CHAPTER II

GROWTH OF PRIMARY EDUCATION IN TAMIL NADU

EXPENDITURE ON PRIMARY EDUCATION IN INDIA

Growth of Educational Expenditure

2.1.1. The most important factor influencing growth of Primary Education in India has been the constitutional directive of free and compulsory education for all children in the age group 6-14 years. In pursuance of this objective, primary schools have come to be established in most of the 6 lakhs villages in India. In this section we discuss the growth of public (Government) expenditure on education. Table II-1 shows the total educational expenditure (through public as well as private sources) in India for selected years during 1950-51 to 1973-74. At current prices, educational expenditure has increased from Rs 114 crores in 1950-51 to

Rs 1350 crores in 1973-74, that is, 12 times during 23 years. As percentage of national income it has increased as follows :

	Educational expenditure as percentage of Gross National Product
1950-51* ..	1.12
1955-56* ..	1.82
1960-61* ..	2.45
1965-66* ..	2.85
1968-69** ..	2.89
1973-74** ..	2.52

Source : * Investment in Indian Education: size, sources and effectiveness, M.N.Pandit, Unesco: International Institute for Educational Planning, 1976. p.10

** Computed from Statistical outline of India 1976, Tata Services Ltd. p.17

2.1.2. There can be no doubt that a major effort has been made in India towards quantitative expansion of the educational system.

Expenditure on Primary Education

2.1.3. From our point of view, we are interested in knowing the magnitude of effort in primary education. From Table II-1 we can see that expenditure on elementary education in India has increased from Rs 44 crores in 1950-51 to Rs 500 crores in 1973-74, that is about 11 times. The growth of expenditure on primary education is slightly less rapid than the aggregate expenditure on education. Actually, the share of primary education in total educational

TABLE II-1

TOTAL EDUCATIONAL EXPENDITURE IN INDIA (1950-74) (Rupees in crores)
(All sources -- Government, Fees, Endowments)

Object of expenditure	1950-51	Percentage	1955-56	Percentage	1960-61	Percentage	1965-66	Percentage	1968-69	Percentage	1973-74 (Estimate)	Percentage
1	2	3	4	5	6	7	8	9	10	11	12	13
Direct :												
Elementary Education	44.30	38.73 (48.7)	69.38	36.58 (47.9)	116.06	33.96 (45.4)	214.14	34.43 (43.4	319.92	35.43 (41.9	500	37.04 (45.0)
Secondary Education	29.07	25.42	45.72	24.11	83.52	24.25	147.84	23.77	294.48	32.62	350	25.93
Higher Education	17.68	15.46	29.71	15.66	56.68	16.52	131.81	21.19	148.86	16.49	260	19.26
Total (Direct)	91.05	79.60	144.91	76.35	257.36	74.73	493.79	79.38	763.26	84.54	1110	82.22
All indirect expenditure	23.33	20.40	44.85	23.65	87.02	25.27	128.23	20.62	139.58	15.46	240	17.77
GRAND TOTAL	114.38	100	189.66	100	344.38	100	622.02	100	902.84	100	1350	100

Bracketed figures indicate the percentage to direct total.
1 crore = 10 millions = 10,000,000

Indirect expenditure includes expenditure on hostels, educational administration and inspectorate etc., which cannot be allotted to any specific stage of education. It really benefits all the stages.

Source : Ministry of Education and Social Welfare, New Delhi published in J.P.Naik, Some Aspects of Post Independence Development in India, Sambalpur University (1974)
Percentages computed.

expenditure has tended to decline during 1950-51 to 1960-61, from 39 percent to 34 percent. However, subsequently it has picked up. There is therefore some point in the criticism sometimes made that though much is being talked about the removal of illiteracy and 100 percent enrolment of children, in terms of the allocations made to primary education, the priorities reflected do not conform to verbal professions. Here below we show the expenditure on primary education as a percentage of national income of India.

		Expenditure on Primary Education as percentage of Gross National Product
1950-51	..	0.43
1955-56	..	0.67
1960-61	..	0.83
1965-66	..	0.98
1968-69	..	1.05
1973-74	..	0.96

INTER-STATE COMPARISON OF EDUCATION EXPENDITURE

2.2.1. Expenditure on education varies from State to State. To see the pattern of educational expenditure in various States, three main indices were worked out :

(i) Percentage of education and training budget (which includes expenditure on educational training in budgets other than education, like medical department) to total budget of the States;

(ii) Percentage of total budget to (Net) Domestic Product;

(iii) Percentage of education budget to Net Domestic Product.

2.2.2. Table II-2 shows the performance of the States with reference to these three indices between the periods 1970-71 to 1972-73. Columns 4 and 6 show clearly the relative positions of these States in respect of items (i) and (iii).

2.2.3. The comparison of the inter-state particulars in Table II-2 reveals the fact that the percentage of budget expenditure on education to the respective Net Domestic Products varies from 5.23 in Kerala to 1.00 in Uttar Pradesh.

2.2.4. The percentage for Tamil Nadu is 3.26 which is just above the All India level (3 percent). The percentage of expenditure on education to the Net Domestic Product of Tamil Nadu is just above All India level and when compared with the southern states, Tamil Nadu is in the third place.

EDUCATION EXPENDITURE IN TAMIL NADU

2.3.1. The pattern of expenditure on various sub-sectors of education in Tamil Nadu is more or less similar to that of the All India pattern. Table II-3 shows in single perspective the pattern of education expenditure on various levels of education. The table also shows the growth trend.

2.3.2. <u>Growth trend</u> : It is seen from the table that there is steady increasing trend in all levels of

TABLE II-2

STATEWISE PERCENTAGES OF TOTAL AND EDUCATIONAL BUDGET EXPENDITURES TO THE NET DOMESTIC PRODUCTS (1970-1973)

S.No.	State	Estimates of net domestic products at current prices (Rupees in crores)	Percentage of Education & Training budget to total budget	Percentage of total budget to total net domestic products	Percentage of Education budget (Education Department) to net domestic products
1	2	3	4	5	6
1.	Andhra Pradesh	.. 2833	22.5	12.45	2.38
2.	Assam	.. 875	23.2	14.54	3.09
3.	Bihar	.. 2440	21.4	10.30	2.03
4.	Gujarat	.. 2026	18.7	14.91	2.88
5.	Jammu & Kashmir	.. 237	14.6	27.60	3.79
6.	Haryana	.. 821	20.4	11.37	2.26
7.	HimachalPradesh	.. 197	25.6	8.11	1.99
8.	Kerala	.. 125	38.4	14.92	5.23
9.	Madhya Pradesh	.. 2733	28.8	10.60	2.41
10.	Maharashtra	.. 4533	20.6	14.40	2.50
11.	Karnataka	.. 1715	21.1	19.06	3.67
12.	Orissa	.. 1075	20.4	13.01	2.19
13.	Punjab	.. 1485	23.2	9.16	2.09
14.	Rajasthan	.. 1459	23.8	13.91	3.08
15.	Tamil Nadu	.. 2955	25.4	14.90	3.25
16.	Uttar Pradesh	.. 5333	20.7	9.65	1.90
17.	West Bengal	.. 2401	21.4	17.30	3.28
	ALL INDIA	..38921	16.7	25.70	3.00

Only the major states are shown here. The centrally administered territories are not shown. Total for All India however includes States as well as centrally administered territories.

Source : Expenditure on Education as shown in Central Annual Budgets 1970-71 to 1972-73.

TABLE II-3

GROWTH OF GOVERNMENT EXPENDITURE ON EDUCATION

(₹ in lakhs)

Sl. No.	Category	1955-56 end of I Plan (actuals) (37. Edn)	1960-61 end of II Plan (actuals)	1965-66 end of III Plan (actuals)	1968-69 end of three annual plans (actuals)	1973-74 end of IV Plan (28.Edn. Budget Estimate)	1975-76 (27.Edn. Budget Estimate)
1	2	3	4	5	6	7	8
1.	Primary	659	1014	1698	2606	4495	5867
2.	Secondary	191	383	1250	1922	2908	3878
3.	University	97	116	193	413	852	957
4.	Special	2	113	91	111	143	800
5.	Other items	145	199	410	472	1325	873
6.	Grand Total	1093	1825	3643	5625	9723	11655
7.	Total revenue expenditure (all departments)	5186	9109*	18066*	24754*	46500**	53800**
8.	Percentage of Education expenditure to total expenditure	21.08	20.19	20.94	22.74	21.00	22.00

Sources : * Appendices to Budget Speech 1968-69

** Education Demand 1973-74 and 1975-76

educational expenditure but the trend is faster in University Education than in Primary Education (synonymous with elementary education). The expenditure on primary education has increased 8.9 times the expenditure in 1955-56 whereas the expenditure on University Education has increased 9.9 times, during the same period. This table covers both plan and non-plan expenditure.

2.3.3. Percentage variation : Though there is phenomenal growth at current prices, the percentage analysis to the total expenditure on education shows a decreasing trend for primary education. In 1955-56, the percentages of expenditure on primary, secondary and university education to the total expenditure were 60.2, 17.0 and 1.9, whereas the corresponding percentages for 1975-76 were 50.4, 33.3 and 8.2. That is the expenditure on secondary and university education has increased as percentage to total expenditure whereas it decreased from 60.2 to 50.4 for primary education. The expenditure on primary education as percentage of the total budget expenditure (all departments) was 12.5 in 1955-56 and it was 10.9 for 1975-76 whereas the total education expenditure as percentage of total budget expenditure remained more or less constant at 22 percent. Hence it may be concluded that the expansion of secondary and university education is acting as a constraint on the expansion of primary education.

GROWTH OF ENROLMENT IN PRIMARY EDUCATION

The Growth trend at All India level

2.4.1. The importance of primary education and literacy

as vital factors in influencing the mass in various socio-economic activities has been realised and this is reflected in the efforts made to universalise primary education at global and national levels. The directive principle in Article 45 of the Constitution of India acted as a catalytic agent. The adoption of economic planning in the form of five year plans also enabled to mobilise the efforts of the people in moving towards the lofty and vital goal of universal primary education. Table II-4 shows the efforts made at All India level in attaining the universal primary education over the four plan periods.

Enrolment in I to V classes

2.4.2. The enrolment at this level was 19.2 millions in 1950-51. It rose to 63.8 millions in 1973-74. The enrolment increased nearly 3.3 times in 1973-74 to that of the enrolment in 1950-51. The growth of enrolment of girls was better than boys. The enrolment of girls in 1973-74 was nearly 4.8 times that of the enrolment in 1950-51. The wide gap between boys and girls enrolment also narrowed down over the period. The boys enrolment in 1950-51 was more than two times the girls enrolment. But, in 1973-74, the enrolment of boys was nearly 1½ times that of girls.

Percentage of enrolment in I to V classes

2.4.3. The total enrolment ratio nearly doubled over the period. The ratio for girls in 1973-74 was nearly 2½ times that of the 1950-51 whereas it was only around 1¾ times for boys.

TABLE II-4

ENROLMENT IN PRIMARY EDUCATION IN INDIA (1950-1974)

Year	Enrolment in Grades I-V (millions)	Percentage variation over previous period	Percentage of children enrolled in Grades I-V to total population in age-group 6-11	Enrolment in Grades VI-VIII (millions)	Percentage variation over previous period	Percentage of children enrolled in Grades VI-VIII to total population in age-group 11-14
1	2	3	4	5	6	7
1950-51 :						
Boys ..	13.8		60.8	2.6		20.8
Girls ..	5.4		24.9	0.5		4.3
Total ..	19.2		42.6	3.1		12.9
1955-56 :						
Boys ..	17.5	26.8	72.0	3.4	30.8	25.4
Girls ..	7.6	40.8	32.8	0.9	80.0	6.9
Total ..	25.1	30.7	52.8	4.3	38.7	16.5
1960-61 :						
Boys ..	23.6	34.9	82.6	5.1	50.0	32.2
Girls ..	11.4	50.0	41.4	1.6	77.8	11.3
Total ..	35.0	39.4	62.4	6.7	55.8	22.5
1965-66 :						
Boys ..	32.2	36.4	96.3	7.7	51.0	44.2
Girls ..	18.3	60.5	56.5	2.8	75.0	17.0
Total ..	50.5	44.3	76.7	10.5	56.7	30.9
1968-69 :						
Boys ..	34.2	6.2	95.6	9.0	16.9	47.0
Girls ..	20.2	10.4	59.6	3.5	25.0	19.3
Total ..	54.4	7.7	78.1	12.5	19.0	33.5
1973-74 :						
Boys ..	39.4	15.2	100.0	10.5	16.6	48.0
Girls ..	24.4	20.8	66.0	4.5	28.6	22.0
Total ..	63.8	17.3	84.4	15.0	20.0	36.0

Source : (1)Education in the Fifth Five Year Plan (1974-79). Ministry of Education & Social Welfare, 1972 (for 1950-51, 1955-56, 1960-61, 1965-66 and 1968-69).

