CHAPTER 1
INTRODUCTION

The concept of human capital as a branch in economic theory has developed rapidly since 1960. Ever since it has become the focus of research in economics of education. Many studies have shown that human resource is the principal driving force behind rapid economic development and education is a crucial catalyst for Human Resource Planning and Development (Blaug 1967; Becker 1960; Denison 1962; Schultz 1961; Griliches 1964; Foster 1987). Being the basis of the wealth of nations, human resource ultimately determines the character and pace of its economic and social development. Human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organizations, and carry forward national development. Obviously a country, which is unable to develop and effectively utilize the skills or knowledge of its people, will be hog-tide to build up anything else (Harbison 1973).

Human resource development is the process of increasing knowledge, skills and other dexterities of people. In economic terms it could be described as accumulation of human capital. The most obvious way by which human resources are ameliorated is the formal education beginning with primary or first-level continuing with various forms of secondary and then higher education including Colleges, Higher Technical Institutes and Universities.

Educational advancement initially consequent upon a degree of structural economic change became a catalyst for further economic progress
and that rate of economic growth is now largely determined by the supply of high-level manpower. The favourable influence of the stock of human capital is generally justified by its positive impact on labour productivity and technology. Education not only enhances the ability of a country to fabricate its own technology but also to adopt and implement technologies contrived elsewhere. Thus, educated (skilled) labour force is a necessary condition for enduring economic growth. It is the key to all sorts of inventions and innovations, and is regarded as the chief investment avenue as it raises the productivity of all factors of production. It creates assets in the form of knowledge and skills, which increases the productivity of labour in just the same way as the investment in new machinery raises the prolific capacity of the stock of physical capital (Woodhall 1987). It augments the quality and inventiveness of the labour and pays them high. The increased earnings by educated workers benefit not only the individuals themselves but also the society as a whole. From 1929 to 1957 in US the amount of education that the average worker received has increased by almost 2 per cent per year and this has raised the average quality of labour by 0.97 per cent per annum and contributed 0.67 per cent to the growth rate of real national income. Thus it was the source of 23 per cent of the growth of total real national income per person employed (Denison 1962). The resulting rates of return (in US) to the cost of acquiring a college education for urban white males were 12.5 per cent in 1940 and 10 per cent in 1950 (Becker 1960). The capital value at the age of fourteen of lifetime income (after taxes discounted at 6 per cent) was $25380 at the completion of 8 years of schooling, $33466 at the completion of high school, and $41432 after the completion of four or more years of college or university education (Houthakker 1959). Similarly, a 10 per cent increase in
the farmer education raised productivity by 3 to 5 per cent compared to only 1 to 2 per cent due to 10 per cent increase in land, fertilizer and machinery in US agriculture (Griliches 1964). The resources allocated to education have risen about 3.5 times relative to consumer income and gross formation of physical capital. The income elasticity of the demand for education was about 3.5 over the period and alternatively investment in education may be considered as 3.5 times more attractive than investment in physical capital (Schultz 1961).

Population Quality is derived from two sources: namely, genetic endowment and acquired abilities. Education and training succor one to acquire such skills. Bowen pointed out that, “the primary purpose of higher education is to change people in desirable ways, which in turn have profound effects on the economy and the society and even on the course of history. But in the first instance, the objective is to modify the traits and behaviour patterns of individuals”. He further states “on the average, College education significantly raises the level of knowledge, the intellectual disposition and the cognitive powers … … helps a great deal in making lifetime choices … greatly enhances the practical competence as citizens, workers, family members and consumers… They are more likely to be in the labour market…. have greater allocative ability, i.e., ability to adjust promptly and appropriately to changing economic demands, technologies and resource supplies… also contribute to the quest for human equality” (Bowen 1977). According to Hicks (1980) “there is a strong correlation between literacy levels and life expectancy and that literacy may have an important influence on health and hygiene.”

“There is in our time no well educated literate population that is poor and there is no illiterate population other than poor” (Galbraith 1994).
Education is the only way up and out of poverty. For a large segment of our population even with education life is difficult, but without education there is no hope at all. Individual youth with low educational accomplishments are the ones most likely to suffer from unemployment while person with higher educational attainments suffer the least (Majumdar 1996). In other words, the individual who obtains more schooling finds it easier to secure first place or are less miserable in the overall job queue. Similarly, in all economies, people with more education earn on an average higher income than people with less education, at least if the people are being compared of the same age. Additional education pays–off in the form of higher life–time incomes. Distinctly, those with more education usually differ from people with less education and seem to earn more. The increased earnings by educated workers benefit not only the individuals themselves but also the society as a whole. Moreover, education influences savings positively. As for each percentage point increase in the stock of education the saving rate increases by 0.37 per cent (Revoredo 1996).

