CHAPTER I

INTRODUCTION

EDUCATION AND ECONOMIC DEVELOPMENT

1.1. Economic development is influenced by many complex factors; these may be categorised into — growth of the labour force, accumulation of reproducible capital, technical progress and increase in stock of knowledge and skills available in the community. There is therefore a growing concern to study and emphasise human resources development. Indeed the Education Commission (1964-66) points out in the very beginning of its Report, "In a world based on science and technology, it is education that determines the level of prosperity, welfare and security of the people. On the quality and number of persons coming out of our schools and colleges will depend our success in the great enterprise of national reconstruction whose principal objective is to raise the

standard of living of our people."[1] Several studies
have brought out the important contribution that
education makes to economic development. While impor-
tance of education in economic development has been
realized by the earlier economists, Adam Smith through
Alfred Marshall. Economics of Education as branch of
study can be dated with the famous Presidential Address
of Professor T.W.Schultz.[2]

THE EDUCATION SUB-SYSTEM OF ECONOMY

1.2. Education has become a big industry significantly
linked with development. Like any other industry
it uses up material and human resources. It is in
India largely a public sector industry, with a relatively
small part in which private resources are used. "Like
any other industry, its inputs-- land, building materials,
books, school sports and scientific equipment and
services of teachers are bought in the market but
unlike any other industry its output, namely the
education and training services it offers, are not sold
on the market."[3] No nation on earth can develop consi-
derably without proper management of the sub-system of
education.

PUBLIC EXPENDITURE ON EDUCATION

1.3.1. The global public expenditure figures in 1965
stood at $ 104 billions and it rose to 223 billions in

1. Education Commission, Report of the Education Commis-
   sion: Education and National Development, Ministry of
   Education, Government of India, New Delhi, 1966.
2. T.W.Schultz, 'Investment in Human Capital', American
   Economic Review, March 1961.
3. Malcolm S.Adiseshiah, Presidential Address at the
   Seminar on Economics of Education, Madras, 1973.

1972. The public expenditure figures on education for the continent etc. as noted below was ranging between 4.0 to 6.2 percent of the Gross National Product :

TABLE I-1

PUBLIC FINANCING OF EDUCATION

Continents, Major Areas and groups of countries	Percentage of annual average increase of		Public expenditure on Education as percentage of Gross National Product			Public expenditure on Education per inhabitant		
	Public expenditure on Education 1965-1972	Gross National Product 1965-1972	1965	1970	1972	1965	1970	1972
1	2	3	4	5	6	7	8	9
World Totals* ..	11.6	9.7	5.0	5.3	5.7	40.4	60.5	75.6
Africa ..	12.2	8.8	3.5	4.4	4.3	5.5	8.7	10.3
America ..	11.2	8.4	5.2	6.4	6.2	93.6	151.2	170.3
Asia* ..	14.1	13.3	3.8	3.5	4.0	6.8	10.2	14.3
Europe ..	12.2	10.5	4.7	5.0	5.3	78.1	118.2	166.1
Oceania ..	16.0	8.6	3.6	4.5	5.8	60.3	102.6	148.0

* Not including People's Republic China, Democratic People's Republic of Korea and Democratic Republic of Viet-Nam

Source : Statistical Year Book 1974, Unesco, Paris as published in 'Bulletin', Madras Institute of Development Studies, Madras-20, Vol.VII, No.8, August 1977.

1.3.2. It is seen that the percentages of annual average increase of public expenditure on education over the

period 1965-1972 are markedly greater than the percentages
of annual increase of the Gross National Product over the
same period. The world public expenditure was 5 percent
of the Gross National Product in 1965 and it was 5.7 per-
cent in 1972. The increasing trend in the public expen-
diture on education is clearly discernible from the
above table.

1.3.3. In this world perspective, if an inter-continental
analysis is done further, wide disparities in the public
expenditure on education per inhabitant from one group
to another is seen. For example, the public expenditure
on education per inhabitant in 1972 was $ 10.3 in African
countries while in Europe it was as high as $ 166.1 and
higher still in United States of America with $ 170.3.
It was only $ 14.3 in Asia in the same year. The
yawning gap among the levels of expenditure per inhabi-
tant shows the efforts to be taken in developing countries.