(2)Draft Fifth Five Year Plan (1974-79), Planning Commission, Chapter VIII for 1973-74

Enrolment in VI to VIII classes

2.4.4. The growth of enrolment at higher primary level was much faster than the growth at lower primary level. The total enrolment at this level in 1973-74 nearly grew five times that of the total enrolment in 1950-51. The growth in enrolment of girls was encouraging. It was only 0.5 millions in 1950-51 but it was 4.5 millions in 1973-74. The enrolment of girls in 1973-74 was 9 times the enrolment of girls in 1950-51 whereas the increase was only around 4 times for boys during the same period.

Enrolment ratio in VI to VIII classes

2.4.5. The enrolment ratio for boys and girls increased from 12.9 in 1950-51 to 36.0 in 1973-74. It was nearly 3 times. In case of girls, it increased from 4.3 in 1950-51 to 22.0 in 1973-74 — it was nearly 5 times. The corresponding ratio between the enrolment ratio in 1973-74 and 1950-51 for boys was only 2.4.

2.4.6. In table II-4 it is of interest to see that upto 1965-66 increase in enrolment has proceeded vigorously. After 1965-66, the pace seems to have slackened. In case of Grades I-V, this slackening is understandable as a very high level of enrolment was reached by 1965-66 — indeed in case of boys it seems to have reached the high figure of 95 percent. However, the slackening in the pace of enrolment in Grades VI-VIII after 1965-66, in case of boys as well as girls cannot be easily explained, because the enrolment has hardly covered half of the boys and one-fourth of the girls in the relevant age-groups in 1973-74 (i.e., 11-14 years). The declared

objective of universal primary education for all in the age-groups 6-14 years, seems to have been reasonably fulfilled in the case of age-groups 6-11, but very inadequately fulfilled in case of the age-groups 11-14. There can be two possible explanations for the short-falls. (1) There may be many villages without a higher primary school. In this case there is the failure of the public policy to provide a school within walking distance for each village. (2) Alternatively, there may be schools but the dropout is very heavy and towards the age of 10 or 11 children tend to be with-drawn from the schools because in a poor country, they are needed to supplement family income.

2.4.7. The enrolment at higher primary level is comparatively far less than the lower primary level because, the percentage of higher primary schools in rural areas is comparatively less and most of the children are not sent to school when they reach an age of 10 and above. The Third All India Survey (1973) tells us that 84.1 percent of higher primary schools were in rural areas whereas 91.3 percent of lower primary schools were in rural areas. According to the same Survey (1973), in Tamil Nadu, 99.35 percent of the population had lower primary schools within a distance of 2 kilometres whereas only 55.89 percent of the population had higher primary schools within a distance of 2 kilometres. The percentage of population having higher primary schools within a distance of 3 kilometres was 70.11. This is one of the reasons. Further, as the children above 10 years are helpful to eke out the livelihood of the majority of the population the enrol-ment is not high at higher primary level.

2.4.8. Another aspect which requires consideration is that the enrolment ratios are subject to certain limitations. The ratios do not give exact percentage of enrolment in the age-group 6-14 in I-VIII standards.

2.4.9. A further analysis will show that certain percentage of the children on roll are overaged, i.e., above 14 years of age. Admission of underaged children is restricted now-a-days and it will not be much. But the deduction of the overaged population from the enrolment figures will lead the enrolment ratio towards further reduction. For example, in Tamil Nadu, 2.52 lakhs out of 63.04 lakhs enrolled in I-VIII classes were above 14 years old.

INTER-STATE COMPARISON — VARIANCE ANALYSIS

2.5.1. The enrolment ratio for the year 1974-75 at lower primary and higher primary levels are given in the Table II.5. The rank order noted in brackets shows that Kerala stands first both at lower primary and higher primary levels. Tamil Nadu is in the fifth rank at lower primary level and at the second rank at higher primary level. Tamil Nadu has reached an enrolment ratio next to Kerala at higher primary level. The enrolment ratio at lower primary level for India is 82.7 and it is 36.0 at higher primary level (1974-75). At both levels Tamil Nadu stands above All India level of achievement. The enrolment ratios are 90.3 percent and 52.6 percent respectively at lower and higher primary levels for Tamil Nadu.

TABLE II-5

ENROLMENT RATIO AT LOWER AND HIGHER PRIMARY LEVEL IN INDIA
(1974-1975)

States		Classes I-V (6-11)	Classes VI-VIII (11-14)
1		2	3
Andhra Pradesh	..	69.3 (13.5)	28.3 (14)
Assam	..	71.1 (12)	39.5 (7)
Bihar	..	54.0 (17)	15.3 (17)
Gujarat	..	88.0 (6)	38.7 (9)
Haryana	..	69.3 (13.5)	44.8 (5)
Himachal Pradesh	..	91.7 (4)	49.4 (4)
Jammu & Kashmir	..	59.0 (16)	30.0 (8)
Karnataka	..	86.7 (8)	34.8 (11)
Kerala	..	115.0 (1)	82.7 (1)
Madhya Pradesh	..	72.3 (11)	24.4 (15)
Maharashtra	..	92.8 (3)	44.7 (6)
Orissa	..	74.6 (10)	22.9 (16)
Punjab *	..	86.9 (7)	49.7 (3)
Rajasthan	..	67.4 (15)	32.0 (13)
Tamil Nadu	..	90.3 (5)	52.6 (2)
Uttar Pradesh	..	93.0 (2)	37.6 (10)
West Bengal	..	80.4 (9)	34.6 (12)
INDIA	..	82.7	36.0

* Figures relate to 1973
Figures in parenthesis indicate rank order

Source : Educational Statistics at a Glance, 1974-75, Ministry of Education & Social Welfare, New Delhi

Correlation between enrolment of lower primary level and higher primary level

2.5.2. The rank difference correlated coefficient 'r' works out to be 0.7314 which is highly significant at .01 level. It clearly implies the inter-relation between enrolment at lower primary level and higher primary level. Attainment of better results at lower primary level is a pre-requisite to attain better results at higher primary level.

Measures of dispersion

2.5.3. The range for enrolment at lower primary level is (115.0 - 54.0) = 61.0. It is (82.7 - 15.3) = 67.4 for higher primary level. The standard deviations are 14.34 and 15.20 for lower primary and higher primary levels respectively. But the coefficient of variance at higher primary level is much greater than that of the lower primary level. The coefficient of variance at lower primary level is 17.94 percent and it is 42.23 percent at higher primary level.

ENROLMENT RATIOS AND SOCIO-ECONOMIC VARIABLES IN STATES

2.6.1. There are various reasons for such wide variance in the enrolment ratios at lower primary and higher primary levels of education. In order to ascertain the factors on which the enrolment depends, correlation analysis is made separately for lower primary and higher primary levels. 14 correlates as given in Table II-6 are considered to test the hypothesis of dependence between these factors and the respective enrolment at lower and higher primary levels of education.

TABLE II-6

PRIMARY EDUCATION ENROLMENT RATIOS, EDUCATIONAL INDICES AND SOME SOCIO-ECONOMIC CORRELATES OF THE STATES OF INDIA (COMPARABLE STATES)

State	Enrolment Ratio 1974-75				School facility index Rural areas (1973)				School facility index Rural & Urban(1974-75)			
	I-V classes	RANK	VI-VIII classes	RANK	I-V classes	RANK	VI-VIII classes	RANK	I-V classes	RANK	VI-VIII classes	RANK
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Andhra Pradesh ..	69.3	13.5	28.3	14	1.452	3	0.191	9	1.612	3	0.256	8
Assam ..	71.1	12	39.5	7	1.105	7	0.192	8	1.136	9	0.229	9
Bihar ..	54.0	17	15.3	17	0.865	12.5	0.155	11	0.901	12	0.174	13
Gujarat ..	88.0	6	38.7	9	1.140	6	0.592	2	1.358	5	0.774	2
Haryana ..	69.3	13.5	44.8	5	0.959	10	0.224	7	1.050	10	0.281	7
HimachalPradesh ..	91.7	4	49.4	4	0.293	17	0.073	17	0.336	17	0.085	17
Jammu & Kashmir ..	59.0	16	39.0	8	1.094	8	0.306	6	1.257	8	0.387	6
Karnataka ..	86.7	8	34.8	11	1.149	5	0.381	4	1.330	6	0.505	5
Kerala ..	115.0	1	82.7	1	5.835	1	2.003	1	6.836	1	2.533	1
Madhya Pradesh ..	72.3	11	24.4	15	0.942	11	0.108	14.5	0.822	14	0.144	15
Maharashtra ..	92.8	3	44.7	6	1.283	4	0.433	3	1.497	4	0.629	3
Orissa ..	74.6	10	22.9	16	0.776	14	0.128	13	0.824	13	0.157	14
Punjab ..	86.9	7	49.7	3	0.865	12.5	0.168	10	0.969	11	0.222	10
Rajasthan ..	67.4	15	32.0	13	0.690	15	0.141	12	0.794	15	0.195	11
Tamil Nadu ..	90.3	5	52.6	2	1.799	2	0.362	5	2.252	2	0.550	4
Uttar Pradesh ..	93.0	2	37.6	10	0.592	16	0.089	16	0.686	16	0.122	16
West Bengal ..	80.4	9	34.6	12	1.008	9	0.108	14.5	1.265	7	0.194	12

Sources : Columns 2, 4, 10 and 12 : Educational Statistics at a Glance,1974-75, Ministry of Education & Social Welfare, New Delhi, 1975

Columns 6 and 8 : Computed from the Third All-India Educational Survey,National Council of Educational Research & Training, New Delhi, 1975

TABLE II.6 (Contd.)

State	Literacy percentage (1971) Persons	RANK	Females	RANK	No. of inhabitated villages	RANK	Percentage of Urban population	RANK	Total no. of SC & ST population ('000)	RANK	Density of population (persons per sq. km.)	RANK
	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
Andhra Pradesh ..	24.56	12	15.65	10	27221	8	19.15	7	7433	7	163	8
Assam ..	28.81	9	20.91	9	20965	10	8.39	15	2626	13	158	10
Bihar ..	19.79	15	8.40	16	67506	13	10.04	14	12704	3	335	3
Gujarat ..	33.72	4	24.56	5	18275	11	28.13	3	3552	10	143	12
Haryana ..	26.69	10	14.68	11	6670	15	17.78	9	1096	15	238	6
Himachal Pradesh..	31.32	8	20.04	8	16920	12	7.03	17	912	16	63	15
Jammu & Kashmir ..	18.30	17	9.10	15	6559	16	18.26	8	381	17	22	17
Karnataka ..	31.54	7	20.76	7	24377	9	24.31	5	4601	11	159	9
Kerala ..	60.16	1	53.90	1	1635	17	16.23	11	2041	14	572	1
Madhya Pradesh ..	22.12	13	10.82	13	70803	2	16.26	12	13341	2	99	13
Maharashtra ..	39.68	3	25.97	3	35665	6	31.20	1	5909	9	171	7
Orissa ..	26.12	11	11.75	12	46002	4	8.27	16	6393	5	146	11
Punjab ..	33.39	5	25.75	4	12180	14	23.60	6	3340	12	91	16
Rajasthan ..	19.79	16	8.26	17	32241	7	17.61	10	7202	8	79	14
Tamil Nadu ..	39.39	2	26.83	2	15735	13	30.20	2	7628	6	329	4
Uttar Pradesh ..	21.64	14	10.18	14	112824	1	14.00	13	18748	1	310	5
West Bengal ..	33.05	6	23.08	6	39454	5	26.59	4	11348	4	525	2
INDIA ..	29.34		18.44		--		19.67		--		174	

Source : Column 20 : Statistical Profile of Children and Youth in India, UNICEF, June'72
Other columns : Educational Statistics at a glance 1974-75, Ministry of Education & Social Welfare, New Delhi, 1975 (Based on 1971 census)

TABLE II-6 (Contd.)