The development of man for himself may still be considered as the ultimate end of education, but economic progress is the real outcome. In other words, human resource development is a necessary condition for achieving the role (goal) of modern societies; country needs educated political leaders, planners, managers, teachers, lawyers and judges, doctors, nurses, engineers, artists, architects, craftsman, writers, journalists and various other professionals to spur to development. Countries are underdeveloped because most of their people are underdeveloped having had no opportunity of expanding their potential capacities in the service of society. The UDCs need high-level manpower just as urgently as they need capital. Indeed, unless these
countries are able to develop the required strategic human resource they cannot effectively absorb capital. Of all the resources required for economic development high talent manpower requires the longest ‘lead time’ for its creation. Dams, bridges, power stations, railways, steel mills, etc. can be constructed in a few years but it takes 20 to 25 years to sprout administrators, managers, doctors, engineers, etc. The existence of such manpower, however, is essential if these countries are to achieve self-sustained growth. According to World Education Report (1993) world’s public expenditure on education in 1991 was $1,11,910 crores. Of which, the share of the developed countries was $95,110 crores (85 per cent). America alone accounted for $34,710 crores (31 per cent). This undoubtedly stresses that the UDCs has to do a lot in this regard.

1.2 Indian Scenario

With World’s largest population next to China¹ manpower planning in India, especially with respect to education has not yet received the real fillip. The total literacy rate of 18.33 per cent in 1951 rose only to 65.4 per cent in 2001 of which 75.85 per cent are males. (T.1.6, pp 192)
As against the goal of 6 per cent of GDP, the total expenditure on education in India is currently 3.99 per cent of GDP (2001-02). The high priority accorded to education sector in the 10th Plan with an allocation of Rs. 43,825 crores as against Rs. 24,908 Crores in 9th Plan (76% increase), is rather a positive indication. But the allocation for education was low in all the previous Five Year Plans. And the per capita education expenditure\(^2\) was only Rs.190/- in 1990-91 and Rs.546/- in 1999-2000.

![Fig.1.2: Central Plan Allocation on Education in India](image)

The total Central plan allocation for education has been enhanced from Rs. 5,920 crores in 2001-02 (B E) to Rs. 7,025 crores in 2002-03 (B E) i.e., an 18.7 per cent increase. Out of this elementary education has received the highest priority with the allocation increasing from Rs. 3,800 Crores in 2001-02 to Rs. 4,302.30 Crores, i.e., 61 per cent of total provision. Only, Rs. 2,125 Crores have been allocated for Secondary and higher education\(^3\) against Rs.1,920 crores in 2001-02. Despite these, India's Human Development Index\(^4\) is very low.
Though having a much longer history\(^5\), the solemnity of education in India was apprehended during national movement and greater emphasis was laid on the need to provide “quality education”, which was commensurate with economic aspirations as well as social and cultural milieu of India. The Resolution on National Policy of Education 1968 spearheaded the need to (a) transform the educational system so as to relate it more closely to the life of the people, (b) make continuous efforts for expanding educational opportunities, (c) make sustained efforts for raising the quality of education at all levels, (d) give a special accent on the development of science and technology and (e) to provide and cultivate moral and social values. Various Commissions and Committees\(^6\) were constituted from time to time to study the issues in matters of higher education and to recommend policies to revamp the sector. Now, India has about 300 Universities, equivalent institution and over 8000 colleges. But students far outnumber the seats available. Barely 6 per cent of those in the 18–23 age group have access to higher education. One million more students are expected to require higher education in the next five years. According to the *UNESCO World Education Report for 2000*, only 6.9 per cent of youth in the age group 17-23 are enrolled for higher education in India.

![Fig.1.3: Higher Education Enrollment (Selected Countries)](image)
While in US the figure is 80.9 per cent, in UK 52.3 per cent, Australia 79.8 per cent and New Zealand 62.6 per cent. The implication is that there is an overwhelming section of the population deprived of higher education in India.

1.3 Kerala Scenario

Kerala a tiny State in India has historically been ahead of other states in respect of literacy and it is the only state in the country that achieved 'total literacy' or in which more than 90 per cent of the adult population is literate. For instance, in 1901 the literacy rate in Kerala was 11.4 per cent compared to only 5.35 per cent at all-India level, which increased to 40.47 per cent as against 16.67 per cent for India in 1951. The corresponding figure in 2001 is 90.92 per cent in Kerala and 65.38 per cent for the country.

Indigenous system of education that prevailed in Kerala in the 18th century and earlier had contributed significantly to the literacy level and social transformation of the people of Kerala. Arrival of Christian missionaries by A D.1543 paved the way for modern (western) education in the state. Another
major milestone is the Development Scheme of T. Madhava Rao in 1860, important components of which are (a) linking the government jobs with educational qualification, (b) government to start new schools of its own, (c) private agencies to be encouraged through liberal grants in aid, and (d) indigenous schools to be upgraded and integrated with modern system.

