less useful since there is no simple and necessary relationship between the cost of producing an item and its economic value. The inseparability of
consumption and investment and the difficulty of treating depreciation and maintenance make any cost of production value dubious.

Farr's capitalised earnings approach was the first truly scientific method and is the one followed today by the majority of economists for evaluating human beings\(^1\). His work and that of Dublin and Lotka\(^2\) should be starting points for anyone interested in determining either human capital values or their components. The human capital concept was also used by past writers to demonstrate the power of a nation, propose new tax schemes, determine the total cost of war, emphasise the economic significance of human life and aid courts in making decisions in case dealing with compensation for personal injury and death.

Current writers are employing the human capital concept for many of the same purposes for which it was used in the past, namely to demonstrate the economic profitability of human migration, health investment, premature death and education. In the same way human capital has to be developed so that it can contribute to the growth of prosperity. If human potential has to be of significance in the economy as a production factor then abilities and talents have to be developed and raised by means of planned investments to an average level which is suited to the position and aims of a particular country.
The rate of return approach, which is a part of capitalised earning approach, is basically a method for making efficient resource allocation decision. Many research studies are available on educational returns at micro and macro level, but no researcher has ever tried to calculate the rate of return from investment in nursing training. In this chapter an attempt is made to provide a critical examination of previous studies which have a bearing on the present investigation and tries to calculate the justification of investment in nursing training especially from nursing colleges of Haryana. Before coming to the concept of rate of return, it will be better if we discuss the concept of cost. The cost of education is a popular area of research in economics of education. But most of the studies done are confined mainly to institutional costs. The studies on ‘student cost’ (private cost) and ‘opportunity cost’ (social cost) have not been done on a large scale. Some of the important studies reviewed in this field are reported as under.

2.3 EDUCATION IN TERMS OF COST

Shukla (1960)\(^3\) studied the cost of basic and non-basic schools of Delhi. The study intended to analyse the cost involved in running basic and non-basic schools, to identify the factors contributing to the cost.

The study revealed that there was no significant difference in the per capita cost of education in these two types of schools. The slightly higher average per capita cost of education was
found in respect of Junior basic schools due to Pupil-Teacher ratio and Rural-Urban differences.

The expenditure on teacher’s salaries accounted for 80 to 90 percent of the school budget. Craft work accounted for only a negligible proportion of the total cost. Total average cost per student was calculated as Rs. 68/- and the cost of craft per pupil per annum came to only Re. 0.50/- of which Re. 0.26/- per pupil per annum was recovered by selling the final product. He concluded that it was in no way logical to say that basic education was more expensive than non-basic elementary education.

Panchamukhi (1965) studied the maintenance cost of higher education in Bombay University in terms of auxiliary services, student aid expenditure, instruction and research, library, general and academic administration and plant operation etc. The costing was done on the post graduate departments for the year 1962-63 and 1963-64. The major sources of the data were the official publications of the University, namely, the budgets of the university, annual reports etc. He found that the recurring expenditure on science and technical education was higher than that in arts and social sciences. In the college education, per student cost of commerce education was found to have nearly doubled in the course of ten years. The expenditure on personal emoluments of teaching and technical staff as a percentage of total recurring expenditure was found to vary between 30 percent to 60 percent for
different subjects of post graduate education. It was pointed out that per student expenditure varies inversely with the institution size, namely the number of students.

**Rudra Dutt (1967)** conducted a case study of unit costs of education in colleges of Haryana. The study was confined to Art colleges of Haryana for the period 1965 to 1967. The author made a clear distinction between cost of creation of a seat and cost of operating it. He studied the variations in unit costs in relation to age of college and teacher costs versus non - teacher costs. He concluded that cost per student was lower in private colleges than in government colleges. The cost in private women colleges was the lowest.