State	Per capita revenue resources (Rupees)	Rank	Proportion of Primary Education budget	Rank	Per capita income (1970-71)	Rank	Tax & Non-tax revenue (Proportion to State income)	Rank	Expenditure on Primary Education (Proportion to State income)	Rank	Per capita expenditure (Rupees)	Rank
	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
Andhra Pradesh ..	37.3	9	37.5	9	545	10	6.3	10	1.65	11	6.7	9
Assam ..	22.6	15	36.9	11	520	12	4.9	13	1.63	5	8.4	6
Bihar ..	17.9	16	59.2	1	437	7	4.0	16	1.27	6	5.6	12
Gujarat ..	53.2	5	47.9	4	809	3	6.9	3	1.41	4	10.5	6
Haryana ..	62.2	3	22.5	15	644	2	8.5	5	0.96	15	4.6	14
Himachal Pradesh ..	NA		NA		639	5	NA		NA		NA	
Jammu & Kashmir ..	30.8	10	19.9	16	514	14	7.2	7	0.89	14	4.2	16
Karnataka ..	50.46	6	51.3	3	530	11	10.3	1	2.67	2	11.9	3
Kerala ..	42.9	8	52.7	2	590	8	8.8	4	3.02	1	17.7	1
Madhya Pradesh ..	33.1	12	38.8	8	490	16	6.2	11	1.18	7	7.6	7
Maharashtra ..	63.0	2	41.7	6	788	4	7.3	6	1.16	8	13.5	2
Orissa ..	22.0	14	32.0	12	496	15	4.7	14	0.89	13	4.5	15
Punjab ..	69.3	1	24.5	14	905	1	7.1	8	0.53	16	6.0	11
Rajasthan ..	60.6	4	32.3	12	603	7	5.9	12	1.07	10	6.1	10
Tamil Nadu ..	48.2	7	39.8	7	618	6	9.6	2	1.51	3	10.6	4
Uttar Pradesh ..	26.1	13	46.8	5	520	13	4.2	15	0.91	12	5.5	13
West Bengal ..	33.4	11	35.3	10	549	9	6.7	9	1.21	9	7.5	8

Source : Column Column 30 : Net State Domestic Product, Tamil Nadu 1960-61 to 1974-75, Directorate of Statistics, Madras.

Other columns : Indian Educational Review--A Research Journal, Vol.XI, No.2, April 1976, NCERT, New Delhi

NA = Not available

2.6.2. There are three aspects of meeting the educational demand as conceived in the directive principle of Article 45 in universalising primary education :

(a) Provision of universal facilities : Some of the related factors are :

i) density of population
ii) terrain
iii) proportion of rural area

(b) Provision of universal enrolment : Some of the related factors are :

i) educational level of the population
ii) proportion of the children belonging to scheduled castes/scheduled tribes
iii) literacy percentage

(c) Provision of universal retention : Some of the related factors are :

i) dropout and stagnation rates
ii) proportion of untrained and under-qualified teachers
iii) physical facilities available in schools
iv) pupil-teacher ratio

2.6.3. An attempt is made here to find out the various educational and socio-economic factors which have a bearing on the enrolment ratios of the various states, wherever available demographic, cultural and socio-economic indicators have been utilised along with certain indices specially computed for the study. The relationship

among the educational and other socio-economic indices are given in Table II-7.

The school facility index

2.6.4. Enrolment depends immediately on the sufficient number of schools provided. The school facility index has been constructed to check the relationship between the enrolment ratio and the facilities provided in the shape of the school plant. Two different indices have been prepared for lower primary and higher primary levels of education. These indices have also been constructed for rural areas and rural and urban areas separately. The total number of schools in a State is not the proper index because some States have a large number of inhabited villages. Even if two States have same number of schools but have different number of inhabited villages, the State having the more number of inhabited villages will have less number of schools per inhabited village. Considering inhabited village as a viable unit for comparison, the school facility index has been constructed by dividing the number of schools providing educational facilities for a particular level by the number of inhabited villages.

Model

2.6.5. If S_1, S_2 and S_3 are the number of lower primary, higher primary and secondary schools and v is the number of inhabited villages in the State, the school facility index is constructed by the formula

$$\text{sfi (LP)} = \frac{S_1 + S_2 + S_3}{v} \qquad \text{for lower primary level}$$

$$\text{and} \quad \text{sfi (UP)} = \frac{S_2 + S_3}{v} \qquad \text{for higher primary level}$$

TABLE II-7

RANK DIFFERENCE CORRELATION CO-EFFICIENTS OF EDUCATIONAL AND SOCIO-ECONOMIC CORRELATES WITH RESPECTIVE LOWER PRIMARY AND HIGHER PRIMARY ENROLMENT RATIOS

S.No.	Correlates	Correlation co-efficient with enrolment ratios			
		I-V classes		VI-VIII classes	
		r	*	r	*
1	2	3	4	5	6
1.	School facility index (Rural 1973) ..	.1888	NS	.4407	.05
2.	School facility index (Rural & Urban 1974-75) ..	.2163	NS	.4792	.05
3.	Literacy percentage of persons (1971) ..	.7285	.01	.6593	.01
4.	Literacy percentage of females (1971) ..	.7174	.01	.6921	.01
5.	Number of inhabited villages ..	-.1010	NS	-.7820	.01
6.	Percentage of Urban population ..	.3095	NS	.2597	NS
7.	Total SC & ST population ..	-.0090	NS	-.6440	.01
8.	Density of population ..	.2554	NS	.0368	NS
9.	Per capita revenue resources ..	.4026	NS	.6274	.01
10.	Proportion of primary education budget ..	.4302	.05	-.2690	NS
11.	Per capita income(70-71) ..	.4001	NS	.6911	.01
12.	Tax & non-tax revenues (Proportion to State income) .	.3861	NS	.6192	.01
13.	Expenditure on Primary Education (Proportion to State income) ..	.3244	NS	.1118	NS
14.	Per capita expenditure on Primary Education ..	.5875	.01	.4931	.05

* Significance level (one tailed test)
NS = Not significant

2.6.6. For lower primary level, all the schools in the State have been taken into consideration because some of the secondary schools have provision for lower primary grades too. For higher primary level, the number of lower primary institutions have been omited and the number of higher primary schools and the secondary schools have been taken into consideration.

School facility in rural areas and enrolment

2.6.7. The Third All India Educational Survey (1979) conducted by the National Council of Educational Research and Training, New Delhi has given in its provisional statistics, the number of institutions in rural areas. With the aid of these particulars the school facility index for rural areas has been constructed. The school facility index for rural areas is for the year 1979.

Correlation

2.6.8. Naturally if the number of institutions provided is not sufficient enough, the enrolment ratio will not improve. The correlation analysis made reveals that the rank difference coefficient of correlation between the school facility index and enrolment ratio is .1888 for lower primary level and .4407 for higher primary level. The latter is significant at the .05 level. It shows that provision of sufficient number of schools considering the inhabited village as a unit is vital to improve enrolment especially at higher primary level.

The significance of the School facility index

2.6.9. A School facility index for any level which exceeds 1, would generally imply that on an average all the villages

have been provided with a school relevant to that stage. However, the index less than 1 would mean, that several locations do not have a school relevant to that stage. We draw the following inferences from the columns 6 and 8 in Table II-6:

(a) Invariably the school facility provided is far less in respect of higher primary level than that provided for lower primary level;

(b) At lower primary level, Bihar, Haryana, Himachal Pradesh, Madhya Pradesh, Orissa, Punjab and Uttar Pradesh have not provided at least one school per inhabited village on an average as their school facility indices are less than one;

(c) At higher primary level except Kerala no other State has reached the level of adequacy;

(d) The above inferences are valid in respect of both indices of school facility: Rural and Total.

School facility in rural and urban areas with enrolment

2.6.10. Similar correlation analysis with school facility index (1974-75) for rural and urban areas combined shows moderate relation. The correlation coefficient is .2163 for lower primary level and .4792 for higher primary level. The latter is significant at .05 level which means that provision of school facility is a vital factor in attaining better enrolment at higher primary level.

2.6.11. The analyses show the school facilities provided during the previous year has correlation with the

enrolment at the current year and the enrolment at the current year has also correlation with school facilities provided during that year.

Literacy and school enrolment

2.6.12. Literacy and education are inter-related. Literate parents normally desire to educate their offsprings and the enrolment largely depend on the literacy of the population of the respective states. The rank difference correlation analysis made between the literacy percentage and the enrolment ratio proved this. The coefficient is .7293 for lower primary level and it is .6593 for higher primary level. Both are significant at .01 level. A similar correlation analysis with the literacy percentage of the female population of the states established the significance of correlation. The coefficient is .7174 for lower primary level and it is .6921 for higher primary level. Both coefficients are significant at .01 level. When we consider the coefficients at higher primary level we find that the enrolment at this stage is more dependent on the literacy of females than on the literacy of the population in general. This indicates that the education of females is a vital factor in sending their wards to schools for higher primary level and above.

Number of inhabited villages

2.6.13. The number of inhabited villages varies from state to state. There were as many as 1,12,624 inhabited villages in Uttar Pradesh whereas it was only 1,635 in Kerala. The efforts to be taken by the States in providing schools and other infrastructure will be comparatively more in such States than in the States with less

number of inhabited villages. Tamil Nadu is in the seventh position which is favourable in improving enrolment. The correlation analysis shows that there is a negative correlation between the number of inhabited villages and the enrolment ration. The coefficient is not significant at primary level but it is highly significant at .01 level for higher primary education. It is because the intensity of the difficulty in providing the educational plant (schools) will be keenly felt in the States where the number of villages is more. Thus we arrive at the conclusion that where there is a larger number of inhabited villages enrolment at primary level is comparatively less, owing to the rural bias of the inhabited villages.

Percentage of urban population

2.6.14. Another factor which normally interacts with any programme or system is the urban-rural variation of the population. The urbanisation conveys better literacy, more opportunity for non-agricultural work, availability of fundamental facilities etc. Thus it provides a better climate and environment for growth of educational facilities also. Though the correlation coefficients are not significant, there is positive correlation indicating that urbanisation helps to improve enrolment at primary level. That is, enrolment is higher in urban areas. The percentage of urban population in Tamil Nadu is 30.28 which stands at second rank.

Total number of scheduled caste and scheduled tribe population

2.6.15. The social structure of the Indian community consists of several stratified socio-economic groups.

The scheduled caste and scheduled tribe communities have remained backward during the last few decades and they are in the lower stratum of the socio-economic structure. Their low economic status is also one of the ingredients of weakness and backwardness apart from their social and religious customs and constraints. The analysis shows the negative correlation between the incidence of scheduled caste and scheduled tribe population and enrolment ratio at primary level. The coefficients are -.009 for lower primary level and -.644 for higher primary level. The negative correlation is highly significant at the higher primary level (.01 level). This indicates that the enrolment ratio at higher primary level is comparatively less in the States where the proportion of scheduled caste and scheduled tribe communities is more. Scheduled castes generally consist of the ex-untouchable castes of India who occupied the lowest position in the castes hierarchy in India. Scheduled tribes are the aboriginal inhabitants -- tribals. Both these groups suffered deprivation during India's long history. Incidence of illiteracy is very high among them. Special privileges conferred on them since Independence are however having some effect. The negative influence of scheduled caste and scheduled tribe population has been overcome to certain extent as far as the lower primary education is concerned. This may be due to the efforts taken by the States to compensate the educational and economic backwardness of the underprivileged communities.