Expenditure on education in Kerala in the first plan was only 0.83 per cent compared to 7.60 per cent at all-India. Later, in all other plans, the share of education in Kerala was higher than all-India level with 14.57 per cent in 2nd Plan, 11.88 per cent in 3rd and, so on. Similarly, the proportion of total government expenditure spent on education in Kerala is much higher than the corresponding figures spent by all other states in the country (26.9 per cent in 1992-93). The per capita expenditure per student is the lowest in Kerala (Mooniz 1984). But, it has increased slightly to Rs. 884/- compared to Rs. 546/- for all other states during 1999-2000. In the field of expenditure on University and higher education, the proportion is less than 16 per cent during 1995–96 to 2002-2003, except with 20 per cent in 2001-02.

Adherence to its remarkable progress in the field of education, the share of tertiary sector to SDP in Kerala increased from 48.20 per cent in
1994-95 to 57.56 per cent in 2000-01. In the case of employment, education is the biggest employer of the State where teachers constitute nearly 18 per cent of the total employment in the organized sector. (George 1999) The experience of the Malayalee migrants reveals that they were able to enter into the formal urban labour market due to their better educational status, vocational training... (Prakash 1999). Last but not the least, in the case of HDI Kerala ranked top with 0.651 (UNDP 2001) or 0.638 (Planning Commission 2001) among other states, and all India average of 0.472 in 2001.

![Fig.1.6: HDI in India and Selected States](image)

1.4 Higher Education in Kerala

Realizing the fact that the benefits (social and private) emanating from education are many, Government and the people of the State spent a lot on education. And, higher education, "above the level of secondary school, provided by Universities, Colleges, Academies, Professional schools, Graduate schools, Teacher colleges and Technical institutions" (International Encyclopedia of Higher Education) occupies a strategic position in the field of education. Improving the higher education system is vital for the State’s progress as it contributes to employment, income generation, dissemination of
knowledge and skills, export of labour, etc. In addition to these, it may also act as an effective instrument in ensuring equity and social justice.

The total expenditure on education in 1996–97 amounted to Rs. 1617 crores. Of which, the share of Primary, Secondary, University and higher education, and the technical education were Rs. 753 crores (47 %), Rs. 511 crores (31.5 per cent), Rs. 267 crores (16 per cent), and Rs. 78 crores respectively. But, in 2002-03 it has increased to Rs. 2550 crores with Rs. 1040 (41 %); Rs.635 (25 %); Rs. 382 (15 %); and Rs. 145 (6 %) respectively for Primary, Secondary, University and higher education, and the technical education.10

Number of Arts and Science Colleges in 1956-57 was 28 increased to 172 in 88-89, student enrollment and teachers during the same period was 25,254 to 3,29,064; and 1,262 to 13,465, respectively. But as per recent records there are 286 arts and science colleges (38 Govt., 148 Pvt. Aided and 100 unaided) under the four affiliating Universities and two deemed Universities in the State.11 Total enrolment of students at the University level stood at 3.43 lakhs in 1997 and the size in 2001–02 declined to 1.60 lakhs (after de-linking Pre-Degree) and 1.59 lakhs in 2002–03. Technical education consisted of 15 Engineering colleges with 5,156 students in 1997 increased to 76 colleges and 18673 enrollments in 2003 (excluding NIT Kozhikkode and CUSAT). In the field of medical education, there are six medical colleges, two dental colleges, three Nursing Schools for degree education, five Ayurveda medical college and four Homeo medical colleges in Kerala. In addition to these, there are 174 Nursing Schools (offering Diploma) at present (11 Govt. and 163 Pvt.) and 56 paramedical institutions. In case of Teacher education at
higher levels there are 4 Govt. Teacher Training Colleges and 15 Aided Teacher Training Colleges, and few Self-financing B.Ed Colleges in the State.

In spite of all these, the percentage of students going for higher education of the students in higher secondary schools was only 13.8 per cent in Kerala as against 22.9 per cent in the country, and Kerala rank 24th among 26 States in the Country (George 1999). According to another estimate, the enrollment in higher education in Kerala in 1998–99 was 1.7 lakhs. Another estimate have shown that the enrollments in higher education hardly form 3.7 per cent of the relevant age group of population (Tilak 2001; Ashok 1999).

The quality standards have been coming down steeply at all levels of education in Kerala. In the field of higher education, Kerala lags behind not only in quantitative terms but also in qualitative terms (George 1999). Quality embraces all the main functions and activities of higher education: teaching and academic programmes, research and scholarships, staffing, students, infrastructure and academic environment ....” (Rodrigues 1998) According to Panikkar (2003), the World Bank prescription of higher education as a non-merit good was responsible for a sharp decline in the quality of instruction. An enclavised, commercialized and communalized system of education, can be countered only by strengthening the public system, the revitalization of which depends up on a variety of issues, more important among them being quality assurance, democratization and autonomy.