**Kamat (1968)** conducted a study to estimate the recurring institutional expenditure per student per annum at the undergraduate and post graduate levels in the University of Poona. Institutional costs as calculated by Kamat, for Commerce, Arts and Science graduates were Rs. 1200/-, Rs. 1500/- and Rs. 1800/- respectively. The high figures of cost for science students were due to higher expenses incurred on laboratory and equipments. Commerce education claimed the lowest costs as there were fewer branches of that specialization. The costs of technical education (medical and engineering) were estimated to be four to five times that of general education.
Mathur (1968) studied the cost of education in India during the period 1951 to 1961. The aims of this project were to study the growth and variations in educational expenditure with respect to institutions/states/union territories, sources and managements. He also analysed the pattern of expenditure from different sources of educational finance during the decade. He found that the educational expenditure increased from Rs. 1144 millions to Rs. 3444 millions during the decade 1951 to 1961, giving an annual rate of growth of 11.7 percent per annum. The expenditure on education per head rose from Rs. 3.20/- to Rs. 7.80/-. The expenditure per pupil increased from Rs. 44.20/- to Rs. 71.80/-. It was pointed out that there were wide inter-state variations in the rate of growth of total educational expenditure. All the states seemed to have shared the general per capita increase in expenditure. The greater part of the direct expenditure (72.1 percent) was spent on schools followed by expenditure on university and higher education (15.1 percent) and a small proportion on special education (0.9 percent).

Shah (1969) in a paper, ‘Private costs of elementary Education’, emphasised the importance of non-tuition expenditure and tried to explain that fees were not considered as a burden by the relatively affluent parents. The study revealed that non-tuition expenditure was usually low in case of children coming from poor families.
Bose (1976) studied the cost of elementary education in West Bengal. The purpose of the study was to determine components and differentials of the unit costs of elementary education in West Bengal. He calculated the average teacher cost for four years from 1969-70 to 1972-73 while the average recurring cost per student on all other items was calculated for only two years 1969-70 and 1972-73. He found that the average recurring cost per student on non-teacher items had not shown any remarkable increase over the years. He estimated that during 1969-70, the average total recurring expenditure per student in an elementary school in West Bengal was Rs. 57.08 and in Calcutta was Rs. 51.75. The figures rose to Rs. 62.07 and Rs. 59.92 respectively during 1972-73.

Gogati (1979) found out the cost per student per year for education in the Arts, Commerce and Science colleges in Maharashtra. The main findings of this study were that the average cost per student in science college was the maximum and in commerce college was the minimum. The sources for grants were the state Govt. and the University Grants Commission (UGC). The per student expenditure in a college with arts, science and commerce faculties was Rs. 486.35 in 1973-74 and Rs. 1452.58 in 1977-78. Corresponding figures for science college were Rs. 1016.92 in 1973-74 and Rs. 1539.18 in 1977-78. For a commerce college, the figures were Rs. 373.07 during 1973-74 and Rs. 481.28 during 1977-78.
Larger colleges were more economical than smaller ones. Expenditure on staff emoluments and essential expenditure was 75 percent of the total cost during the previous five years. A study of unit costs of LL.B. degree level colleges by Rajesh Kumari (1982) showed an annual cost of Rs. 15,040.18/- for a morning shift law student. Out of this, the institutional cost was to the tune of Rs. 1328.09/-, student cost was Rs. 9912.09/- and the opportunity cost was Rs. 4800/-. Therefore, the morning shift students spent approximately eight times more than the institution spent on them. The average unit cost of a law student in the evening shift was Rs. 6327.20/- per annum. The institutional cost was Rs. 1328.09/- and student's own contribution was to the extent of Rs. 4999.11. The opportunity cost in the case of evening students was nil as they were already employed.

Dr. T.R. Sachdev (1995), has done a very significant study on the estimation of total cost of health care services. He has taken the expenditure incurred and opportunity cost of the supplier and the consumer. He said that it looked very easy to find out the total cost of health care services but in the realistic sense, the process of estimation of the total cost is quite intricate.

The initial attempts to estimate the money value of human beings were made around 1691 by Sir William Petty. Labour to him was the 'Father of Wealth'. It must therefore, be included in any estimate of national wealth.
Theodas Wittstein (1867) defined human beings as capital goods and employed a variation of both Farr's capitalised earnings and Engel's cost of production approach to value human capital. Since he assumed that an individual's life-time earnings are equal to his life-time maintenance cost plus education, the approaches yield the same estimates which invariably come out to be zero at birth.

Dublin and Lotka (1930) considered that calculations of human values could be useful in estimating the economic costs of preventable diseases and premature deaths. Their method of capitalising an individual's earnings minus his consumption or maintenance gives a useful estimate for the economic value of the man to his family. Their discussion of the capitalised earnings approach is clear, concise and one of the best expositions available.

Adam Smith (1776) included in his category of fixed capital, the skill and useful abilities of human beings. The skill of a man, he said, may be regarded as a machine that has a genuine cost and returns.