Density of population

2.6.17. The population of the individual States is also one of the factors related to enrolment in educational

institutions. It is quite natural that more number of students will have to be enrolled in the States where the total population is comparatively more. The area of the concerned States is also a factor. Therefore a compound index has been taken up for correlation analysis combining these two components. The density of population per square kilometre as provided in the 1971 census is considered in the analysis. The correlation coefficient is .2554 at lower primary and it is .0360 at higher primary level. Though these coefficients are not significant, there is positive correlation which indicates that where the density is higher, there the enrolment ratio is comparatively more. This is understandable because a more dispersed population would be more difficult to be provided with the schooling services. The density of population in Tamil Nadu as per 1971 census was 329 per square kilometre. Tamil Nadu was in the fourth rank. It is interesting to note here that Kerala is in the first rank in density of population as well as in enrolment ratios. The problem of providing schools in sparsely populated areas is acute when compared with densely populated regions.

2.6.18. The relationship between the index of provision of universal education and educational, demographic and other social factors have been discussed so far. With this background the relationship between educational enrolment which is an indicator of the universalisation of primary education and some of the relevant economic correlates are discussed in the ensuing paragraphs.

Economic correlates--Per capita revenue resources

2.6.19. The indices to be discussed under this section can be broadly classified into two broad factors relating to ability of the States and the efforts of the States in economic terms. The revenue resources -- tax and non-tax -- of the States is an index which will be useful in comparing the abilities of the States in providing funds for developmental activities. As the population of the States determines the magnitude of the service to be provided the better index would be per capita revenue resources. The rank of Tamil Nadu with regard to per capita revenue resources is 7 (column 27). Assuming that the per capita revenue resources indicate their ability, the States of Gujarat, Haryana, Karnataka, Maharashtra, Punjab and Rajasthan have much greater ability to support elementary education than, for instance, Assam, Bihar, Madhya Pradesh, Orissa and Uttar Pradesh. The correlation coefficient between per capita revenue resources and enrolment at lower primary level is .4026. It is .6274 at higher primary level. Though the former coefficient is not significant, it is considerably near significance level. The coefficient for higher primary level is highly significant at .01 level which indicates that there is positive correlation between these two factors, i.e., where the per capita revenue resources is higher the enrolment ratio is also comparatively higher.

Proportion of Primary Education Budget

2.6.20. For various reasons, the revenue resources of a State do not indicate its ability to support a social service, including primary education. For one thing these resources depend, among other things, upon the

intentions of the state to undertake development activity at a particular level of intensity. A state, deciding to maintain a development activity, like education, at a low level does not need to make a great effort to raise resources for financing it. Secondly, revenue resources depend upon the number and the rate of taxes that a state is willing to levy; this willingness is in a way an index of the deprivations that it imposes upon its citizens. Thirdly, the resources that a state will allocate for education will depend upon the priority that it gives to it rather than on its ability exclusively. For these and other reasons, revenue resources will not indicate the potential ability of a state to finance primary education.

2.6.21. The proportion of the State Education Budget devoted to primary education has at times been proposed as an index of its ability to be provide for this service.

2.6.22. Column 28 shows the proportion of primary education budget to total education budget. This can be considered as the ability of the states in providing educational facility at primary level. In a way it can also be interpreted as the efforts taken by the states in providing school facility at primary level because the fulfillment of target achievement largely depends on the money input and its proper management to attain optimal results. A significant point to be noted is that, barring Bihar, and to some extent Uttar Pradesh, the educationally backward states generally allocate a smaller proportion of their educational budgets to

primary education. Tamil Nadu invested around 40 percent of the education budget (1972-73).[1]

2.6.23. The correlation coefficient is .4302 at lower primary level which is significant at .05 level. On the other hand the other coefficient for higher primary level is negative but it is not significant. There is dependence between the enrolment ratio at lower primary level and the proportion of primary education budget. The enrolment at higher primary level is not commensurate with the proportion of primary education budget. It may be due to the fact that the budget provision is not upto the actual requirement at that level or that the enrolment at higher primary level needs efforts other than mere provision of budget.

2.6.24. It is fitting here to recapitulate what inference we have drawn in analysing the school facility index. It was found that provision of schools at higher primary level is significantly related to enrolment at that level. But school facility indices for higher primary level are invariably far less than the indices for lower primary level in respect of all States. Further, the indices are far less than one in respect of most of the States. Even a minimum of one higher primary school has not been provided on an average per inhabited village.

2.6.25. Further it is also observed, under per capita income in item 11 of Table II-7, that the income is

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1. The percentages have been worked out from the data (cyclostyled material) relating to State and Central annual budgets brought out by the Ministry of Education & Social Welfare Department, Delhi. The percentages were computed from the annual budgets for 1970-71 to 1973-74).

also a major factor influencing the enrolment at higher primary level. If the income is low, they avail the services of children in the age-group relating to higher primary level and therefore more budget provision does not have any better impact.

Per capita income

2.6.26. The proportion of primary education budget is not a true index of States potential ability to provide education because the budgeted outlay itself will be varying from State to State and larger percentage of proportion of primary education budget need not necessarily be greater expenditure per pupil or per person of the population. The State income is a better index to compare the abilities of the States to provide educational facilities as Benson[2] has said, 'Income is a major determinant of expenditure on education'. There is wide variation among the incomes of the States. Tamil Nadu stood at seventh rank (column 21).

2.6.27. The correlation analysis shows that there is positive relation between per capita income and enrolment ratio. In respect of lower primary level it is close to significance at .05 level. It is highly significant at .01 level for higher primary education. This shows at all India level, the per capita income of the States has a definite relation to the enrolment; of course, in addition to the income, the States must have taken efforts and initiative to expand and intensify primary education.

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2. S.Charles Benson: 'The economics of Public Education' Boston, Houghton Mifflin Company, 1969. pp.42-43.

Tax and Non-tax revenue resource as proportion to the State income

2.6.28. State income is an index of the potential abilities of the State. But enrolment ratios depend on the efforts taken to mobilise these resources and to utilise them for the purpose of primary education. Here an index of the overall resources — tax and non-tax revenues which the States generate as a proportion to the State income is worked out. Karnataka tops the list. Bihar is the last State in rank order. Tamil Nadu is in the second rank.

2.6.29. The correlation analysis between this index and the lower and higher primary enrolment ratios are .3651 and .6172 respectively. The former is not significant but the latter is highly significant at .01 level. This implies that enrolment at higher primary level depends largely on the tax effort in proportion to State income.

Proportion of expenditure on primary education to State income

2.6.30. Column 34 indicates the efforts taken by the individual states by allocating funds for primary education as a proportion to the State income. It is seen that Kerala ranks first and Punjab stands last. Tamil Nadu is in the third place. It is worth noting that Kerala which secured the first place in educational achievements at primary level also spends to a greater extent securing the first place at all India level. Thus there is moderate linkage between the educational efforts taken in providing funds for primary education and enrolment achievement. The correlation analysis shows positive relationship between expenditure on primary education as a proportion to the State income

and the enrolment ratios. But these coefficients are not significant. The coefficient for lower primary level is 0.3244 and for the higher primary level it is 0.1118.

Per capita expenditure on elementary education

2.6.31. The fact that the gross index of expenditure on primary education as a proportion to the State income does not yield significant correlation coefficient indicates a need for improved index for comparison and analysis. The per capita expenditure on primary education serves this purpose. Column 36 shows the per capita expenditure on primary education over the period 1970-71 to 1973-74. Here again, Kerala stands first and Jammu & Kashmir stands last. Tamil Nadu which secured third rank in respect of the previous index has come down to fourth rank under this index of per capita expenditure on primary education. The correlation analysis shows the significant relationship between the primary enrolment ratios and this index. The correlation coefficient is .5975 for lower primary level which is significant at .01 level and the coefficient for higher primary level is .4931 which is significant at .05 level.

Findings

2.6.32. Thus it is observed that the variation in enrolment are influenced by the school facilities provided, the literacy level attained by the people, especially by their female members, the number of inhabited villages and the rural urban composition of the people, the proportion of incidence of scheduled casts and scheduled tribe population, per capita revenue resources

of the States, per capita income and per capita expenditure on primary education.

GROWTH TREND IN ENROLMENT OF PRIMARY EDUCATION

Tamil Nadu and India compared

2.7. Table II-0 shows the percentage of enrolment in 6-11 age-group and 11-14 age-group in India and Tamil Nadu over the four plan periods. It is seen that the percentage of enrolment in 6-11 age-group in Tamil Nadu is greater than the all India figures by 2.9 points in 1955-56 and by 5.8 points in 1973-74. The corresponding gap is wider in respect of 11-14 age-group. The enrolment ratio of Tamil Nadu is higher than that of all India ratio by 6.2 points in 1955-56 and by 16.3 points in 1973-74. Tamil Nadu is far-advanced in respect of higher primary enrolment when compared to all India performance.

GROWTH OF ENROLMENT IN PRIMARY EDUCATION IN TAMIL NADU -- AN INTER-TEMPORAL ANALYSIS

2.8.1. In October 1953, the old Madras State was partitioned and the Andhra State was formed. On 1st November, 1956, the Madras State (subsequently renamed as Tamil Nadu State) was again reorganised when the Kerala State was formed. Consequent on this reorganisation, the entire Malabar districts and the Kasargoda taluk of South Kanara district were merged with the new Kerala State; the remaining portion of the South Kanara district and the Kollegal taluk of Coimbatore district were merged with the Mysore State; the Kanyakumari district of the

TABLE II-8

ENROLMENT IN PRIMARY EDUCATION, INDIA AND TAMILNADU COMPARED

Year	Percentage of enrolment 6-11 age-group		Percentage of enrolment 11-14 age-group	
	India	Tamilnadu	India	Tamilnadu
1	2	3	4	5
1955-56 :				
Boys ..	72.0	73.56	25.4	33.34
Girls ..	32.8	37.96	6.9	12.11
Total ..	52.8	55.69	16.5	22.68
1960-61 :				
Boys ..	82.6	85.78	32.2	45.18
Girls ..	41.4	53.95	11.3	19.82
Total ..	62.4	69.95	22.5	32.55
1965-66 :				
Boys ..	96.3	102.03	44.2	63.78
Girls ..	56.5	78.85	17.0	36.79
Total ..	76.7	92.15	30.9	52.57
1968-69 :				
Boys ..	95.6	105.34	47.0	68.23
Girls ..	59.6	78.85	19.3	36.79
Total ..	78.1	92.15	33.5	52.57
1973-74 :				
Boys ..	100.0	100.60	48.0	66.30
Girls ..	66.0	79.66	22.0	37.90
Total ..	84.4	90.20	36.0	52.30

Sources : 1) Education in the Fifth Five Year Plan(1974-79), Ministry of Education & Social Welfare, 1972 (for 1950-51, 1955-56, 1960-61, 1965-66 and 1968-69)
2) Draft Fifth Five Year Plan (1974-79), Planning Commission, Chapter VIII for 1973-74
3) Progress of Education in Tamil Nadu (Note on Demand 17--Education 1975-76, Govt. of Tamilnadu
4) Tamilnadu Public Instruction Reports, 1955-56 and 1960-61.

former Travancore-Cochin State was integrated with the reorganised Madras State. Therefore the enrolment movement is analysed from 1956-57 onwards.

2.8.2. Tables II-9 and II-10 show the enrolment in lower primary (I to V classes) and higher primary (VI to VIII classes) stages respectively. Between 1956-57 to 1974-75 the enrolment in lower primary classes little more than doubled while in the higher primary classes the enrolment tripled. The annual compound rate of growth of enrolment in lower primary classes was 4.3 percent as compared to 6.4 percent in higher primary classes. The enrolment of girls proceeded at a faster rate. It increased by more than 2½ times in lower primary classes and nearly four times in the higher primary classes.