Various institutions12 are involved in the operational structure of higher education in Kerala with Central Government at the top, Ministry of HRD, the UGC/CSIR and its Constituents, AICTE, NCTE, IMA, State Government, Ministry of Education, Higher Education Department and its
various constituents, Universities, Colleges, College Managements, etc. Though this looks hierarchical and each has distinct roles, in most cases they are not like that, but generate undue delay and complications.

Similarly, the self-financing and cross border institutions is now mushrooming all over the country. Govt. of Kerala is also picked up this thread, ignoring the adverse impact on poor and weaker sections of the community.

Labour market paradox is another important issue pertaining to Kerala’s development experience. In one end Kerala is hailed top in literacy rate among other States in the Country but in the other, it maintains top position in terms of rate of growth of unemployment and especially educated unemployment. Many studies on the relationship between education and employment have shown that both are positively correlated. (*Denison 1962; Blaug 1974; Grillichez & Mason 1972; Tilak 1981; Varghese 1988; Psacharopoulos 1985 & 1994; Smith 2000; etc.*) Contradicting this Kerala experiences highest rate of unemployment amidst high level of education.

1.5 The Research Problem

Manpower planning with respect to education especially higher education has not received the required emphasis, so far in the State. It is alleged that, despite there being high literacy rate and higher educational investment compared to all other States in India, Kerala has the highest rate of unemployment in the Country and it is acute among educated persons. It is often argued that there exists a relatively reliable relationship between levels and types of education and job status of persons (*Varghese 1988*). Opposing
this, some studies have pointed out that there is no such reliable relationship between employment and education in Kerala (Oommen 1993). Of course, smooth and harmonious relationship between labour market and education market can be established only if the nature, type, quality, and quantity of demand are matched with the supply of that kind of labour. In most of the developing countries a wide range of disparity exists between the demand for and supply of labour due to the fact that, (a) the training providers (educators) do not deliver the skills required by the industry (economy) and (b) the industry / economy is not aware of how should it effectively use its available labour supply (Warrender 1996). Similarly, proper utilization of beneficiaries and resources in ensuring maximum benefit to the society is a difficult task for a resource crunch State where most of its educational provision is on subsidized basis. Setting up of Self-financing colleges is suggested as a remedy for cost minimization of govt. But it is criticized that the cost of education for poor will be unaffordable. In short, certain issues coming up in this context are: Is there any disparity between the demand for and the supply of higher education in the State? What is the position of them in terms of costs and benefits? Is the cost of education incurred by the government an unaffordable one, on either side (govt. and beneficiaries)? Does the State government take any positive step for solving this or does they aggravate this by reducing social costs involved in it? What would be the future viable strategy in this regard? Is there any mismatch between demand and supply of qualified people with higher education? Is there any association between education and income or employment? The studies conducted in this area so far have not looked into these problems. Thus the present study is an attempt to look into these important areas for suggesting the need for improving the
higher education sector of the State, as it is important in building up a satisfactory human resource base so as to garner the best.

1.6 The Objectives of the Study

1. To give an account of the investment and institutional or structural framework of higher education in Kerala.

2. To analyze the higher education market and the strengths and weaknesses of supply – demand conditions in Kerala.

3. To compare the cost and the benefits of higher education in Kerala.

4. To examine the impact of recent policy changes in higher education.

5. To suggest the need for expanding higher education market to solve the grave problem of unemployment on the basis of a systematic manpower planning.

6. To analyze higher education and its association with income and employment

1.7 Hypotheses

1. Supply conditions of higher education sector is inadequate with respect to its growing demand.

2. Both Social and Private costs of higher education exceed their corresponding (social and private) benefits in Kerala.

3. Except on payment of price (fee) of education and distribution of student aid, both aided/govt and self-financing students are in equal status

4. Education-Employment mismatch is the cause of growing educated unemployment in the State.
5. Higher personal income is positively related to higher levels of education.

6. There is a close association between education and employment (and higher occupation statuses) in the State.

1.8 Theoretical Frame Work

The theoretical framework of the present study is presented under three main heads: (1) Human Capital Context; (2) Is Education a firm? and, (3) Labour – Education market links.