These economists who basically defined capital as "produced means of production" have not explicitly included the human beings as capital. J.S. Mill (1909) asserted "the human being himself. I do not class as wealth. He is the purpose for which wealth exists. But his acquired capacities, which may exist only as a means
and have been called into existence by labour fall rightly, as it seems to me within that designation. The reason for not explicitly including the man himself may be found in his interaction in production and distribution.

In contrast, J.R. Mcculloch (1870) clearly defined the human being as capital. According to him there is a close analogy between conventional and human capital. An investment in a human being should yield a rate of return consistent with other investments, plus a normal rate of return determined by the market interest rate, during the probable life times of the individual.

Nassau Senior (1939) treated the human being himself as capital with maintenance cost incurred with the exception of obtaining a future yield.

Bryant, (1958) has done many studies and good research on nursing resources on the ward and nurse-patient relationships. He studied some hospitals in Kansas City and came to relative effects on nursing care of

1. increased nursing hours per patient and
2. variations in the composition of nursing staffs.

Although Alfred Marshall (1830) admitted that an estimate of the capital value of a man might be useful and discussed clearly the capitalised-net-earnings approach to human capital evaluation (consumption) being deducted from earnings before
capitalising, he disregarded the notion as ‘unrealistic’ since human beings are not marketable.

The concept of human capital has been used to demonstrate the magnitude and economic importance of the stock of human resources for the economic development of a nation by various economists such as J. Sheild Nicholson in U. K., Alfred de Foville (1900) and A. Barriol (1908) in France, Woods and Clearance B. Metzger (1927) and E. F. Denison (1962) in the USA and P. R. Panchmukhi (1965) and A. M. Nalla Gounden (1965) in India. Wilkinson has made use of the 1961 Canadian census to examine private rates of return to education by six occupational categories: labourers, carpenters, type-setters, draftsmen, technicians and engineers. He found that rates of return to various levels of education are equalised within each occupation but not between occupations. He has suggested that variations in knowledge regarding opportunities in the better paying jobs, unemployment rates for persons with different levels of skills and differences in bargaining power account for most of the differences in the rates of return between occupations. In addition, he raised the question whether there is a positive association between formal education and on the job training received so that comparison in terms of the cost of schooling alone ignores an element that generates higher lifetime earnings.
T. W. Schultz (1961) has written extensively about the role of human capital in economic growth and development in general and has done pioneering work in the field. He has treated the economic capabilities of man as a produced means of production and education as an investment in man and its consequences as a form of capital, because it renders a productive service to the economy. According to him, “while any capability produced by human agent cannot be sold, it is nevertheless in touch with the market value by affecting the wages and salaries the human agent can earn. The resulting increase in earnings is the yield on the investment”. He calculated the expected rates of returns sometimes on a total resource cost basis and at other times on a private resource cost basis. Moreover, educational investment may be complementary with physical investment in both types of capital must be considered jointly.

Mincer (1962) calculated the total amounts invested in on-the-job and off-the-job training in USA in 1939, 1949 and 1958 without even resorting to accounting data at the enterprise level. The procedure was quite simple: starting with actual age earning profiles, he constructed net returns stream by three levels of education and calculated the corresponding private rates of return on investment in schooling. He then applied these rates to each successive profile to determine what earnings would have been if individuals had not invested in training. These foregone
earnings constitute the costs of general training and hence measure the investments an individual makes in training.

Warren & Malone (1962)\textsuperscript{11} Marg Research associate, Boston University, Boston have done research in “Role of the nurse in outpatient departments” and surveyed a sample of ambulatory patients, outpatient personnel including physicians and all 100 outpatient nurses in seven Boston area hospitals cooperated in interviews to learn how individual role and social system factors may be altered to improve outpatient nursing services.

W. Lee Hansen (1963)\textsuperscript{12} confined himself to the direct return in estimating both the private and the social rate of return. Utilising 1950 census of population data, Hansen calculated social and private internal rates of return to elementary, secondary and higher education in USA. Social rates of return were calculated by including all costs and benefits attributable to obtaining an education, these occurring to the individual and his family and to society at large. Whereas private rates of return estimates include only the costs and benefits to a student or his family. The rates of return approach incorporate both timing and cost consideration and readily permits comparisons of the net return to schooling with alternate returns in other sector of the economy. On the basis of such comparisons policy makers are in a better position to decide whether from an economic point of view investment in education should be increased relative to other proposed expenditure.
Burton A. Weisbrod (1963)\textsuperscript{13}. Professor of Economics at Wisconsin University, has pointed out a variety of external benefits occurring out of investment in education. According to him, the economic analysis of the contribution of education to earning capacity is valuable but it is only a part of the picture. Schooling benefits many persons other than the students. Persons receiving external benefits from a student education have been divided into three groups -

1. residence related beneficiaries such as family, future family, neighbours etc..
2. employment related beneficiaries such as co-workers, subordinates, supervisors and employers etc. and
3. society in general.