EDUCATION AND SKILL FORMATION

1.4. In the past, the productive skills used to be trans-
mitted from father to the son or through trade guilds etc.
This was because of the relative simplicity of the
skills involved. With the growing complexity of the
skills involved and the rapidity of changes therein,
the family and guild have declined as agents of skill
formation in the community. More and more, the skills
which individuals possess are a result of formal education
and training usually provided in schools and colleges.
The more rapidly new skills are given to the members of
the labour force, the more easily they are able to make

use of new productive techniques and the more likely
they are to initiate changes in methods of production
and methods of organisation. This is a major contribu-
tion which education makes to economic development.

ATTITUDES AND DEVELOPMENT

1.5. Another aspect of education's role is less tangible
but equally significant. This is the underlying complex
of relationships and attitudes which link up consumers,
workers and management — The readiness to accept change,
a willingness to promote change is the crucial factor
for economic growth — which can be easily developed in
schools. "Education influences economic development
through changing their attributes relevant to economic
development or it influences economic development in
its capacity as a relevant economic input. For example,
education alters the attitude to work, consumption, pre-
ferences, saving propensities, economic rationality,
adaptability, innovativeness, flexibility, attitude
towards family size and various social attitudes relevant
from the economic point of view."[4]

IMPORTANCE OF PRIMARY EDUCATION

1.6. This study is concerned with the economic aspects
of only Primary Education in Tamil Nadu State. The primary
education stage comprises of standards I to VIII and
forms the basis of the entire education edifice. Primary
Education is supposed to be free and compulsory. It

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4. V.N.Kothari and P.R.Panchamukhi, 'A survey of Research
   in Economics of Education in India', Indian Council of
   Social Science Research (Cyclostyled), 1975.

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mainly aims at imparting the basic skills in reading, writing and computations. The skills imparted are general and not specific to any trade or vocation. But these skills are indispensable for the formation and development of specific skills. In themselves also they are of productive significance. The end result of primary education is 'Functional Literacy' and 'Effective Permanent Literacy'. Thus primary education results in an economically productive input. The productivity raising effects of primary education result from (i) increased adaptability and mobility of the labour force, (ii) increased innovativeness and (iii) more effective performance of given tasks due to enhanced abilities. But primary education also results in changes in attitudes which are relevant from economic view point. These may be summed up as strengthening of rational as opposed to traditional modes of behaviours. As such they affect (i) attitudes towards family size, (ii) attitudes towards work and leisure, (iii) consumption pattern, (iv) savings, (v) allocation of savings among various types of aspects, (vi) innovativeness and (vii) locational mobility.

LITERACY AND DEVELOPMENT

1.7.1. While the importance of technical, vocational and professional education is easy to appreciate and even possible to be measured through earnings differential, the Primary Education being of a general nature and mass pervading, only indirect methods can be adopted to see its economic relevance. One such method is to see if development and literacy are closely related. An early attempt was made by Mary Jean Bowman and

C. A. Anderson which confirmed the relation between literacy and Gross National Product. Table I-2 indicates the relation between percentage of literacy and Gross National Product of 90 countries. Countries which had Gross National Product over $ 300 invariably had literacy rate over 40 percent.

1.7.2. This approach of relating education to Gross National Product is useful in formulating hypothesis. Bowman and Anderson have remarked : "More important measurement of association is not identification of causation, nor can material of this kind provide direct evidence concerning the vital questions of the processes by which educational and other factors interact to product (or impede) development. Nevertheless, observed trait clusters are not wholly accidental and they offer clues in the formulation of potentially fruitful hypotheses." But it is difficult to use it for quantitatively determining the contribution of education to economic growth.

LITERACY AND AGRICULTURAL PRODUCTIVITY

1.8.1. While there is a positive correlation between development and literacy, the results are too broad. More specific studies have been done in India to assess the relationship between literacy and agricultural productivity.