1.8.1 Human Capital

Ongoing changes in global economic structures, along with information revolution have produced an environment where knowledge and skills or education and training are considered increasingly valued commodities. This is based on the simple notion that nation’s economic progress is linked to education and training. This idea is embodied in the theory of human capital, according to which the knowledge and skills found in labour represents valuable resources for the market. Thus the important assumptions of the human capital theory are, (1) Human capital is an investment for the future, (2) More training and education leads to better work skills, (3) Educational institutions play a central role in the development of human capital, (4) the technological revolution is often cited as the most pressing reason why education and knowledge are becoming valuable economic commodities, (5) Training enhances employability, (6) Training can compensate for skill shortages (*Bouchard 2002*).
1.8.2 Is Education a firm?

_Gordon (1997)_ opines that, “although Colleges and universities sell goods and services (education) for a price (tuition fee), make those goods and services with purchased inputs and hired workers (professors, staff), use a lot of plant and equipment (classrooms, labs, parks and computers) and they compete hard for customers and for faculty inputs, it isn’t like a firm. There are half a dozen economic characteristics that differentiate colleges and universities fundamentally and economically from for-profit business firms. Important among them are, (1) “Non-distribution constraint” – non-profit firms can make profits, but they can’t distribute those profits to their owners and, indeed, they don’t have any owners. (2) Asymmetric information - customers don’t really know what they’re buying. These are “trust markets.” For any investment in higher education, the outcome can’t be known for twenty to thirty years. It’s once-in-a-lifetime decision that can’t be corrected next time around. (3) There’s reduced pressure on management to operate efficiently as they are being motivated by different and typically more idealistic goals than the managers of normal business firms. (4) Revenue sources - “Donative nonprofits” rely for revenues on charitable donations, endowment income and gifts, and government appropriations in addition to tuition fees. Thus they cannot charge a price that fully covers their production costs. To the extent that they’ve got donative revenues, they can give their customers a subsidy. (5) The way it’s produced: higher education is often made by a very strange technology, a “customer-input technology” – students help educate students i.e., “peer effects”. (6) “Heterogeneity,” - schools differ very much in quantity, quality (both in input and output), type and period of
course, etc. And they differ very much in the price they charge for a dollar's worth of their product.”

1.8.3 Labour – Education Market Links

Over the years economists have formulated a number of theories or models of employment determination. The majority of these models have focused on or been derived from the social, economic and institutional structure of the developed countries. They have often been uncritically and inappropriately applied to the unique and diametrically opposed socio-economic and institutional characteristics of under developed / developing countries to those of the developed nations.

Similarly, existing literature shows that India and a tiny State like Kerala is Labour Surplus\textsuperscript{14} or labour abundant (Nurkse 1953; Lewis 1954; Sen 1984 & 1966; Stiglitz 1976; Raj 1979; Rakshit 1982; etc.), and hence many remain without jobs. Of course, India is a country 2\textsuperscript{nd} in the world in terms of population size and Kerala ranks 3\textsuperscript{rd} from the top in terms of density of population per square km among the states in India. But, is it scientific to consider this large size of population as labour surplus? Labour, which embodies inventive, technical and entrepreneurial skills and knowledge, etc., is different from population although it is a basic pre-requisite. These skills and knowledge can be inculcated in people through education and training. At present all job avenues are open to all\textsuperscript{15} provided one possesses the required skill and knowledge to perform the activity effectively and efficiently. Thus employers place education and training as proxy for labour productivity and prefer higher qualified persons to low qualified ones.
A little understanding is also needed on the conceptual framework of Employment (unemployment). According to Sen, "employment is an important means of generating and distributing income, but a person can be rich yet unemployed if he has other sources of income and also a person can work very hard and still be very poor". Against this backdrop Sen (1984) have distinguished three different aspects of employment:

(1) The income aspect: employment gives some income to the employed;

(2) The production aspect: employment yields some output;

(3) The recognition aspect: employment gives a person the recognition of being engaged in something worthwhile.

The income aspect of employment is concerned with that part of one's income, which is received on condition that one works. .... The focus of the income aspect of employment should be on this question of conditionality, and not just on whether the income level is high or low. An adequate level of employment must be defined in terms of its capacity to provide minimum living to the population. The ILO Mission to Kenya took an approach to unemployment similar to this (Sen 1984). Sen further remarks, "to identify unemployment with poverty seems to impoverish both notions since they relate to two quite different categories of thought. Further, it can also suggest erroneous policy measures in seeking extra work for a person who is already working very hard but is poor. In contrast, the income approach used here is concerned not with checking whether a person's income is high or low, but with the extent to which it is conditional on the work he performs" (Sen pp 246).
The assessment of the size of educated labour is done by using the taxonomy of Labour Force Status (Bosworth, et al 1996, pp 393-400), Labour Force Utilization Framework developed by Phillip Hauser (1974) with a slight modification (Joseph 1994) and job competition theory (Thurow 1972) which holds that competition in the labour market is for jobs, not for wages, and education is a positional good (Hirch 1977).