Pioneering work in the field of investment in on-the-job training was done by G. S. Becker (1964)\textsuperscript{15}. He realised that "while important work has been done on the economic return to various occupations and education classes, there had been very few attempts to treat the process of investing in people from a general viewpoint or to work out a broad set of empirical implications". Job training was dealt with so elaborately, not because it was more important than other kinds of investment in human capital, but because it clearly illustrates the effect of human capital earnings, employment and other economic variables. He has concluded that the job training increases future marginal productivity of workers in the
firm providing it and in many other firms as well. If training were

given only during the initial period, expenditures during the initial periods would equal wages plus the outlay on training. expenditures during other periods would equal marginal products.

Taylor (1961)\textsuperscript{16} in Prediction Studies in Nursing in the University of California School of Nursing, San Francisco, reviewed 111 studies on prediction of success in nursing and also selection and guidance devices used by 698 nursing schools. Information was obtained on nursing students selection techniques and their validation.

Yett (1964)\textsuperscript{17} has done the studies on Economic Analysis of The Hospital Nursing shortage and developed a predictive model to describe supply and demand in the hospital labour market, and was tested to develop new approaches to problems of nursing shortages.

Herberger's (1965) was the first study of its kind which reported that the social rate of returns was 10 percent from school stage education and 16.3 percent for graduates. The reference period of this study was 1956 and it was based upon secondary data from urban Hyderabad.

D. Henderson Stewart (1965) calculated the private rate of return on the cost of three years required to complete secondary school education in Great Britain in 1963. It was about 13 percent, the corresponding rate of three years of higher education

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was about 14 percent. Their yield were about 50 percent higher than those that could be earned by investing in equities and debentures. Even after allowing a considerable premium for the greater liquidity and uncertainty of investment in human capital, it appeared that private rates of return of educational investment exceeded the yield of risk capital in the business sector.

Mark Blaug (1965)\textsuperscript{18} advocated the use of 'Rate of Return' approach in measuring the benefits accruing out of higher education. The student is conceived as choosing between two lifetime income profiles one with immediate but relatively low earnings which increase only gradually over time, the other with no earnings for several years followed by steeply rising earnings after obtaining additional education. Lifetime earnings are estimated from cross section data classified by age and is solved for the discount rate at which the present cost of extra education would yield the prospective streams of extra earnings. According to Blaug, "The argument is usually confined to different levels of education, but the approach is equally suitable to different channels of higher education and even to on-the-job training as a substitute for formal education".

Anthony Bottomley (1966)\textsuperscript{19} compared the economic efficiency of educational investment in general and vocational education. Bottomley used an aggregate model which combined concepts from standard economic theory and the rate-of-
return approach to human capital formation, exploring some theoretical and practical aspects of investment in education in poor countries. He concluded that vocational education was preferable to general education.

**Hussain (1967)** showed a very high rate of returns (both private and social) of matriculates as compared to illiterates. According to this study, the private rates of return of matriculates over illiterates were as high as 48 percent and the social rate of return 37 percent for BA degree holders over matriculates, the respective returns were 12 percent and 4 percent.

**Martin S. Feldstein (1967)** did lots of work on the economic analysis for the health services and his study concerned with identifying and estimating relevant decision making information and applying optimising methods to improve the efficiency of British National Health Service.

**Nala Goundon (1967)** made an attempt to assess the contribution of education to India's economic growth during the brief period of ten years from 1950-51 to 1960-61. The study revealed that -

1. the stock of human capital in 1950-51 was 4956.45 crores while in 1960-61 a total of 3103.62 crore of human capital was embodied in rural population and the remaining 4230.70 crores in urban population. During the decade, the percentage of distribution changed in favour of rural areas.
Kitby (1969) provided a rich source of information and commentary about experiences with vocational education and training in Nigeria from 1946 to 1960. He advocated that the private sector should be given a larger role in the training process. Less encumbered by formal regulations, private firms can establish, expand, adopt or discontinue training courses with greater speed and at a lower cost. Student motivation to effectively integrate theory with practice is enhanced by greater proximity to the actual working situation and the immediate presence of a prospective employer.