1.8.2. Modernisation of traditional agriculture is as much dependent on human factor as on material inputs. One of the factors influencing the human factor is the level of literacy and formal education among the

TABLE I-2

DISTRIBUTION OF COUNTRIES BY 1955 GROSS NATIONAL PRODUCT PER CAPITA AND PERCENTAGE OF ADULT POPULATION WHO WERE LITERATES IN 1950-54

Per Cent of Adults Literate 1950-54	Gross National Product per capita, 1955 (in US dollars)					Total	Per cent
	Under $ 100	$100-199	$200-299	$300-499	$500 and over		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
90-99	-	-	1	2	21	24	27
80-89	-	-	1	2	1	4	4
70-79	-	1	3	5	1	10	11
60-69	-	2	2	2	-	6	7
50-59	1	1	3	1	1	7	7
40-49	1	2	3	1	-	7	8
30-39	2	1	4	-	-	7	8
20-29	-	4	-	-	-	4	4
10-19	5	6	1	-	-	12	13
Under 10	7	2	-	-	-	9	10
TOTAL	16	19	18	13	24	90	
PER CENT	18	21	20	14	27		100

Source : Readings in the Economics of Education, UNESCO, 1960

agricultural workers. Chaudhry[5] has examined the rela-
tionship between education and productivity in Indian
agriculture. Taking the 1961 census data for the level
of education of agricultural workers and gross value
of agricultural produce in each district, Chaudhry
obtains a positive relationship between literacy and
yield per worker, literacy and yield per acre, primary
education and yield per acre. Thus he obtained an
associative relationship between education of farm
workers and the level of agricultural productivity.
Chaudhry tries to ascertain the causal link also. One
of the indicators would be the demand for modern inputs.
Here also he finds education of farmers and the demand
for fertilizers to be positively correlated. This
result holds good even when the availability of irriga-
tion as a factor influencing the demand for fertilizers
is eliminated.

IMPACT OF EDUCATION ON FARM PRODUCTION

1.9.1. Baldev Singh[6] analyses the impact of education
on farm production basing the data collected during
October 1968 to January 1969 from 288 farm households
of Haryana for the crop year 1967-68. He uses a Cobb-
Douglas type of production function : $\log Y = \log c + b_1 \log L + b_2 \log A + b_3 \log K + \varepsilon$ as the Model for
his analysis, where Y is farm output (dependent variable);
c is a constant; L A and K are resource inputs (indepen-
dent variables), farm labour, land and capital respectively;
b co-efficients are the elasticities of output with respect
to the inputs; and ε is the error term.

5. D.P.Chaudhry: 'Education of Farmers and Productivity'
in H.N.Pandit (Editor), Measurement of Cost, Producti-
vity and Efficiency of Education, National Council of
Educational Research and Training, New Delhi, 1969.
6. Baldev Singh, 'Impact of Education on Farm Production'
in 'Economic and Political Weekly' Vol.IX, No.39,
September 28, 1974. p.A-92.

1.9.2. His hypothesis is that (i) the level of farm production is significantly higher on farms where the decision-maker is literate than where the decision-maker is illiterate; (ii) the levels of education of the farm decision-maker and the levels of farm production have a positive, continuous relationship; and (iii) the levels of education of the farm decision-maker have either no, or negligible, effect on farm production in situations of extreme farm size.

RELATION BETWEEN AGRICULTURAL PRODUCTION PER WORK FORCE AND PERCENTAGE OF LITERACY

1.10.1. The State of Tamil Nadu is partitioned into 25 developmental districts for estimation of regional development. The districtwise agricultural production and work force and the percentage of work force in agriculture are given districtwise. Using these three indices agricultural production per work force in agriculture can be worked out. Table I-3 shows the above indicators and percentage of literacy of the districts.

1.10.2. A rank order correlation analysis is made and the co-efficient of correlation comes to .4295 which is significant and shows the two way implication between literacy and agricultural production which form the major part of the Gross National Product. Further, in the developmental districts the rank difference is greater in respect of South Vellore, North Cuddalore, South Trichy, West Ramnad and Kanyakumari. There are certain special causes for the greater difference. For example, in Kanyakumari district the land available for cultivation is comparatively very less. In South Vellore the literacy