1.9 Scope of the Study

In fact, higher education is a mammoth area with the direct involvement of too many people, students, experts and institutions both in the private and public sector in Kerala like the rest of India and the world. The subject matter of study is economics of higher education inter-alia, the human resource planning with reference to Arts and Science Colleges for general education in Kerala, viz: the relationship between education on the one side and income and employment on the other; demand and supply; costs and benefits, employment-education mismatch, etc. To link theoretical framework with empirical underpinnings, the study requires vast amount of data. Since boundaries of higher education is inestimable, the study focuses mainly on 186 Arts and Science Colleges (Degree and Post Graduate Course only) under Govt. and Aided streams in the State\textsuperscript{17}, on the justification that these are the chunk of higher education scenario of the State in terms of number of institutions, student enrollment, employment, public expenditure and people participation. Besides, institutions of which are spread out in all fourteen districts of the state. Again, these are directly linked to Central govt. (through UGC and their constituents), State govt. (through Higher Education Department, Directorate and Deputy Directorates of Collegiate Education) and
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Universities. However, the study will look into other branches or institutions of higher education in the State whenever and wherever the discussion demands.

1.10 The Research Methodology

The present study is both analytical and descriptive, and is based on primary as well as secondary data.

1.10.1 Secondary Data

The important sources of secondary data are Economic Review of State Planning Board, Govt. of Kerala; Statistics for Planning, Department of Economics and Statistics, Govt. of Kerala; World Development Report; World Education Report; UNDP Report; Reports on Economic Surveys, NSSO and DES Surveys; Census of India 1991 & 2001; Plan Documents of Govt. of India 1994–95; Indian Public Finance Statistics 2000–01; Higher Education Directory of Malayala Manorama; Report of the Directorate of Public Instruction, Govt. of Kerala; Books, Journals, etc.

1.10.2 Primary Data – Sample Surveys

To integrate the micro and macro aspect of the issues, the present study resorted to primary data and that are collected through sample surveys from: (1) Students in aided/govt. Arts and Science Colleges; (2) Students in Self-financing Arts and Science Colleges; and (3) Work seeker registrants in Employment Exchange.
1.10.3 Sample Design

(a) Survey Among Aided/Govt. College Students

To study the “Education – Income – Employment” background of about 1.59 lakh students in 186 aided/govt. Arts and Science Colleges, which are spread in all the 14 districts of the State, is a difficult task. So, stratified random sampling method is adopted. First, colleges were stratified into management-wise and district-wise as shown in Table 1.1. Then, selected one Govt. college each from four districts, namely Kasaragod, Wyanad, Kozhikkode and Trivandrum where there is proportionately higher number of govt. to aided colleges compared to other districts, and one aided college each from other 10 districts at random, where there is more number of aided colleges to that of govt. colleges, as shown below.

Table 1.1: District-wise and Management-wise Distribution of Arts and Science Colleges in Kerala 2003-04

<table>
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<th>Name of Districts</th>
<th>Number of colleges</th>
<th>No. of Selected Colleges</th>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>38</strong></td>
<td><strong>148</strong></td>
</tr>
</tbody>
</table>

Source: T. 1.11, Appendix PP 195
After choosing colleges, a pilot Survey was conducted in Bharat Matha College, Ernakulam with a structured questionnaire, which is selected at random out of 21 Aided colleges in the district. The total intake capacity of the College is 1002 under 10 Graduate Courses and 70 under 3 Post Graduate Courses. Thus, to fix an appropriate sample size from the 13 categories of students, the following formula is used.

\[ n = \left( \frac{z \sigma}{d} \right)^2 \]

Where, \( n \) = Sample size, \( z = 2.576 \) at 99% Confidence interval,

\( \sigma \) = Standard deviation of Sample distribution, \( d \) = Standard Error.

By estimating \( \sigma \) and \( d \), for the distribution of students (1072 in 30 batches) in 2003-04, the sample size was fixed as,

\[ n = \left( \frac{2.756 \times 38.41}{10.64} \right)^2 = 86.5 \approx 87 \]

Then, questionnaires were distributed to 87 (70 DC- 80.5% & 17 PG- 19.5% or 8% of the total enrollment) students at random, and all responded promptly.