Brown and Miner (1969) studied the health manpower importance in New York. Panchamukhi (1971) examined the role of health and medical programmes in the formation of human capital in India. He estimated the resource cost of health capital in India from 1951-52 to 1961-62 and found that the resource effect in creation of health capital had increased by 1.2 times in the case of health and by 2.6 times in the case of education.

Maureen Woodhall (1971) discussed the problem of measuring the rates of return to women’s education and evidence was prepared for nine countries, which showed that the returns to secondary and higher education were about two percent lower for women than men, but in some countries they were actually higher. It was also pointed out that education increases the earning capacity of women and also increases their propensity to remain in the labour market. The paper concluded that the difference between the return
to education for men and women is less than what is often suggested, particularly if some attempts are made to measure non monetary benefits. But the return to women's education would be increased if there were a change in traditional attitudes leading to equal occupational distribution and better utilisation of women in the labour force because a large part of observed differential between male and female earning was due to the concentration of women in low income occupations.

Pandit (1973) studied age-education earning data of 2203 workers both male and female living in rural and urban areas of the country. The findings of the study showed that social and private rates of return to education were the highest from primary education, private rate being 17.3 percent and social return 13.4 percent respectively. In case of middle pass, his estimates were 18.8 percent as private return and 15.55 percent as social returns over primary. Thus the estimates of Pandit's study reflected improved version of the technical procedure adopted. Earnings were adjusted for ability and family background factors, economic growth, non participation, unemployment and age specific death rates etc. Cost profiles were adjusted for dropout and wastage rates.

Paacharopoulos (1973) calculated the rate of return on secondary data. The reference year of this study was 1960. The study revealed that the social return for primary school age was 20.2 percent, for secondary school age 16.8 percent and for BA level
it was 12.7 percent, whereas the private rate of return for primary school level was 24.7 percent, for secondary school age 19.2 percent and for BA level it was 14.3 percent.

Shortlidge (1974) calculated rates of return for agriculture over matriculation as trace study of Gobind Ballabh Pant Agriculture University, Pant Nagar (U.P.). The reference period of this study was 1971 and the sample consisted of 605 persons. Shortlidge’s calculations showed that social rate of return of B.Sc. (Agriculture) was 10.3 percent and private rate of return was 16.2 percent.

N. P. Pandey (1976) estimated the rate of return for higher education in Nepal. An attempt was also made in the study to find out the most profitable level and type (general versus professional) of higher education in Nepal and also the indirect benefits from education. Data used in the study was obtained from a field survey conducted in two phases in Kathmandu City in 1974-75. The findings of the study revealed that the cost of higher education in Nepal was heavily subsidised in comparison with the cost in India and other countries. Professional education was however an exception. The effect on earnings of general undergraduates was estimated to be 23.58 percent only and it was 38.53 percent and 82.11 percent for general graduates and general post graduates respectively. It showed that socioeconomic variables
other than education had an influence in determining the earnings of the educated.

Moyra Allen (1977) in McGill University, Montreal, Canada, did work on improvement in the health services especially in maternal and child health, nutrition and mental health under World Health Organization (WHO) project.

Kenneth R. Smith (1979) did a remarkable work on health manpower policy and explained the need of training within the health system. The economic, social and political forces impinge on the present organisation of the system and can act to change the present organisation of the system and can also act to change the present structure and performance of the system.

J. B. Tilak (1980) calculated the returns to education accrued differently to different groups of population and unfavourably to the weaker sections. West Godavari district of Andhra Pradesh was selected for the survey. In all, information relating to 415 households - 206 in rural areas and 209 in urban areas was collected. Data was collected on individual characteristics such as education, age, experience, occupation and earnings of 966 members in the work force - 678 males, 288 females - 397 backward classes and 569 non backward classes. Data belonging to the same household and relating to educational levels and private educational expenditure on 722 pupils in the schools and colleges was also studied. The study indicated that the crude rate of return declined
with increasing levels of education. The crude rate of return for women were greater than the return for men at different levels of education. Both marginal and average rates of return to education of backward classes were above the corresponding rates for the non backward classes. Both women and backward classes were subjected to wage and employment discrimination. For completing this investigation, data from published and unpublished secondary sources relating to the district and the state were used in the context of several aspects.