TABLE I-3

RELATION BETWEEN AGRICULTURAL PRODUCTION PER WORK FORCE
IN AGRICULTURE AND PERCENTAGE OF LITERACY

Sl. No.	Development District	Agri. prod. in (Lakhs Rs)	Work force in '000	Percentage of Work force in agri.	Agri. prod./ Work force in agri.	RANK	Percentage of literacy	RANK
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Madras	—	696	0.14	—	*	62.01	*
2.	N.Chingleput	2016	516	51.84	1053	9	41.76	9
3.	S.Chingleput	3605	465	64.07	1194	4	37.42	13
4.	N.Vellore	4513	754	62.23	962	11	37.06	14
5.	S.Vellore	4913	580	78.92	1074	8	31.19	21
6.	N.Cuddalore	4466	569	82.52	951	12	20.58	23
7.	S.Cuddalore	6077	685	75.58	931	14	33.11	18
8.	Dharmapuri	3099	611	83.57	608	23	32.32	24
9.	N.Salem	2068	637	57.73	562	24	33.47	17
10.	S.Salem	2566	545	69.51	686	22	20.39	22
11.	East Coimbatore	5721	768	66.12	1127	7	31.20	20
12.	West Coimbatore	6449	1018	47.10	1345	3	44.21	6
13.	The Nilgiris	1714	192	12.44	7176	1	47.03	2
14.	West Madurai	4991	757	70.65	933	13	37.02	15
15.	East Madurai	4137	697	59.07	1005	10	45.08	3
16.	North Trichy	4135	625	81.25	814	17	36.71	16
17.	South Trichy	2434	577	56.32	749	18	43.00	7
18.	Pudukottai	1822	324	77.82	723	21	32.40	19
19.	East Thanjavur	6057	633	72.53	832	16	40.43	10
20.	West Thanjavur	5268	550	68.23	1377	2	40.16	11
21.	East Ramnad	2017	542	69.59	747	19	37.79	12
22.	West Ramnad	1956	479	56.41	724	20	42.63	8
23.	North Tirunel- veli	4015	596	58.66	1149	6	44.82	5
24.	South Tirunel- veli	3518	575	52.47	1166	5	44.84	4
25.	Kanyakumari	1711	350	52.66	9290	15	58.21	1
	STATE	90768	14742	61.71	—	—	39.46	—

* Excluded from rank as the work force in agriculture is negligible

Source : State Accounts Statistics, Department of Statistics, Tamil Nadu, April 1976.

percentage is comparatively less because of greater
incidence of socially disadvantaged people among whom
literacy percentage is far less whereas the land available
is comparatively more. But for these variations the
correlation co-efficient would have been higher.

LIMITATIONS

1.11.1. The above analysis does bring out the productive
role of primary education in an underdeveloped country.
However, we should bear in mind the other side of the
picture also. H.Myint[7] draws attention to the dis-
functional role education may play in an underdeveloped
country, by imparting rigidities of its own, when for
instance, the literate village youths become averse to
farming. Myint would also like to distinguish between
the active and passive roles of education. For instance,
farmers may be quick to adjust to new opportunities when
their profitability is proved. To the extent to which
education enables such adjustment to be made quickly,
it is playing the passive role. The more important pro-
blem however, before the underdeveloped countries is one
of discovering the problems, devising and testing their
solutions and taking back these solutions to the farms.
This is the active role of education. According to this
view mass literacy which is the result of compulsory
primary education merely prepares the peasantry for a
passive role of adaptation while higher scientific and
technical education alone can play the active role of
generating new opportunities to which the farmers may
adapt themselves.

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7. H.Myint; 'Education and Economic Development' in
'Social and Economic Studies', Vol.14, No.1, March 1965.

13

1.11.2. Another line of criticism is in regard to the methodology of correlation, which says that correlation is not causation. Mathur[8] observed, "the correlation has to be between education as a prime mover and the growth of investment, rather than education as the resultant following the income generated from investment." The first objection raised by him is that 'high correlation between education and agricultural productivity may be indicative of richer farmers being able to afford more education along with other necessary inputs rather than higher education affecting agricultural productivity'. It may be true, but it is not the only conclusion. Both possibilities of education influencing agricultural production and richer farmers having better education are there. Mathur's second objection is that 'it is necessary to demonstrate a double relationship, namely, that where literacy prevails higher agricultural productivity is necessarily observed and where literacy is absent, higher productivity is also absent'. This argument can be valid if and only if education is the only variable relating to growth and productivity. Productivity and growth are multi-variate functions.