Later, the sample survey was extended to selected colleges in other districts, after making some modifications to the questionnaire. The respondents were selected at random as shown in Table 1.2. On the whole the survey covered 348 student respondents (2 per cent) out of 17828 students in these colleges. There were 1467 members in the respondents’ families. Detailed distribution of respondents, total student intake in respective colleges, number of members in the respondent’s families and average family size are given in Table 1.3.
Table 1.2: Proportion of Respondents Selected (Govt./Aided Students)

<table>
<thead>
<tr>
<th>If Student Intake in College</th>
<th>Per cent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 250</td>
<td>10</td>
</tr>
<tr>
<td>250- 500</td>
<td>5</td>
</tr>
<tr>
<td>500-1000</td>
<td>3</td>
</tr>
<tr>
<td>Above 1000</td>
<td>1</td>
</tr>
<tr>
<td>Emakulam where Pilot Survey is conducted (exception)</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 1.3: Distribution of Respondents Selected for Sample Survey among Students in Govt. and Aided Sector

<table>
<thead>
<tr>
<th>College/District</th>
<th>Total Intake</th>
<th>No. of Respondents</th>
<th>Per Cent</th>
<th>No. of Family Members</th>
<th>Mean Family size</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.C, TVM</td>
<td>676</td>
<td>20</td>
<td>3</td>
<td>87</td>
<td>4.35</td>
</tr>
<tr>
<td>G.C, KZH</td>
<td>584</td>
<td>20</td>
<td>3</td>
<td>85</td>
<td>4.25</td>
</tr>
<tr>
<td>G.C, WYD</td>
<td>144</td>
<td>15</td>
<td>10</td>
<td>69</td>
<td>4.60</td>
</tr>
<tr>
<td>G.C, KSR</td>
<td>350</td>
<td>18</td>
<td>5</td>
<td>90</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total G.C</strong></td>
<td><strong>1754</strong></td>
<td><strong>73</strong></td>
<td><strong>4</strong></td>
<td><strong>331</strong></td>
<td><strong>4.53</strong></td>
</tr>
<tr>
<td>A.C, KLM</td>
<td>2470</td>
<td>24</td>
<td>1</td>
<td>94</td>
<td>3.92</td>
</tr>
<tr>
<td>A.C, PTA</td>
<td>2200</td>
<td>22</td>
<td>1</td>
<td>86</td>
<td>3.91</td>
</tr>
<tr>
<td>A.C, ALP</td>
<td>3124</td>
<td>29</td>
<td>1</td>
<td>88</td>
<td>3.03</td>
</tr>
<tr>
<td>A.C, ERN</td>
<td>1072</td>
<td>87</td>
<td>8</td>
<td>379</td>
<td>4.36</td>
</tr>
<tr>
<td>A.C, KTM</td>
<td>1615</td>
<td>20</td>
<td>1</td>
<td>84</td>
<td>4.20</td>
</tr>
<tr>
<td>A.C, IDK</td>
<td>187</td>
<td>18</td>
<td>10</td>
<td>77</td>
<td>4.28</td>
</tr>
<tr>
<td>A.C, THR</td>
<td>1263</td>
<td>17</td>
<td>1</td>
<td>76</td>
<td>4.47</td>
</tr>
<tr>
<td>A.C, PLK</td>
<td>1423</td>
<td>20</td>
<td>1</td>
<td>81</td>
<td>4.05</td>
</tr>
<tr>
<td>A.C, MLP</td>
<td>1281</td>
<td>17</td>
<td>1</td>
<td>83</td>
<td>4.88</td>
</tr>
<tr>
<td>A.C, KNR</td>
<td>1439</td>
<td>21</td>
<td>1</td>
<td>88</td>
<td>4.19</td>
</tr>
<tr>
<td><strong>Total A.C</strong></td>
<td><strong>16074</strong></td>
<td><strong>275</strong></td>
<td><strong>2</strong></td>
<td><strong>1136</strong></td>
<td><strong>4.13</strong></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>17828</strong></td>
<td><strong>348</strong></td>
<td><strong>2</strong></td>
<td><strong>1467</strong></td>
<td><strong>4.22</strong></td>
</tr>
</tbody>
</table>

Source: College Offices & Handbooks, and Field Survey. GC- Government College and AC- Aided College
(b) **Primary information from selected 14 Arts and Science Colleges**

To have some idea about the institutional profiles of selected Arts and Science College in the State, information was collected from their offices with the help of interview schedule. In addition to these, information is also collected from their “college calendars and handbooks for 2003-04”.

(c) **Survey Among Self – Financing Students in General Education**

This survey was conducted to compare the “education–employment –income” background of students in self-financing stream with their counterparts in general education. Similar questionnaire (issued to aided/govt. students) was distributed to students at random in colleges of Ernakulam and Kottayam districts, which are the only two colleges offering unaided degree courses among the selected sample colleges. Only 86 students studying in degree level courses in the Self-financing stream responded promptly. Distribution of respondent’s family members (size) is presented in T. 1.12, Appendix PP 195.