2.8.3. Columns 8 of tables II-9 and II-10 show the compound annual rate of growth of enrolment with 1956-57 as base with each respective year treated as a terminal year. It will be seen that upto 1962-63 for lower primary stage the rate of growth shows an acceleration. The compound rate rises to 7.4 percent upto 1962-63 but thereafter gradually declines. For the higher primary stage also upto 1963-64 there is acceleration, as shown by the gradual rise in the compound rate of growth to 10.1 percent by 1963-64. Thereafter there is a gradual decline. Actually, in case of lower primary stage the deceleration becomes quite pronounced after 1967-68 as can be seen from column 6 of table II-9. After that period, the variation over the previous year, exceeds 3 percent only once, 2 percent only twice and four times it is less than 2 percent. In higher primary stage, as can be seen from column 6, the increase in enrolment

TABLE II.9

GROWTH OF ENROLMENT IN I-V CLASSES IN TAMILNADU (1956-'74)

(Pupils in '000)

Year	Number of pupils			Increase over the previous year	Percentage increase over previous year	Growth Index	Compound Annual Rate of Growth with 1956-57 as base
	Boys	Girls	Total				
1	2	3	4	5	6	7	8
1956-57..	1651	959	2610	-	-	100.0	-
1957-58..	1722	1012	2735	125	4.8	104.8	4.8
1958-59..	1863	1119	2982	247	9.0	114.3	6.9
1959-60..	1950	1186	3136	154	5.2	120.2	6.5
1960-61..	2053	1280	3333	197	6.3	127.7	6.3
1961-62..	2249	1468	3717	384	11.5	142.4	7.3
1962-63..	2391	1609	4000	283	7.6	153.4	7.4
1963-64..	2517	1741	4258	258	6.5	163.1	7.3
1964-65..	2586	1830	4415	157	3.7	169.2	6.8
1965-66..	2637	1874	4511	96	2.2	172.8	6.3
1966-67..	2716	1919	4634	123	2.7	177.5	5.9
1967-68..	2821	2073	4894	260	5.6	187.5	5.9
1968-69..	2822	2096	4918	24	0.5	188.4	5.4
1969-70..	2864	2127	4991	73	1.5	191.2	5.1
1970-71..	2924	2221	5145	154	3.1	197.1	5.0
1971-72..	2964	2269	5233	88	1.7	200.5	4.7
1972-73..	3009	2317	5326	93	1.8	204.1	4.6
1973-74..	3064	2373	5438	112	2.1	208.4	4.4
1974-75..	3133	2428	5560	122	2.2	213.0	4.3

Note : Slight variation in totals is due to rounding off figures

Source: Computed from Educational Statistics (unpublished), Department of School Education, Madras

TABLE II-10

GROWTH OF ENROLMENT IN VI-VIII CLASSES IN TAMILNADU (1956-'74)

(Pupils in '000)

Year	Number of pupils			Increase over the previous year	Percentage increase over previous year	Growth Index	Compound Annual Rate of Growth with 1956-57 as base
	Boys	Girls	Total				
1	2	3	4	5	6	7	8
1956-57 ..	343	135	478	-	-	100.0	-
1957-58 ..	362	149	511	33	6.9	106.9	6.9
1958-59 ..	395	170	565	54	10.6	118.2	8.7
1959-60 ..	431	186	617	52	9.2	129.1	8.9
1960-61 ..	481	210	691	74	12.0	144.6	9.7
1961-62 ..	528	234	762	71	10.3	159.4	9.8
1962-63 ..	577	262	840	78	10.2	175.7	9.9
1963-64 ..	648	288	936	96	11.4	195.8	10.1
1964-65 ..	655	317	972	36	3.8	203.3	9.3
1965-66 ..	721	345	1066	94	9.7	223.0	9.3
1966-67 ..	752	381	1133	67	6.3	237.0	9.0
1967-68 ..	788	407	1195	62	5.5	250.0	8.7
1968-69 ..	801	427	1238	43	3.6	259.0	8.3
1969-70 ..	844	455	1299	61	4.9	271.8	8.0
1970-71 ..	851	468	1319	20	1.5	275.9	7.5
1971-72 ..	868	478	1346	27	2.1	281.6	7.2
1972-73 ..	888	494	1382	36	2.7	289.1	6.8
1973-74 ..	910	509	1419	37	2.7	296.9	6.7
1974-75 ..	930	526	1456	37	2.6	304.6	6.4

Note : Slight variation in totals is due to rounding off figures
Source: Computed from Educational Statistics (unpublished), Department of School Education, Madras

over previous year, after 1969-70, does not exceed 3 percent even once. In short, merely looking at the long-run compound rate of growth does not tell us the full story, namely acceleration in the earlier period and pronounced declaration in the later period.

2.8.4. The deceleration in lower primary standards is understandable by 1974-75, as by then, a very high rate of enrolment of children under the age-group 6-11 had been attained. Since 1970-71, the rate of increase in enrolment in primary stages has been almost similar to the rate of increase in population. However, so far as the higher primary stage is concerned, not only the deceleration but a very low rate of annual increase in enrolment (about 2.5 percent per year) is difficult to understand as there is still a long way to go before universal enrolment of children 11-14 years is reached.

2.8.5. The percentages of enrolment as per the educational statistics for the year 1970-71 were as follows :

	Boys	Girls	Total
Lower primary level* ..	106.5	81.5	94.1
Higher primary level*..	70.8	39.2	55.1

(*Provisional Educational Statistics as on 1-8-1970, Directorate of School Education, Madras)

2.8.6. The above percentages have been worked out by including children studying in I to V classes but whose age was 11 years and above, in case of lower primary level. If these children are excluded, the percentage works out

to be 70.9. Similarly, if only those who were between 11 to 14 years are taken into consideration the percentage of children enrolled at higher primary level works out to be 30.2. In this case, children who are above 11 years but studying in lower primary classes are left out in the computation as they are not in the classes relevant to their age-group.

2.8.7. The exact percentage of enrolment for the primary level (I to VIII standards), basing the computation on the total number of children enrolled in age-group 6-14 works out to be 64.0. Here, students who are under 6 years of age and over 14 years of age are not taken into consideration. Thus the actual percentages for the relevant age-groups are less than the percentages given in educational statistics which includes pupils who are overaged as well as underaged.

2.8.8. The growth of enrolment at higher primary level is far less than that of the lower primary level. As analysed before for all India figures, there are several factors related to the slow growth :

(i) 73.8 percent of the rural population and 71.1 percent of the urban population live under poverty line in Tamil Nadu and therefore they went to retain their children around 11 years of age onwards to eke out their livelihood;

(ii) It is also seen from the Tables II-11 and II-12 that there is sluggishness in the growth of schooling facility for higher primary stage. There seems to be a declining trend in the

TABLE II-11

GROWTH OF NUMBER OF SCHOOLS IN TAMIL NADU (TYPEWISE)

Year (1)	Secondary (2)	Higher Primary (3)	Lower Primary (4)
1956-57 ..	894	2460	22608
1957-58 ..	958	2634	23431
1958-59 ..	1012	2736	22511
1959-60 ..	1108	2847	23516
1960-61 ..	1257	3523	23711
1961-62 ..	1517	4847	23651
1962-63 ..	1730	6058	23605
1963-64 ..	1915	6242	23958
1964-65 ..	2097	6145	24396
1965-66 ..	2222	6065	24641
1966-67 ..	2372	6066	25091
1967-68 ..	2449	6063	25366
1968-69 ..	2513	6018	25694
1969-70 ..	2580	5963	25855
1970-71 ..	2635	5944	25937
1971-72 ..	2699	5862	26159
1972-73 ..	2763	5817	26431
1973-74 ..	2823	5773	26725
1974-75 ..	2882	5768	26797
1975-76 ..	2965	5741	26951

Source : Educational Statistics of Tamil Nadu, Directorate of School Education, Madras

TABLE II-12

GROWTH OF NUMBER OF TEACHERS IN SCHOOL EDUCATION IN TAMIL NADU (TYPEWISE)

Year (1)	Secondary (2)	Higher Primary (3)	Lower Primary (4)
1956-57 ..	20483	4822	83569
1957-58 ..	22572	6725	84689
1958-59 ..	24200	29789	56347
1959-60 ..	26288	31800	68293
1960-61 ..	29117	36501	74168
1961-62 ..	32849	45178	75978
1962-63 ..	36942	53284	73815
1963-64 ..	41614	55340	74109
1964-65 ..	44604	57284	83135
1965-66 ..	48514	59943	88173
1966-67 ..	52044	61363	90041
1967-68 ..	55242	61991	91923
1968-69 ..	54857	62222	91418
1969-70 ..	56651	62511	92748
1970-71 ..	57756	64499	96589
1971-72 ..	59891	64392	101266
1972-73 ..	63457	66347	103941
1973-74 ..	65959	66043	106332
1974-75 ..	69454	68249	110517
1975-76 ..	71314	67950	110477

Source : Educational Statistics of Tamil Nadu, Directorate of School Education, Madras

number of higher primary schools. Actually, the total facility for higher primary level including the secondary schools will not be in declining trend. Because some of the higher primary schools had been upgraded as secondary schools and these schools would have been reckoned in the number of secondary schools. However, when compared to the school facility for the lower primary level, the facility for higher primary level is far less and this is also one of the reasons but it is not the only reason. If the parents are willing to send sufficient number of pupils in a viable unit of village, there would not be any difficulty in opening schools or upgrading lower primary schools as higher primary schools provided the school is not uneconomic. If we keep open higher primary schools even where there is no sufficient number of pupils to attend it would cost the exchequer without fruitful return. If the schools are opened and the parents are compelled strictly under law, there may be some improvement, but compulsion involves various other problems. The curriculum being irrelevant, there is no definite scope to get employment even after completing VIII standard. Under such circumstances the poor parents retain their children to help them in their employment and therefore there would not be appreciable improvement in the enrolment at higher primary level unless the general economic condition of the State and the Nation improves.

INTER-DISTRICT VARIANCE IN ENROLMENT IN TAMIL NADU AND MULTIPLE REGRESSION ANALYSIS WITH SOCIO-ECONOMIC INDICES

2.9.1. The enrolment ratio for the State as a whole hides in it many variations of the district level ratios. A districtwise analysis of enrolment as shown in columns 3 and 4 of the Table II-13 indicates the inter-district variance. At lower primary level it varied from 76.18 percent to 109.80 percent and at higher primary level the ratio varied from 31.38 percent to 75.03 percent. As already discussed in the inter-state variance analysis, the enrolment ratio depended on several educational and socio-economic factors. To identify the districtwise imbalance, 12 indicators have been computed as shown in the Table II-13. A multiple regression analysis is carried out to see the inter-relation among the correlates.

2.9.2. The rank difference correlation coefficients among the 12 variables have been worked out and recorded in Table II-14. The significance level of the coefficients (one tail test) have been shown by colour underlines and the code is explained in the table itself. Only the lower diagonal cells have been completed and the other upper diagonal cells would have symmetrical figures, the diagonal being the axis of symmetry.

Relation between enrolment ratios at lower and higher primary levels

2.9.3. Continuing education at higher primary level must imply completion of education at lower primary level. Therefore where the enrolment is sufficiently higher at higher primary level also. This null hypothesis is tested by the correlation analysis. It shows a moderately significant positive relationship. The coefficient

TABLE II-13

PRIMARY EDUCATION ENROLMENT RATIOS, EDUCATIONAL AND SOCIO-ECONOMIC CORRELATES OF THE DISTRICTS OF TAMIL NADU -- 1974-'75

District	Percentage of enrolment in I to V classes	RANK	Percentage of enrolment in VI-VIII classes	RANK	School facility index* (Rural & Urban 1974-75) I-V classes	RANK	VI-VIII classes	RANK	Total literacy percentage	RANK	Percentage of female literates to total females	RANK
1	2	3	4	5	6	7	8	9	10	11	12	13
Madras ..	76.18	14	71.25	2	807*	1	468*	1	62.01	1.0	52.50	1
Chingleput ..	90.20	7	53.91	6	1.458	13	0.372	12	39.70	6.5	27.02	6
North Arcot ..	87.46	10	49.57	10	1.869	10	0.428	10	34.66	11.0	21.39	11
South Arcot ..	88.33	8	43.24	13	1.379	14	0.299	13	31.13	13.0	17.80	13
Dharmapuri ..	84.12	11	31.38	14	1.741	11	0.292	14	22.31	14.0	12.60	14
Salem ..	77.45	13	43.74	12	2.267	9	0.439	9	31.70	12.0	20.32	12
Coimbatore ..	81.22	12	45.57	11	3.631	4	0.799	6	38.89	9.0	25.90	8
The Nilgiris ..	91.87	6	63.29	3	11.595	2	3.238	3	47.03	3.0	34.90	3
Madurai ..	95.15	4	52.87	8	3.180	6	0.829	5	41.51	5.0	27.76	5
Trichy+ ..	91.95	5	51.56	9	2.957	7	0.680	7	37.50	10.0	23.67	10
Thanjavur+ ..	87.83	9	53.23	7	1.590	12	0.394	11	39.60	8.0	26.13	7
Ramnad ..	102.71	2	54.58	5	2.330	8	0.545	8	39.70	6.5	25.37	9
Tirunelveli ..	101.92	3	57.34	4	3.373	5	0.901	4	44.83	4.0	33.02	4
Kanyakumari ..	109.80	1	75.83	1	9.273	3	3.742	2	58.21	2.0	52.13	2
TAMIL NADU ..	90.30		52.60		2.494		0.550		39.45		26.86	