EFFECTIVE IMPACT OF EDUCATION ON DEVELOPMENT THROUGH FAMILY PLANNING

1.12.1. Earlier we have discussed education as an input in productive process. Literacy is an essential ingredient in carrying out the productive process to a higher level of circular flow. We now examine the role of

8. Gautam Mathur, 'On Human Resources Development' in E.A.G. Robinson and Michael Kidrom (ed.) Economic Development in South Asia, Macmillan ST. Merton's Press, 1970.

education in changing the attitude towards family size,
a problem most relevant to India. L.R.Brown analyses
that mass education at primary level is far effective
in reducing family size than the education of the
elitists. Demographers also have generally recognised
that widespread poverty tends to sustain high birth
rates for the obvious reason that families living
without adequate employment, education or health care
have little security for the future except for reliance
on their children.[9]

1.12.2. Examination of societies as different as China,
Barbados, Sri Lanka, Uruguay, Taiwan, the Indian Punjab,
Cuba and South Korea suggests a common factor. In all
of these countries, a large portion of the population
has gained access to modern social and economic services—
such as education, health, employment and credit system—
to a far greater degree than in most poor countries or
in most western countries during their comparable periods
of development. Not only have birth rates dropped
noticeably in most of these countries even before the
introduction of major family planning programme, but
such programmes seem to be much more successful in
those countries which have assigned high priority in
their development programmes to a more equitable distri-
bution of income and social services.

WOMEN'S EDUCATION AND EFFECTS ON FAMILY SIZE

1.13.1. An examination of the relationship between
women's education and family size in several societies,
both more and less developed, shows a very strong

9. L.R.Brown: 'In the Human Interest', Affiliated East-
West Press Private Ltd., New Delhi, 1976. p.113.

relationship between educational levels and family size
levels. As education levels rise, family size levels
fall. In a number of societies, the attainment of
literacy brings with it a sharp decline in family size.
Several studies show that as women acquire literacy
they reduce their number of children by about 1.5, or
roughly one-third. Studies in other societies, such as
Chile, have shown the sharp drop in family size coming
after completion of elementary school as shown in the
following table :

TABLE I-4

RELATIONSHIP BETWEEN EDUCATIONAL AND FERTILITY LEVELS
IN GHANA, JORDAN AND CHILE

Education level		Number of children per woman		
		Ghana	Jordan	Chile
No education	..	5.7	8.7	4.9
Elementary education	..	5.2	7.3	1.3
Secondary education	..	2.5	4.5	1.7
At least one university degree	..	0.5	4.0	Not available

Source : L.R. Brown, 'In the Human Interest'

1.13.2. Evidence from Ghana showed the biggest drop in
fertility coming with completion of secondary school.
Those with university degrees in Ghana had only 0.5
children each, a family size level well below the average
in any more developed country.

1.13.3. Several explanations have been offered of the
role of education in reducing the size of families.
Education can affect the norms and values of persons
in such a way that they begin to question traditional
practices of their parents or other authority figures.
Persons who go to school or who are literate tend to be
more receptive to innovations and have a greater oppor-
tunity to come into contact with 'change agents' such as
health planners or family planning counsellors.[10]

1.13.4. Thus, there is clear indication that elementary
education which has a wider and fundamental base as the
mass of the country is effective in reducing the fertility
of women. Such reduction in family size can have definite
impact on population control and the consequent economic
development and welfare.

1.13.5. The effects of primary education on demographic
variables has also been analysed in Indian studies. P.R.
Gopinathan Nair[11] in his paper on 'Decline in Birth Rate
in Kerala—A Hypothesis about the Inter-Relationship
between Demographic Variables, Health Services and
Education', finds that the fall in the birth rate started
in the early sixties; that is, ahead of the intensifica-
tion of the family planning programmes, indicating that
some kind of broad societal adjustment had taken place
prior to the favourable, broad-based response to family
planning measure observed more recently in the state and
concludes that education, together with widespread public

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10. L.R. Brown, Ibid.
11. P.R. Gopinathan Nair, 'Decline in Birth Rate in Kerala
—A Hypothesis about the Inter-Relationship between
Demographic Variables, Health Services and Education'
in 'Economic and Political Weekly', Vol.IX, Nos.6, 7
and 8, 1974. p.323.

health facilities, forms an essential precondition for
bringing down the birth rate. He recommends that it
might be appropriate to direct more resources to exten-
sion of education and to public health along with
popularisation of family planning to get at positive
results.