Doshi (1980) estimated the location specific rates of return for medical education and thereby tried to explain why medical graduates clustered in urban areas for starting practice rather than in rural areas.

Dutta (1981) estimated the private and social rates of return for school education and higher education after adjusting for ability, economic growth and unemployment. He was more categorical in his assertion from a sample study for Rajasthan that both formal education for children and adult education would be quite effective in the redistribution of earnings.

Reddy (1981) attempted to examine the policies in terms of relation to allocation of resources to different levels and types of education were rational and efficient in terms of the rate of return. The sample consisted of 2080 employees working in the offices and undertakings of the state, the central government and the
local bodies situated in Hyderabad and Secunderabad. An age earning profile of the respondents was constructed. Mean, percentage and correlation coefficient were used to analyse the data. The findings of the investigation were:

1. Social and private rate of return for all post graduates were found to be below 5 percent than those with first class.

2. A variation in the trend in social and private rate of return for graduates of different faculties was found.

3. Post graduate education seemed to need special attention in terms of balancing cost incurred and benefits accruing to individuals in the society.

4. Students with superior academic performance were the highest beneficiaries.

2.4 EDUCATION AS HEALTH MANPOWER

Gupta and Jugal (1981) have shown that the teaching of health economics is essential so that the health personnel working at various levels inculcate cost consciousness and equip themselves with knowledge and skills of economising the use of health resources.

May Spencer (1981) in Birmingham explained the qualities of nurse, which are - compassion, capabilities, objectivity and communication. Compassion is the reason most often given for becoming a nurse.
Shanta (1982) made a comparative evaluation of economic and non-economic returns to private investment in various levels and types of education with reference to education and employment of women and highlighted the level of education that was most viable for women from the investment point of view. The study was conducted on a sample of 1465 women employees working in the organised sector, both public and private, in Bangalore City, drawn by multistaged stratified random sampling from seventy five establishments. The women employees responded to structured questionnaires and interviews regarding economic and non-economic returns. The data was subjected to correlation matrix, multivariate regression analysis, return methods and descriptive methods, adjustments being made for costs and life time earnings on the basis of rupee value of 1960-61. The study supported the contention that women aspiring for education beyond the matric level would profit more from vocational education than from pre-university and college education.

Culyer & Horisberger (1983) in England evaluated the health care technology. They explained the different phases of health care technologies. These technologies are studied to diagnose a disease and the role of economics in the evaluation of health care technologies are also touched by showing the product curves for medical technology.
Modi (1983) also compared the income differential of persons with different educational backgrounds. The comparison of education and income was made by subdividing the sampled population into categories of urban and rural habitations, professional categories, caste, age and economic status through material possessions. The study was based on a cross sectional sample of 2100 persons. The sample was drawn on the basis of demographic patterns of the 1971 census in the state of Gujarat.

Manocha and Mathur (1984) showed positive correlation between the human resources development (HRD) index and Gross National Product (GNP) per capita during 1961 and 1971. Though the correlation coefficient declined substantially over the decade, the overall HRD index was 1.8 times faster than GNP per capita during the decade.

Shah and Shrikantiah (1984) examined the impact of education on earning and distribution of personal income, the impact of subsidised higher education on the intertemporal equity in education and economic opportunity cost calculations in this study were not of subsidies. The data was largely cross sectional in character but was adjusted to two terminal references for graduates and four benchmark period earnings for parents (1961, 1965, 1970 and 1975) to provide correctives. The graduates were drawn from the M. S. University, Baroda.
H.E. Freeh (1984) discussed the need for health care competition and stressed the manpower planning in health.

Report of NIHFW (1984) showed the cost analysis of services provided by teaching hospitals.

Sharma (1985) in his study titled "Economic support for Health for All Strategies in India". NIHFW, New Delhi, provides inter sectoral collaborative mechanism for economic and social support for Health for All. It also discusses the financial material and manpower resources and gives the funding description of the project using community financing.