Source : Computed from Educational Statistics (mimeographed), Directorate of School Education, Madras

+ Newly formed Pudukottai District is covered by Tiruchy and Thanjavur figures

TABLE II-13 (Contd)

District	Number of inhabited villages	R A N K	Percentage of rural population	R A N K	Percentage of SC & ST population to total population	R A N K	Density of population per sq.km. (1971)	R A N K	Per capita GDP at current prices 70-71 (in Rs)	R A N K	No.of workers engaged in agriculture as % of total workers (1971)	R A N K
	14	15	16	17	18	19	20	21	22	23	24	25
Madras ..	Nil	14	Nil	14	10.53	13	19293	1	371.23	8	2.7	14
Chingleput ..	1778	4	65.24	11	27.20	1	367	4	573.59	1	45.1	12
North Arcot ..	1867	3	79.15	5	21.25	5	306	8	352.77	9	66.9	5
South Arcot ..	2333	1	85.82	2	26.30	2	332	6	395.06	4	76.1	2
Dharmapuri ..	1044	7	91.42	1	15.41	11	174	11	242.20	14	79.8	1
Salem ..	958	10	73.42	8	19.20	6	346	5	386.90	7	60.9	8
Coimbatore ..	932	11	64.41	12	16.35	8	279	10	491.29	2	54.2	10
The Nilgiris ..	42	13	50.76	13	22.83	3	194	14	390.95	6	12.5	13
Madurai ..	1013	8	66.38	10	15.10	12	312	7	351.63	10	63.3	7
Trichy* ..	1314	6	77.73	6	18.34	7	269	12	348.73	11	69.0	4
Thanjavur* ..	2002	2	79.48	4	22.13	4	395	3	395.78	5	70.2	3
Ramnad ..	1411	5	73.90	7	16.12	9	227	13	305.02	12	63.5	6
Tirunelveli ..	975	9	67.83	9	15.82	10	280	9	427.98	3	53.4	9
Kanyakumari ..	66	12	83.28	3	4.16	14	726	2	263.65	13	51.2	11
TAMIL NADU ..	15735		69.74				317					

Source : Column 22 : Computed from State Accounts Statistics--TamilNadu,Department of Statistics, Tamil Nadu, Madras, April 1976
Column 24 : Statistical Profile of Children and Youth in India, UNICEF, New Delhi, 1972 (June), p.122
Others : Educational Statistics (mimeographed),Directorate of School Education, Madras (based on 1971 census)

* Newly formed Pudukottai District is covered by Tiruchi and Thanjavur figures

TABLE II-14

RANK DIFFERENCE CORRELATION COEFFICIENTS AMONG EDUCATIONAL AND SOCIO-ECONOMIC CORRELATES OF TAMIL NADU

Correlates	1	2	3	4	5	6	7	8	9	10	11	12
1. Enrolment ratio (I-V)	1.000											
2. Enrolment ratio (VI-VIII)	0.481	1.000										
3. School facility index (I-V)	0.125	0.635	1.000									
4. School facility index (VI-VIII)	0.252	0.758	0.956	1.000								
5. Literacy percentage (persons)	0.390	0.952	0.740	0.834	1.000							
6. Literacy percentage (Females)	0.314	0.917	0.741	0.833	0.981	1.000						
7. No. of inhabited villages	0.090	-0.481	0.903	-0.815	-0.601	-0.613	1.000					
8. Percentage of rural population	0.169	-0.442	-0.596	-0.679	-0.590	-0.609	0.587	1.000				
9. Total SC & ST population	-0.169	-0.381	-0.604	-0.565	-0.310	-0.358	0.565	0.007	1.000			
10. Density of population	-0.253	0.222	-0.086	-0.073	0.331	-0.807	-0.020	0.033	-0.134	1.000		
11. GDP at current prices (70-71)	-0.244	-0.020	-0.160	-0.090	0.045	0.146	0.116	-0.455	0.604	0.174	1.000	
12. Agricultural workers	-0.015	-0.714	-0.697	-0.732	-0.788	-0.807	0.741	0.815	0.156	-0.235	-0.314	1.000

—— Significant at .05 level; ——Significant at .01 level

is 0.481 which is significant at .05 level. There are various other factors which have a bearing on the enrolment at higher primary level.

Lower primary school facility index

2.9.4. As already explained school facility indices for lower primary level and higher primary level have been computed separately. The correlation coefficient with enrolment ratio at lower primary level is positive but not significant but the coefficient with enrolment at higher primary level (0.635) is positive and is highly significant (.01 level). As most of the higher primary schools have facility for lower primary level and therefore these schools have also been included in the school facility index for lower primary level. Naturally, there is high correlation between the two indices.

Higher primary school facility index

2.9.5. The index for higher primary level yields positive coefficients with first 3 variables. The relationship with enrolment at lower primary level is positive but not significant (0.262). The correlation coefficient with enrolment at higher primary level is highly significant (0.758 significant at .01 level). This proves the hypothesis that school enrolment at higher primary level and the school facilities provided at that level interdepend on each other. The other coefficient with school facility index at lower primary is also highly significant and indicates the inter-relationship between the provision of school facilities at lower and higher primary levels.

Literacy of persons

2.9.6. All the four coefficients with the first four variables are positive. The correlation coefficient with enrolment at lower primary level is close to significance (.390) and implies the relationship between them. The coefficient with enrolment at higher primary level is most significant 0.952 (significant at .01 level) and shows that in Tamil Nadu literacy of the population is a must for improving enrolment at higher primary level. The coefficients with school facility indices for lower and higher primary levels of education are also highly significant and imply that literacy depends on more educational and consequent better school facilities.

Literacy of females

2.9.7. All the coefficients with first five variables are positive and except the first the other four coefficients are highly significant. This implies how important is the literacy of females in creating educational demands. The enrolment at higher primary level depends on the literacy of females. The enrolment at lower primary level does not depend so much on it because there is a natural tendency to send the children to lower primary classes because incentives such as free books, slates are provided upto 5 standards to poor children who are beneficiaries of midday meals. Further the children are not matured enough to do some odd jobs and the social custom does not prevent the girls in attending lower primary classes. The influence of social custom in not sending girls at the age level for higher primary education makes the enrolment at that level much dependant on the literacy of females.

Inhabited villages

2.9.8. The correlation coefficients with 2 to 6 variables yields negative results which are all significant. The coefficient with enrolment at lower primary level is negligibly positive. It may be due to the fact that all the villages which have population of 300 and above have been provided with primary schools. As far as higher primary education is concerned, the enrolment ratio is not high in districts where the number of inhabited villages is high. The highly significant correlation with school facilities at lower and higher primary levels implies that though there are at least one school in all villages having a population of 300 and above, more school facilities have not been provided in districts with more inhabited villages.

2.9.9. Another correlation analysis relating to number of villages with less than 200 population also prove the same result. Table II-22 shows the districtwise number of villages with less than 200 population. It is understood from the above table that the districts where the habitations with less than 200 population is large, the difficulties of universalisation of primary education is greater. It is clearly evident in respect of higher primary level. The coefficient is -.463 or -.5. The correlation coefficient in respect of lower primary level is .083 which is negligible and may be due to the fact that lower primary schools have been provided in all villages with population of 300 and above. Therefore, the village with less than 200 population will be more or less served by them. But it is not so in the case of higher primary level. In addition, the districts which are backward due to geographical set up such as lack of water facilities, having hilly

TABLE II-15

RELATIONSHIP BETWEEN DISTRICTS HAVING HABITATIONS WITH POPULATION OF LESS THAN 200 AND THE PERCENTAGE OF ENROLMENT

S.No.	District	No.of habitations below 200 population	Rank	Percentage of enrolment Stds. I-V	Rank	Stds. VI-VIII	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Madras ..	-	13.5	76.18	14	71.25	2
2.	Chingleput ..	180	1	90.20	7	53.91	6
3.	North Arcot ..	73	7	87.46	10	32.41	10
4.	South Arcot ..	124	3	88.33	8	43.24	13
5.	Dharmapuri ..	131	2	84.12	11	31.33	14
6.	Salem ..	51	10	77.45	13	43.74	12
7.	Coimbatore ..	23	11	81.22	12	45.57	11
8.	The Nilgiris..	-	13.5	91.87	6	68.20	3
9.	Madurai ..	79	6	98.15	4	52.87	8
10.	Tiruchy ..	86	9	91.95	5	51.56	9
11.	Thanjavur ..	113	4	87.83	9	53.23	7
12.	Ramnad ..	98	5	102.71	2	54.59	5
13.	Tirunelveli ..	58	8	101.92	3	57.34	4
14.	Kanyakumari ..	1	12	109.80	1	75.03	1

Note : The rank correlation coefficient between columns 4 & 8 is = -.493

Source : Census 1971 & Educational Statistics as on 1-9-'74.

areas etc. are normally backward in enrolment also, e.g., Dharmapuri district. This creates regional imbalance in attaining universalisation of primary education and needs special approaches and strategies to tackle the problem.

2.9.10. The relation between number of inhabited villages and the literacy of persons and that of females are also negatively correlated individually and are highly significant at .01 level. This shows that literacy has not yet spread sufficiently in districts with more inhabited villages.

Rural population

2.9.11. This is closely related to the previous variable of inhabited villages with slight difference. A district may have less number of villages but still can have more rural population. For example, Kanyakumari district is in the 12th place with regard to number of villages but it is in the third place with regard to rural population. The correlation coefficients with first 2 to 6 variables show negative relationship which are all significant.

2.9.12. The relation with lower primary enrolment is positive but not significant. As already explained, this may be due to provision of sufficient drive for enrolment at this stage.

2.9.13. There are negative relationships with higher primary enrolment ratio, school facilities at lower and higher primary levels of education, literacy of persons and females. These indicate the need to provide more

facilities for better education and literacy in rural areas.

2.9.14. The correlation with number of inhabited villages is positive and significant showing that generally rural population is higher in districts where the number of villages are more.

Percentage of scheduled caste and scheduled tribe population

2.9.15. Another vital socio-economic correlate is the incidence of scheduled caste and scheduled tribe population. The correlation analysis with the first 6 variables (9th row in Table II-14) clearly indicate the negative relationship with them.

2.9.16. The coefficients with lower primary enrolment and higher primary enrolment is -0.169. This implies that where the scheduled caste and scheduled tribe population is more, the enrolment ratios are less. The reasons for scheduled caste and scheduled tribe acting as a constraint in providing universal primary education will be discussed later in detail as a special group.

2.9.17. The relation with 'school facility' at lower and higher primary levels is also negative. The coefficient with higher primary level is significant at .01 level.

2.9.18. The relation with literacy of persons and females is also negative and which indicates that literacy percentage is less in districts where there are more scheduled castes and scheduled tribes.

2.9.19. The correlation analysis also shows the positive relation with number of inhabited villages and rural population. This implies that the scheduled castes and scheduled tribes are more localised in rural areas.

Density of districts

2.9.20. The correlation analysis with the first nine variables does not show significant relationship except in case of variable 6 – the literacy of females. Normally where the density is more it is likely to be more urbanised and the literacy percentage is also likely to be more. This is revealed in the correlation with literacy of persons which is positive though not significant. It appears that even where the density increases, the female population remain illiterate. This shows the need to take special efforts to improve the literacy of females.