1.13.6. In a similar study on 'Age of Marriage of Women
and Population Growth—The Kerala Experience', Leela
Gulati[12] finds that a mere shift in the age of marriage,
without female education, did not decrease the number
of children a woman had. The higher age of marriage did
perhaps create a favourable atmosphere for the spread
of female education. It was however the reduction in
infant mortality rates, due partly to shift in the age
of marriage but largely to improvement in medical and
public health facilities, which improved the chances of
child survivorship and this in turn seems to have
influenced the number of children a woman wanted to have.
Thus it is the high age of female at marriage with a
combination of all the above mentioned factors which
seems to have at last brought down the birth rate in
Kerala. A mere shift in the age of marriage, without
a well dispersed medical and public health services as
well as facilities for female education, could not have
been much effective. As per this investigator education
along with other factors seems to play a positive role.

RELATION BETWEEN LITERACY PERCENTAGE AND FAMILY PLANNING
IN INDIA

1.14.1. A recent study[13] made a multiple regression

12. Leela Gulati, 'Age of Marriage of Women and Population
    Growth—The Kerala Experience' in'Economic and Politi-
    cal Weekly', Vol.XI,Nos.31-33,Special number 1976.
13. Bhaskar D.Misra: 'Family Planning: States Performance'
    Vol.VIII,No.39,September 29,1973. pp. 1769-1779.

analysis among the socio-economic correlates connected
with family planning in India. Table I-5 shows indices
relating to the performance in family planning, the
literacy percentage and Gross National Product of States.

1.14.2. The correlation analysis shows that there is
significant correlation between family planning corre-
lates and literacy and Gross National Product as shown
below :

		Co-efficient with	
S.No.	Correlate	Literacy percen-tage (1971)	Gross National Product (1964-65)
1.	IUD sterilisation cumula-tive performance rate ..	0.5390	0.6726
2.	All methods percentage couples protected ..	0.5767	0.6437
3.	1971-72 performance IUD, sterilisation of eligible couples ..	0.6411	0.5065
4.	Crude birth rate 1970 ..	-0.6275	-0.3509
5.	Crude death rate 1970 ..	-0.5762	-0.4464

1.14.3. The analysis clearly shows positive relationship
with family planning performance such as IUD insertion,
sterilisation and all methods. All the three coefficients
are significant.

1.14.4. It is also worth noting that the correlation
with crude birth rate and death rate are negative showing

TABLE I-5

FAMILY PLANNING PERFORMANCE IN INDIA BY STATES AND SOCIO-ECONOMIC CORRELATES

State	IUD + Ster. cum. perf. rate	All methods-%couples pro-tec-ted	1971-72 perf IUD + ster. % eli-gible	Vital rates 1970		Percen-tage of lite-racy 1971	Per capita income '64-65
				CBR	CDR		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GROUP I :							
Maharashtra	42.3	19.2	4.29	31.6	12.0	39.1	525
Tamil Nadu	34.1	16.1	3.07	29.9	15.5	39.4	434
Kerala	30.0	18.7	5.45	30.6	9.0	60.2	393
Haryana	41.3	18.7	4.37	35.2	9.4	26.7	504
Punjab	51.9	23.7	3.95	33.0	11.2	33.4	575
Orissa	37.8	16.9	3.25	30.1	16.3	26.1	347
Gujarat	37.6	18.1	5.45	40.9	17.3	35.7	523
Andhra Pradesh	13.2	14.3	3.52	34.5	15.6	24.6	430
GROUP II:							
Himachal Pradesh	25.7	8.5	1.47	32.7	15.6	31.3	432
Madhya Pradesh	25.4	11.4	1.75	39.3	16.4	22.0	373
Mysore	25.2	10.0	1.36	33.3	13.3	31.5	420
West Bengal	22.6	9.7	1.07	29.6	11.6	33.1	498

(Contd...)

TABLE I-9 (Contd.)