M. Woodhall (1987) in his article "Human Capital Concepts in Economics of Education" has given four underlying patterns.

1. The returns to primary education (whether social or private) are the highest among all educational levels.
2. Private returns are in excess of social returns especially at the university level.
3. All rates of return to investment in education are well above the 10 percent common yardstick of the opportunity cost of capital.
4. The returns to education in less developed countries are higher relative to the corresponding returns in more advanced countries.
Bo lino (1987) has recognised that though it is an accepted fact that the growth of human capital through education and training is both a consequence and a likely cause of economic development and change, yet the measurement of the same remains elusive. We often do not know the number of people being trained or educated during a period, let alone the length of schooling or economic costs. Without such measures the assessment of returns to human capital remain largely speculative. Bolino's book successfully describes the development of vocational training in the USA, charting both legislation and employer's contribution as well as the multifarious institutions which were involved. In the concluding section, Bolino sought to measure the contribution of job training to economic growth. The model used is a regression of Gross Domestic Product (GDP) per worker on emoluments. But he has made no attempt to assess the relative impact of education as compared to other possible determinants of GDP.

Tamas and Roemer (1987) in reviewing health manpower development—a method of improving national health systems, explained the importance of proper training and management of all health personnel. Their study implies that health personnel are utilised in a manner that is consistent with their skills and competence and under conditions that promote effective work.

Anastasia Kotaski's (1987) compared in her study both the technical, vocational and academic upper secondary
education in Greece. For the Greek case, the private cost of education were much higher for academic than for vocational education, while the public costs were similar. She concluded that assuming comparable benefits and the higher social cost of academic education, priority should be given to vocational education in Greece.

J. B. Tilak (1987) measured the rate of return in terms of the socio economic status of the household based upon the primary data from a district of Andhra Pradesh. He concluded that investment in education for the weaker sections (backward classes and women) is more beneficial as the rates of returns to these groups were higher compared to the non backward classes particularly at lower level of education. So, from the stand point of 'equity', the author recommended higher and proper allocation of resources towards the education of the weaker sections. He provided evidence that sex wise and caste wise crude rates of return for women were found to be greater than returns to men at different levels of education.

Nair (1988) carried out study on 'Finances, costs and returns of University education in Kerala'. The study was confined to the University of Calicut only. The estimates of costs and returns were based on data relating to the year 1985 - 86. The study revealed that IRR was determined by such factors as the choice of profession rather than by the level of education. It was
found that those with M.Sc. engaged in non-teaching professions enjoyed the highest private rate of return (16.6 percent), while the lowest (5.8 percent) was destined for those with Ph.D. degree in Arts. On the other hand, Ph.D. degree holders in science who were teachers showed the lowest social rate of return (0.59 percent) while their colleagues with M.A./M.Com. achieved the highest rate (7.35 percent). This was because of the fact that the institutional cost in the university departments was enormous especially in science departments. By and large the result justified investment in post graduation and research from the point of view of the individuals.

Sharma (1988) calculated the social rate of returns of investment in women education especially for graduates, post graduates in Arts, commerce and science on different assumptions. The social rate of return of Arts graduate was 16.75 percent and the rate of return of post graduates was 14.49 percent. The rate of return of science graduate was 17.59 percent and of science post graduate was 17.88 percent. The necessary data for this study was collected from three districts of Haryana having 723 women as sample.

Jeffery M. Siedenberg (1989) studied the private monetary benefits in the cooperative education in New York. His empirical study was based on human capital investments and augment the quality of their labour and leisure and yield private and
social progress. Such enhancement of human resources occurs by adding to one's formal education, experience, training, health, nutrition, mobility and/or job skills. It is noted that human capital investments also yield private consumption benefits that are non-market, non-monetary or non-quantifiable (for example, good feeling and prestige) as well as social returns that strengthen the society at large (for example, an increased national income).

Ghosh (1989) deals with issues relating to the development of manpower for the delivery of an effective and low-cost package of health services in rural areas.

An empirical study in the context of the current educational and workplace reforms in China was conducted by Wei Fang Min and Mun Chiu Tsang (1990) based on data from the Beijing Auto Industry Company, China. The study revealed that vocational & technical education graduates engaged in factory work relevant to their previous training were more satisfied with their job and were more productive than general education graduates. The study has indicated that -

1. secondary vocational school graduates as factory workers holding jobs closely related to their training tend to exert higher work effort;
2. they were more productive than general senior high school graduates who held the same job.
3. A worker's educational background had a less significant impact on productivity in a more cooperative work group than that in a less cooperative one.