Per capita Gross Domestic Product of districts

2.9.21. Information on the Gross Domestic Product of the districts relating to the following five types of industries is available in the mimeographed publication of the Directorate of Statistics of Tamil Nadu :

(1) Agriculture and Animal husbandry
(2) Forestry and Logging
(3) Fishing
(4) Mining and Quarrying
(5) Manufacturing

The figures given are Gross Domestic Product by industry of origin for 1970-71 (column 22 of Table II-13). It is stated that the estimates do not represent the district income. The correlation analysis shows that coefficients

with first six variables are negative and not significant. The coefficients with variables 7 and 9, viz., number of inhabited villages and scheduled caste and scheduled tribe population are positive. It may be due to the fact that the above estimates of Gross Domestic Product mainly consisted of the product of primary industry which is related to number of villages and rural life. It is also inferred that in these primary industries scheduled castes and scheduled tribes are engaged more than in other industries. Because of this bias to rural area and the scheduled caste and scheduled tribe population this Gross Domestic Product estimate gives negative correlation coefficients with lower primary and higher primary enrolment.

Percentage of agricultural workers

2.9.22. The correlation coefficients with lower primary and higher primary enrolment are negative. The coefficient with lower primary level is not significant, -0.015, but with higher primary level it is highly significant at .01 level, the coefficient being -0.714. There is clear indication that where there are more agricultural workers, the enrolment in higher primary level is less. Similarly the school facility indices at lower primary and higher primary level are negative and highly significant. The coefficients are -0.697 and -0.732. These imply that where agricultural workers are more, the number of educational institutions are also less. It is quite natural because, as seen in the correlation analysis with enrolment, the number of children enrolled will be less and consequently the number of schools will be less. Where agricultural workers are more the literacy percentage is also less. This hypothesis is proved by the negative and highly significant correlation coefficients. The coefficient with literacy of persons is -0.798

(significant at .01 level) and it is -0.807 with literacy of females (significant at .01 level).

2.9.23. The correlation coefficients with three variables which gave negative results with enrolment ratios yield here positive relationship. The coefficient with number of inhabited villages is 0.741 (highly significant at .01 level). The coefficient with percentage of rural population is 0.815 (highly significant at .01 level).

2.9.24. The coefficient with scheduled caste and scheduled tribe population is positive but it is not significant. It implies the positive relation between number of agricultural workers and number of scheduled castes and scheduled tribe population.

2.9.25. The coefficient with density of population is -0.235 which is not significant but it is negative. The coefficient with Gross Domestic Product estimate is 0.314 which is not significant but it is positive. Since the Gross Domestic Product estimate included large proportion and product related to primary industry, there is positive relation with the percentage of agricultural workers.

2.9.26. Thus it is seen that enrolment ratios interdepend on school facilities provided, literacy of the people and females and that the rural population, number of villages, incidence scheduled caste and scheduled tribe population and agricultural workers act against the grain of educational expension.

INTER DISTRICT COMPARISON — A STUDY TO IDENTIFY DIVERGENCE OR CONVERGENCE

2.10.1. As seen in the last study there is wide variation in the enrolment ratios of the districts in the same year and the several attributes related to these changes were probed by multiple regression analysis. Due to the multifarious factors, the variance among the districts may converge or diverge over decades. To analyse the divergence or convergence aspects, an inter-temporal-inter-district study has been carried out. Table II-16 furnishes the districtwise enrolment ratios of boys and girls separately for 1960-61 to 1975-76 with quinquennial distance.

2.10.2. It is seen that in 1960-61, Kanyakumari was first and Salem was last both in respect of boys and girls enrolment. In 1965-66, Ramnad was first and Trichy was last in respect of boys enrolment. In respect of girls enrolment Kanyakumari was first and Salem was last. The enrolment ratios for 1970-71 have been worked out by utilising 1971 census, 6-11 age-group computation of the districts. Kanyakumari stood first in both boys and girls enrolment but the last rank was secured by Dharmapuri in boys and girls enrolment. For 1975-76, the enrolment ratios were computed on the basis of population estimate at 2.2 percent growth rate per annum. Kanyakumari district was first in respect of boys and girls enrolment, but the last rank was reached by Madras for boys and by Trichy for girls.

Measures of dispersion

2.10.3. For each year the following measures of dispersion have been found out :

TABLE II-16

INTER-DISTRICT QUINQUENNIAL VARIATIONS IN ENROLMENT OF BOYS AND GIRLS IN I-V CLASSES OF TAMIL NADU (1960-61 to 1975-76)

District	1960-61				1965-66			
	No.of boys in I-V classes	Enrolment ratio	No.of girls in I-V classes	Enrolment ratio	No.of boys in I-V classes	Enrolment ratio	No.of girls in I-V classes	Enrolment ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Madras ..	102,988	80.5	67,964	76.2	131,388	94.00	124,428	99.30
Chingleput ..	128,885	81.6	75,070	49.6	172,281	100.50	117,465	70.30
North Arcot ..	196,015	83.3	103,319	59.1	247,765	102.40	164,141	68.60
South Arcot ..	186,633	86.3	101,259	47.7	225,068	95.80	141,008	61.10
Dharmapuri ..	-	-	-	-	-	-	-	-
Salem ..	195,019	71.0	99,272	37.4	269,847	98.50	172,347	59.98
Coimbatore ..	183,314	96.6	105,294	42.9	205,932	103.30	194,224	72.69
The Nilgiris ..	25,600	85.1	18,111	65.7	32,155	98.30	26,107	87.37
Madurai ..	209,238	92.3	133,405	59.2	252,226	100.20	183,380	74.70
Trichy ..	183,321	81.9	101,405	45.3	228,989	94.30	156,095	63.76
Thanjavur ..	200,752	85.3	126,214	54.7	246,451	100.10	177,004	70.70
Ramnad ..	165,188	99.6	104,931	59.7	207,003	115.20	155,161	81.40
Tirunelveli ..	200,859	107.0	148,192	75.2	231,409	113.00	186,488	87.20
Kanyakumari ..	78,062	109.8	68,757	96.7	86,786	111.70	76,122	100.90
TAMIL NADU ..	2,065,954	85.8	1,273,093	53.2	2,637,300	102.85	1,674,050	73.08

Source : Computed from Public Instruction Reports of Tamil Nadu for the years 60-61&65-66

TABLE II-16 (Contd)

District		1970-71				1975-76			
		No.of boys in I-V classes (10)	Per-centage (11)	No.of girls in I-V classes (12)	Per-centage (13)	No.of boys in I-V classes (14)	Per-centage (15)	No.of girls in I-V classes (16)	Per-centage (17)
Madras	..	146,493	83.4	137,025	79.7	141,002	71.2	134,380	74.9
Chingleput	..	200,354	93.3	146,987	65.9	219,472	96.1	170,854	79.2
North Arcot	..	269,118	93.9	193,007	64.7	283,817	97.6	215,071	76.0
South Arcot	..	247,777	90.5	168,024	60.6	273,697	97.5	193,762	71.3
Dharmapuri	..	114,794	78.3	74,320	49.0	124,596	96.2	84,805	67.5
Salem	..	197,295	86.8	133,512	59.8	212,644	91.4	150,941	67.4
Coimbatore	..	280,652	88.9	208,186	66.2	291,538	85.6	229,253	70.0
The Nilgiris	..	36,560	91.2	30,468	75.0	36,400	92.3	30,923	84.4
Madurai	..	290,406	95.4	222,266	73.3	309,994	102.3	242,179	80.9
Trichy	..	273,325	97.5	207,459	74.7	229,236	77.6	178,927	61.1
Thanjavur	..	282,761	93.8	217,713	74.9	279,822	95.2	226,101	77.4
Ramnad	..	227,201	105.1	179,449	82.9	241,116	112.6	189,870	85.2
Tirunelveli	..	243,452	103.8	200,402	86.9	262,766	110.0	220,367	88.4
Kanyakumari	..	99,510	109.9	87,771	99.7	112,458	117.9	100,753	109.8
TAMIL NADU	..	2,924,389	93.3	2,220,471	71.0	3,097,181	97.4	2,419,860	77.8

Note : (i) 1970-71 : Percentages computed on the basis of 1971 census data
(ii) 1975-76 : Population projection based on 1971 census at 2.2% growth rate
(iii) There is slight decrease in enrolment in respect of Madras and Nilgiris
(iv) The decrease in Trichy and Thanjavur is due to formation of Pudukottai which formerly formed part of these two districts.

Source : Enrolment figures educational statistics of Tamil Nadu for corresponding years.

(1) The ratios of the highest enrolment ratio to the lowest enrolment ratio are :

		Boys	Girls
1960-61	..	1.55	1.23
1965-66	..	2.58	1.68
1970-71	..	1.40	2.03
1975-76	..	1.66	1.80

(2) The standard deviations are :

		Boys	Girls
1960-61	..	10.61	15.58
1965-66	..	25.11	13.01
1970-71	..	8.14	10.93
1975-76	..	12.31	11.50

(3) The coefficients of variation are :

		Boys	Girls
1960-61	..	12.37	29.29
1965-66	..	24.41	17.80
1970-71	..	8.73	15.41
1975-76	..	12.64	14.78

2.10.4. It is observed that there is clear case of convergence in respect of girls enrolment, the convergence came down from 29.29 percent in 1960-61 to 14.78 percent in 1975-76. But in respect of boys there is a zig zag trend.

STUDIES ON SCHEDULED CASTES AND SCHEDULED TRIBES

Growth of education among scheduled castes and scheduled tribes

2.11.1. In this section we take up scheduled castes and scheduled tribes for examination as this constitute the

most disadvantaged section of the population. According to the 1971 census scheduled castes and scheduled tribes constituted 18.5 percent of the total population. The following table indicates the growth trend as a percentage of school-going children in general education (including high school stage).

TABLE II-17

PERCENTAGE OF SCHEDULED CASTE AND SCHEDULED TRIBE STUDENTS IN SCHOOLS FOR GENERAL EDUCATION (1961-1962 to 1975-76)

Year	Scheduled caste and scheduled tribe population estimated	Scheduled caste and scheduled tribe students studying in schools for general education	Percentage of scheduled caste and scheduled tribe students to scheduled caste and scheduled tribe population
		(in '000)	
1961-62 ..	6319	551	7.9
1962-63 ..	6452	757	11.6
1963-64 ..	6585	846	12.8
1964-65 ..	6717	978	14.5
1965-66 ..	6850	984	14.3
1966-67 ..	6983	1041	14.9
1967-68 ..	7115	1104	15.4
1968-69 ..	7248	1131	15.6
1969-70 ..	7381	1158	15.6
1970-71 ..	7513	1243	16.5
1971-72 ..	7646	1249	16.3
1972-73 ..	7802	1295	16.6
1973-74 ..	7957	1335	16.7
1974-75 ..	8112	1359	16.7
1975-76 ..	8215	1331	16.2

2.11.2. It is seen that the percentage of scheduled caste and scheduled tribe students to the scheduled caste and

scheduled tribe population has increased from 7.9 percent in 1961-62 to 16.2 percent in 1975-76. It is more or less stable between 16 and 17 percent from 1970-71 onwards.

2.11.3. The following table shows the growth of enrolment of scheduled caste and scheduled tribe students in primary education :

TABLE II-18

GROWTH OF ENROLMENT OF SCHEDULED CASTE AND SCHEDULED TRIBE STUDENTS IN PRIMARY EDUCATION

Year	I-V Standards				VI-VIII Standards			
	Scheduled Caste		Scheduled Tribe		Scheduled Caste		Scheduled Tribe	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	(in '000)							
1968-69 ..	514	340	13.9	9.7	114	54	1.5	1.3
1971-72 ..	557	384	9.5	5.8	131	61	1.9	0.5
1973-74 ..	583	416	9.6	5.9	148	69	1.6	0.6
1974-75 ..	599	429	9.7	6.1	141	68	2.1	0.8
1975-76 ..	579	416	10.5	6.5	140	70	1.8	2.1

Source : Educational Statistics, Directorate of School Education, Madras

2.11.4. It is inferred from the above table that the growth in enrolment of scheduled caste pupils is in an increasing trend but the growth in respect of scheduled tribe pupils is sporadic and not uniform. The total projected population of scheduled caste and scheduled tribe children

in the age-group 6-11 and 11-14 for 1975-76 are 11.65 lakhs and 5.24 lakhs respectively. The number of scheduled caste and scheduled tribe pupils enrolled in 1975-76 under 6-11 age-group is 10.12 lakhs and under 11-14 age-group it is 2.14 lakhs. The percentage enrolment of scheduled caste and scheduled tribe pupils in 6-11 age-group in 1975-76 is 86.9 percent and in the 11-14 age-group it is 40-8 percent. The corresponding enrolment ratios for 1975-76 for all communities of pupils are 90.0 percent for 6-11 age-group 52.0 percent for 11-14 age-group. Though the shortfall is only 3.1 percent at lower elementary level it as much as 11.2 percent at higher elementary level. The causal attributes are analysed in the following in depth studies.