GROUP III :							
Assam	..	17.0	6.4	1.05	38.9	16.2	28.7	441
Bihar	..	15.1	6.2	1.59	36.8	16.8	20.0	229
Rajasthan	..	14.1	6.1	1.05	42.9	22.2	18.8	356
Uttar Pradesh	..	16.7	6.5	1.49	45.2	21.4	21.6	374
Jammu & Kashmir	..	23.4	8.2	1.32	37.5	13.1	19.3	341
Other States and Union Terri-tories Defence & Railways	..	20.5	15.8	1.74				
I N D I A	..	27.5	13.2	2.65	37.0	15.9	29.4	430

Note : CBR = Crude Birth Rate
CDR = Crude Death Rate

that where the literacy is higher the Crude birth rate
and Crude death rate are less. Both the coefficients
are significant especially co-efficient with Crude birth
rate is significant at 99 percent confidence level.
Thus we see the inter-relationship among education,
literacy and family planning which have vital link with
all other developmental activities.

1.14.5. In the same study correlation analysis with
Gross National Product (1964-65) showed positive relation-
ship with first three variables and negative relationship
with crude birth rate and death rate. The coefficients
are shown in the concerned column. Thus the study indi-
cates the positive relationship between literacy and
family planning performance indices and positive relation-
ship between Gross National Product and family planning
performance indices.

CERTAIN VITAL SOCIO-ECONOMIC INDICATORS OF TAMIL NADU

1.15. This study is concerned with the economic aspects
of Primary Education in Tamil Nadu. India is a country
of continental size, with many regional, linguistic and
ethnic diversities. A state is a more homogeneous unit.
Besides, Education is a state subject. We would there-
fore be studying a unit which is subject to uniform
Government policy. We now give some relevant data for
Tamil Nadu.

(i) School age population : 23.2 percent of the
population belong to the age-group 5-14 which is the
group related to school education.

(ii) **Work Force** : The majority of the population depend on agriculture. The work force in agriculture as per 1971 census was 64.79 percent. The percentages of work force in secondary and other occupations were as follows : Secondary industry 14.97 percent tertiary industry 10.99 percent and others 9.25 percent. The workers engaged in agriculture increased in all districts except Nilgiris in the decade 1961-71, while the percentage of cultivators decreased. The major socio-economic feature which has bearing on education is a large group of unemployed and under-employed population engaged in the primary industry — agriculture. This industry is seasonal by nature and the whole family is engaged in it, including the children. This large percentage of low income earners engaged in agriculture interact with primary education and cause wastage.

(iii) **Scheduled Castes and Scheduled Tribes** : The other vital socio-economic factor which affects the field of education and economy is the incidence of scheduled caste and scheduled tribe population. According to 1971 census, there were 17.76 percent of people belonging to scheduled castes and 0.80 percent of persons belonging to scheduled tribes. 18.56 percent of the population belong to the under-privileged group and this affects the educational targets irrespective of the rural urban variation.

(iv) **Rural-Urban nature of the population** : Like India, Tamil Nadu also consists mainly of rural population. In 1961, 73.31 percent of the total population were in rural areas and 1971 the percentage was 69.74. Though the percentage has decreased, the population in absolute

numbers in rural areas was larger in 1971 than in 1961.
This large percentage of rural population indicates
the urgent need for biasing education towards rural
economy.

(v) Literacy : Literacy and development are
inter-related; similarly, literacy and education also
have correlation. The percentage of literacy in 1961
was 31.41 and it increased to 39.39 in 1971. There was
not even one percent of increase per annum over the
decade. Literacy is the major base on which the socio-
economic structure of a society is built up and the
growth of the structure depends on literacy. Once the
rate of increase in literacy catches up, there will be
acceleration in growth and other developmental activities.

(vi) Poverty profile : Considering that a monthly
income of ß 39.75 in rural areas or ß 54.49 in urban
areas, was necessary at 1969-70 prices for minimal living,
it has been estimated that 73.8 percent of the rural
population and 71.1 percent of the urban population live
below poverty line. As evidenced by the above estimates,
it is found that large percentage of the population of
the State live in poverty which naturally affects
education of children. Especially at primary level,
the family below the poverty line wishes to eke out
its livelihood by engaging the children of the school-age,
to assist them in their family work or in occupations
in which the parents are engaged.

OBJECTIVE, NEED AND METHODOLOGY

1.16.1. Education is an important lever of development.
Primary Education is the base on which the whole

edifice of education is raised. A study of the economic
aspects of growth of primary education, delineating
generic and specific aspects will reveal essential
facts and relationships most useful to economists,
educationists, educational planners and managers in
formulating vector planning.