(d) **Survey Among Work Seeker Registrants**

Since a discussion on labour market is included, the present study will be incomplete without making a primary survey among work seeker registrants. But, the universe of the sample is the total number of registrants, which is nearly 46 lakhs. Due to time and other physical constraints, it is rather difficult to survey an adequate number of registrants from the State. But to fill the gap, Ernakulam Employment Exchange at Kakkanad (out of 81 exchanges spread out in the State) is selected as a special case. The selection can be justified on the ground that, (1) the district holds 3rd position in terms of
registered work seekers and population size; (2) 2\textsuperscript{nd} place with regard to total number of employed persons in the organized sector; (3) top in terms of registered factories, medium and small scale industries, registered small scale industrial units and their employment (Economic Review 2002); (4) it has the highest concentration of informal activities and the percentage of employment in this reached even 73.76 in Kochi city alone (Mitra 1994; Martin 1996). Above all, there are numerous unregistered units working in the city and there is no system of recording of their number, size and employment.

Out of the total registrants in the year 2002, two per cent of them were selected as sample size and to give maximum representation to registrants with different levels of education, respondents were selected at random. The size of respondents from each category is selected proportionately as shown in Table 1.4. The survey is conducted in May - September 2003, contacting each respondent at his or her residence with a structured interview schedule.

Table 1.4: Distribution of Respondents from Work-Seeker Registrants

<table>
<thead>
<tr>
<th>Below SSLC</th>
<th>With SSLC</th>
<th>HSS/Equivalent</th>
<th>Degree</th>
<th>P G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>80</td>
<td>42</td>
<td>32</td>
<td>28</td>
<td>210</td>
</tr>
<tr>
<td>13.3 %</td>
<td>38.1 %</td>
<td>20.0 %</td>
<td>15.3 %</td>
<td>13.3%</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Source: Table T. 1.13, Appendix PP 196

In short, for the fulfillment of the present study the total number persons covered under the three Sample Surveys through 644 respondents were 2020, as shown in table 1.5.
Table 1.5: Total Number of Respondents and Population Coverage

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Source</th>
<th>Number of Respondents/Sample</th>
<th>Total Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Survey Among A/G Students</td>
<td>348</td>
<td>1467</td>
</tr>
<tr>
<td>2</td>
<td>Self-financing Students</td>
<td>86</td>
<td>343</td>
</tr>
<tr>
<td>3</td>
<td>Work Seeker Registrants</td>
<td>210</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td><strong>Grand Total</strong></td>
<td><strong>644</strong></td>
<td><strong>2020</strong></td>
</tr>
</tbody>
</table>

1.10.4. Tools of analysis

The study employed a series of statistical and econometric tools for data analysis including average, percentage, ratios, index numbers, correlation coefficient and multiple regression analysis, and so on. The study also employed OLS method to compute trend values, and $\chi^2$, F-test, etc. for hypothesis testing. In addition, it employed an array of charts, graphs and tables for presentation and analysis of data.

1.11. Limitations of the Study

The major challenge of the study is generation of data due to inadequacy or weak secondary data. For instance,

1. Annual population data is absent (which is very important for making a manpower study of this kind) other than the decadal figure.

2. Do not have data on the size of labour force with (or without) different age group (whether employed or unemployed) corresponding to their education qualifications and monthly earnings.
3. Data relating to the number of higher education institutions unrecognized or unaided working in the state, their structure, organization, ownership, source of finance, operation, course content etc. is totally weak.

4. The wide coverage of the issue, *ipso facto* limits the generation of primary data and thus generalization at macro level.

5. Conceptualization is another problem, especially with respect to education costs, benefits, employment, unemployment, educated unemployment, and so on.

1.12. The Scheme of Study

The study is arranged in *Nine Chapters*.

The introductory chapter briefly outlines the significance of human resource planning and education, especially higher education. It also presents the research problem, objectives, hypotheses, theoretical framework and scope of the study, the methodology including sample design, tools of analysis, and the major limitations of the study.

The Second chapter is devoted to give a brief review of literature, which the researcher have immensely utilized in shaping the research problem, the objectives and to develop the thesis in its true spirit.

The Third Chapter gives an account of the investment and institutional or structural framework of higher education in the State with special emphasis on general education.
The Fourth Chapter analyses the strengths of higher education market viz; the demand and the supply and gives a note on quality deterioration.

The Fifth Chapter discusses the conceptual hang-up in educational costs and benefits, and attempts to make an analysis of the costs and benefits of higher education.

The Sixth Chapter analyses the recent policy change in the higher education sector in Kerala in view of the cost or the price, equity and accessibility.

The Seventh Chapter analyses "employment–higher education mismatch; explores the linkages between education market and labour market; examines the extent of unemployment among degree holders; and then tries to evolve a systematic manpower categorization on the basis of education-employment status.

The Eighth Chapter is a discussion on higher education and its association with Income and Employment.

The Final Chapter summarizes the important findings of the Study with a few major suggestions to revamp the higher education sector of the State so as to garner the best out of human resource planning.