Brain and Shelly (1990) attempted to measure the effectiveness of the Youth Training Scheme (YTS) by estimating the impact of youth training scheme participation on both subsequent likelihood of employment and the subsequent earning potential. Youth training scheme was found to have a positive impact on the likelihood of employment. The study revealed that youth training scheme had a positive impact on subsequent wages.

Jugal (1990) has made an attempt to compile a review of researches in health economics conducted in India. The main areas of research pertain to need and demand supply of health care services and impact of diseases and programmes.

Krishna (1990) defined the health status of individuals and of the community. The study identifies broadly the factors that influence the health status. Further, it describes basic health care policy issues that deal with resource cost of alternate health care delivery system, their effect on health status and the economic benefit of improvement in health status.

Jeannine M. Greenfield (1990) in Official Journal of the Association of Operating Room Nurses, New England, studied that we cannot afford to ignore economics in nursing
Because of revolutionary changes in health care systems, nurses must become productive and different and informed choice.

Narayanaswamy (1990) in Nurse Education Today evaluated the budgeting process in nurse education including subjective budgets incrementalism, objective budgets and zero base budgets. The author considers these in turn and concludes that there is some merit in considering a variety of budgeting methods for nurse education, particularly a programme of objective budgets.

Very encouraging results regarding investment in vocational training education were found by Shoshana Newman and Adrian Ziderman (1991) using data from 1983 population census of Israel. They found that those who completed vocational school and work in occupations related to a course of study pursued at the vocational school earned more (up to 10 percent) annually than their counterparts who attended general secondary schools, or those from vocational schools, who were employed in non course related occupation.

Jan Nyberg (1991), in Nursing Economics Journal July/August 1991, studied the nurse as a professionocrat and explained that the greatest difficulties in being a nurse in the 1990's is in maintaining excellent care in the face of economic constraints. His research explored how organisations (including hospitals) which originated as beurocracies need to change their format. Nurses can have greater impact on organisations as they serve as
professionocrats' who understand the professional goals and bureaucratic goals can be integrated in health care organisations of the future.

Sharma (1992) studied the corporate institutions in India (WHO project). He studied 47 institutions out of which 17 institutions had multiple health care schemes. He observed that medical reimbursement as a health care financing scheme is operating in all the companies. 34 of the institutions studied were satisfied with the existing source. Only 2 institutions were receiving cash or financial aid from outside agencies.

Beverly Campbell (1992) did an analysis of components of attitudes towards cost containment and indicated a need for health care economic education to begin in nursing school and continue throughout a nurse career.

Justinian C. J. Galabawa (1993) conducted a study on 'Cost Benefit Analysis of Private Returns to University Schooling in Tanzania'. The main purpose of the study was to determine the private cost, private benefits, net present values of benefit and private average returns to investment in selected undergraduate degree programs offered by the University of Dar-Es-Salaam. For the purpose of analysis, the data was composed for eight degree programmes by gender and by pre university entry work experience. The study cautioned against the practice of narrow manpower planning response to a particular predictor without taking
into consideration the monetary benefits and carried preferences of
individual students. The rank ordering of the degree programs by
private rates of return (0.89 percent) as determined from the use of
cross sectional data was as follows: Art education (51.37 percent),
Law (48.70 percent). Science general (48.62 percent). Agriculture
(28.27 percent). Engineering (25.42 percent) and Medicine (30.70
percent).

The study revealed that the private direct
expenditures on various degree programmes were high.

Guy Carrin (1986)\textsuperscript{51} of Hacettipe University,
New York studied the research project in Turkey which was initiated
by the Turkish Ministry of Health, to provide integrated health and
family planning services in all the areas of the District (Etimesgut),
to establish training facilities for para medical staff. It was found
that between 15 to 29 percent of pre schoolers had insufficient
calories and proteins.

Martin (1995)\textsuperscript{52} in the Journal of Advanced
Nursing in Canada, has developed a nursing faculty practice model
in Canada, whereby teaching roles and responsibilities are combined
with clinical practice. He has emphasised that as artists need to
create their own art, so nursing instructors need to practice nursing.
A nurse managed health center is suggested as an innovative practice
arena which is more in line with the changes in the health care
system.
Lot of studies have been done in the field of education. Very few studies have been done in the field of health and hence it is seen that there is a major serious gap in the area of economics of health. We have not been able to study health economics in India. Our proposed study in “Investment in nursing training in Haryana: an empirical study” is to fill the gap.
NOTES AND REFERENCES


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