1.16.2. **Major aims** : The major aims of the study are :

  (1) to compute the costs of various inputs
    of primary education in Tamil Nadu,
    (a) factor costs and (b) unit costs;

  (2) to make a cost benefit analysis of
    primary education in Tamil Nadu by
    finding the rates of return and some
    of other intangible effects related
    to economic development;

  (3) to study the internal efficiency and
    productivity of the system of primary
    education in Tamil Nadu;

  (4) to locate the pitfalls and weaknesses
    hindering efficiency of the educational
    system;

  (5) to identify the constraints on univer-
    salisation of primary education in
    Tamil Nadu;

  (6) to measure the wastage in primary
    education and its impact on the system
    of education and economic system as a
    whole;

  (7) to suggest remedial measures to plug
    the gaps and the pitfalls of the
    system so as to improve its efficiency
    and returns.

1.16.3. **Method of Analysis** : The study is mostly based
on the discovery of new facts arrived at by understanding

relevant studies. In certain aspects, the study is also
based on statistical analysis of new relations of facts
observed by others. Educational statistics compiled
at the state and national levels have been mainly
utilised for analysis in respect of enrolment and invest-
ment on education. Data relating to economic indicators
published/mimeographed by the Department of Statistics
have also been utilised. Since mostly the secondary
data available are insufficient for an indepth study,
wherever necessary, additional computations have been
worked out based on rational assumptions. For cost
benefit analysis, factor costs and unit costs of primary
education have been estimated from the available data
for the year 1970-71. The year 1970-71 has been chosen
because vital data on qualificationwise, age-income profile of
the persons are available from the National SampleSurvey
for that particular year.

1.16.4. In addition, primary data on private expenditure
have also been collected by the investigator from parents
all over the State on stratified sample basis. Further,
special studies were undertaken to gather data   on
(i) wastage in education, (ii) opinion of agricultural
researchers, (iii) effect of primary education in
primary, secondary and construction industries and
(iv) wastage and stagnation. To measure economic effects/
relations specially designed questionnaires, opinionnaires/
checklists have been issued and the data collected through
them were collated and analysed. To compute rates of
return, the model

$$\sum_{t=a}^{t=59} \frac{B_t - C_t}{(1+r)^{t-a}}$$

where, E_t = earnings over a period and C_t = costs over
a period, has been utilised. Growth indices, correla-
tion analyses and co-efficient of variation, have also
been adopted.

CHAPTER SCHEME

1.17.1. In the first chapter, the concept of human
resources and some relevant studies focussing on the
economic aspects of education in general and primary
education in particular are discussed. As education
has both consumption and production traits, there are
obvious limitations of such studies on economic aspects
of education.

1.17.2. In the second chapter on 'Growth and Development
of Primary Education in Tamil Nadu', the growth of
primary education since pre-independence period is
traced out, but the growth trend of inputs is restricted
to the period after 1955-56 (year of the Final Reorgani-
sation of Linguistic States) to have rational basis
of comparison.

1.17.3. In the third chapter, factor cost of primary
education in Tamil Nadu is computed from the secondary
data available. Problems of computing earnings fore-
gone and capital costs have been overcome by making
suitable assumptions. Both private and social costs
are estimated.

1.17.4. In the fourth chapter, the internal efficiency
of primary education in Tamil Nadu is analysed. The

chronic problem of wastage is measured. Both apparent
and true cohort methods are utilised. Cost effective-
ness of major inputs are also studied.

1.17.5. In the fifth chapter, special studies on pupil-
teacher ratios are analysed. Pupil-teacher ratio is
the significant indicator relating to both educational
and economic aspects.

1.17.6. In the sixth chapter, the productivity of primary
education in Tamil Nadu is discussed. The effects of
primary education on primary, secondary and other sectors
are studied separately. The unit private and social
costs and the rates of return are computed.

1.17.7. In the final and seventh chapter, summary of
findings, conclusion and brief outline of areas for
further research are given.

1.17.8. In these seven chapters, the economic aspects of
primary education in Tamil Nadu are studied in depth.
We have attempted to analyse various facets of the spread
of primary education with its plus points and pitfalls
to assess their economic impact.