Literacy

2.11.5. Literacy is an important attribute in favour of upward mobility. Table II-19 shows the educational attainments of scheduled castes and scheduled tribes, total population and non-scheduled castesand scheduled tribes in Tamil Nadu by sex and rural and urban variation.

2.11.6. Based on the above table, the percentages of literate population (literate and above) are shown as under :

	Percentage of literate and above in Tamil Nadu
(1) Total population ..	39.5
(2) Scheduled castes ..	21.8
(3) Scheduled tribes ..	9.3
(4) Non-scheduled castes and scheduled tribes ..	43.6

TABLE II-19

TOTAL POPULATION AND SCHEDULED CASTES AND SCHEDULED TRIBES BY EDUCATIONAL LEVEL -- -- 1971

(Figures in '000)

		Illiterates		Literate (without educational qualification)		Primary (Junior Basic)		Matriculate and above		Total population	
		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1		2	3	4	5	6	7	8	9	10	11
Total population	R	7921	11582	2673	1299	3365	1303	481	112	14439	14296
	U	2124	3316	1100	906	2268	1511	897	342	6389	6076
	T	10044	14899	3773	2205	5633	2813	1378	455	20828	20371
Scheduled Caste	R	2150	2737	430	153	428	110	37	6	3045	3006
	U	351	402	95	59	171	77	25	7	642	623
	T	2501	3218	525	211	599	187	62	13	3686	3629
Scheduled Tribe	R	132	130	11	4	8	2	1	-	151	143
	U	7	7	1	1	1	-	-	-	9	8
	T	138	145	12	4	9	2	1	-	160	152
Non-scheduled Caste & Scheduled Tribe	R	5639	8708	2232	1142	2929	1190	443	106	11242	11146
	U	1766	2027	1004	847	2096	1434	872	335	5739	5444
	T	7405	11535	3236	1989	5025	2624	1316	442	16982	16590

R = Rural; U = Urban; T = Total

Slight variations in totals due to rouding off figures in thousands

Source : 1971 Census

2.11.7. The above indices clearly indicate that the literacy rates of scheduled castes and scheduled tribes are considerably less than the rate of total population and the difference become still sharper when compared to the literacy rates of non-scheduled castes and scheduled tribes.

2.11.8. A further better index would be the relative rate of literacy which is got by dividing scheduled caste/ scheduled tribe percentage by non-scheduled caste and scheduled tribe percentage of literacy. The relative rates of literacy for Tamil Nadu are as follows :

Relative rates of literacy in Tamilnadu (1971)

	Males	Females	Person	Rural	Urban
Scheduled castes	.57	.37	.50	.54	.70
Scheduled tribes	.24	.15	.21	.23	.30

2.11.9. The gap among the literacy rates of scheduled castes, scheduled tribes and non-scheduled castes and scheduled tribes is clearly indicated by the figures. The literacy rates of scheduled tribes are far below. Female rates and rural rates are respectively less than male and urban rates.

2.11.10. Another aspect of inequity pertains to the levels of education. It will be seen from the table that the inequities become wider, higher the level of education in question. Thus for instance, among the

scheduled castes and scheduled tribes, those who had completed primary education, numbered 797 thousand as compared to 7649 thousand among the non-scheduled population, i.e., the primary stage completers among the non-scheduled population numbered 9.6 times as compared to that among the scheduled castes and scheduled tribes. The number of matriculates and above numbered 23.1 times on a similar reckoning even though the non-scheduled population as a whole was only 4.4 times the scheduled castes and scheduled tribes population.

2.11.11. The literacy rates observed in the census reflect the past trends. The past trends do reflect the gross inequity in the literacy attainments of the disadvantages sections of the population. What about the prospective trends? Is there a likelihood of narrowing down of such differences? Since Independence special efforts are being made to encourage scheduled castes and scheduled tribes to acquire education.

Full-time students

2.11.12. Interpreting the information on non-workers and full-time students, the future trends in the educational levels of the scheduled castes and scheduled tribes can be inferred. Details about the non-workers and full-time students according to sex and rural-urban variation in respect of total population, scheduled castes and scheduled tribes are available in the census data. Based on these the percentages of full-time students to non-working population in the four categories of population were worked out as in Table II-20.

TABLE II-20

PERCENTAGE OF FULL TIME STUDENTS AMONG TOTAL POPULATION SCHEDULED CASTES, SCHEDULED TRIBES AND NON-SCs & STs IN TAMIL NADU, 1971

Population	Area	Percentage of full time students to non-working population		
		Male	Female	Persons
Total population :				
	Total	41.3	13.7	23.4
	Rural	38.6	10.8	20.2
	Urban	46.4	20.1	29.7
SC population :				
	Total	30.1	8.6	16.4
	Rural	28.7	7.2	14.9
	Urban	35.6	14.4	22.7
ST population :				
	Total	16.4	4.5	8.6
	Rural	15.9	4.0	7.9
	Urban	25.3	15.0	19.8
Non-SC & ST population :				
	Total	43.7	14.8	24.5
	Rural	43.6	11.6	21.8
	Urban	47.7	20.6	30.4

Source : Computed from the Census India data, 1971

SCs = Scheduled Castes

STs = Scheduled Tribes

2.11.13. It is observed that the percentages relating to scheduled caste and scheduled tribe population are far less than the total population and non-scheduled caste and scheduled tribe population. The magnitude of disparity could be visualised by working out relative schooling rate which is the ratio between the percentage of scheduled caste/scheduled tribe students among scheduled castes/scheduled tribes non-working population to that of non-scheduled caste and scheduled tribe students to the corresponding non-working population. The relative schooling rates are as follows :

	Male	Female	Person
Scheduled castes ..	.69	.58	.67
Scheduled tribes ..	.38	.30	.35

2.11.14. The schooling rates indicate the gap among the scheduled castes, scheduled tribes and non-scheduled castes and scheduled tribes in respect of the percentage of students to non-working population.

2.11.15. That there is likely to be a substantial reduction in the disparities in literacy and education level prevailing between the scheduled castes and non-scheduled population can be seen from a comparison of the relative literacy rates with the relative schooling rates. The existing schooling rates indicate the levels of education that will be obtained in the long run. Schooling rates are higher than the literacy rates.

		Male	Female	Person
Scheduled Castes	Literacy rates	.57	.37	.50
	Schooling rates	.69	.58	.67
Scheduled Tribes	Literacy rates	.24	.15	.21
	Schooling rates	.38	.30	.35

2.11.16. The policy of special encouragement to scheduled castes and scheduled tribes seems to be producing.

GROWTH OF PRIMARY EDUCATION OF GIRLS IN TAMIL NADU

2.12.1. Universalisation of primary education is aimed at the socio-economic uplift of the society at large. The disadvantaged groups become a bottleneck in the system and under this context, the growth of enrolment of scheduled castes and scheduled tribes was discussed in the previous sub-section. Now we analyse the growth of another disadvantaged group, viz., girls. The education of girls and women is vital for socio-economic development because their education will have multiplier effect.

(a) Sex-mix analysis

It gives the percentage of boys and girls enrolled in a particular year with reference to the total (boys and girls) enrolment.

(i) Lower primary level : The percentage of girls enrolled to the total enrolment during 1957-58 was 35.15 and it was 43.65 during 1974-75. There is some substantial increase (8.50 percentage points).

(ii) Higher primary level : During 1956-57 the percentages of boys and girls enrolled were 71.69 and 28.31 respectively. Again, during 1974-75 the percentages were 64.67 and 35.33 respectively. The disparity is more pronounced at this level. The disinclination of the parents in rural areas to send their girls in this particular age-group to schools is one of the causes.

(b) Growth-index analysis

It gives the growth of enrolment on various years with reference to a particular year as base of reference.

(i) Lower primary level : The enrolment of girls in 1956-57 was 9.59 lakhs and in 1974-75 it was 24.28 lakhs, the corresponding indices of growth being 100 and 253.1 respectively.

The overall increase between 1956-57 and 1974-75 is 130 percent over the enrolment in 1956-57. The corresponding figure for boys is only 77 percent. The enrolment in 1974-75 was nearly 2½ times the enrolment in 1956-57.

(ii) Higher primary level : The enrolment of girls under this stage during 1956-57 was 1.35 lakhs and that during 1974-75 was 5.26 lakhs —the indices of growth being 100.0 and 389.6 respectively. It is thus seen that the growth rate under this age-group is greater than the corresponding one relating to the primary level. The overall increase at the higher primary level between 1956-57 and 1975-76 works out to be 288 percent and this is nearly twice that of the percentage observed in respect of primary stage but still there was room for attaining the optimal sex-mix ratio.

The increased enrolment was possible owing to the following incentives :

(1) provision of free midday meals
(2) supply of free uniforms

(3) Improvement of school amenities through School Improvement Conferences

(4) Free supply of books and slates

This sort of ancillary services brought the school closer to the community and thus helped to implement the scheme of compulsory education.

(c) Percentage analysis

It gives the percentage of girls enrolled under an age-group with reference to the total girls population in that group in a particular year.

(i) Lower primary level : In 1950-51 the percentage of boys and girls in Tamil Nadu were 60.6 and 35.2 respectively and the corresponding percentage at all India level were 59.8 and 24.8 respectively. In 1973-74 the percentage of boys and girls in Tamil Nadu were 100.6 and 79.6 respectively and the corresponding figures at the all India level were 100.1 and 69.5 respectively. It is observed that there is an appreciable increase in enrolment of girls both at Tamil Nadu and all India level. There is wide disparity between the enrolment ratios of boys and girls with reference to the achievement of the target of 100 percent.

(ii) Higher primary level : In 1950-51 the percentages of boys and girls in Tamil Nadu were 23.5 and 7.9 respectively and the corresponding percentages at all India level was 15.4 and 2.9. In 1973-74 the percentages of boys and girls in Tamil Nadu were 66.3 and 37.9 and the corresponding figures at the all India level were 48.4 and 22.2 respectively. The percentage

of enrolment of girls in respect of higher primary level had increased from 7.9 in 1950-51 to 37.9 at the end of the Fourth Plan in Tamil Nadu.

Observation

2.13.2. It can be observed that the overall growth in enrolment of girls in both the stages during the plan periods is well above that of the all India level of attainment. Yet there is wide disparity between percentage of enrolment of boys and girls and this is more pronounced in respect of higher primary stage.

THE SCHOOL LUNCH PROGRAMME

2.13.1. Poor economic status of parents affected growth of education in two ways : (1) students stayed away to assist their parents to eke out their livelihood and therefore there is difficulty in enrolling them in schools. (2) even if they are brought into the school fold with great difficulty, their malnutrition due to poverty driven them away from school, as they could not learn like normal children. Here, we establish the link between malnutrition and educational wastage. As malnutrition is mainly due to poverty, the relation between economic status of parents and educational wastage is inferred.

Dhanca Report

2.13.2. The importance of nutrition and its relationship with learning has been established in many research studies: "Current bio-chemical research on the brain

suggests that it has a largely unused potential (as high as 90 percent according to some authorities) and that under favourable conditions its creative capacity could be tremendously increased. Other studies, on mental mechanisms and learning process, have revealed the serious effects of malnutrition on brain development."[3]

Special studies on malnutrition

2.13.3. The National Institute of Nutrition conducted special study[4] to find the relationship between malnutrition and learning nineteen children with nutrition deficiency were followed up to see the effect on growth and mental function. These children were compared with appropriately matched controls selected from the same locality and the school from which the experimental children were derived. These controls were matched for age, sex, religion, caste, socio-economic status, family size, birth order and educational level of the parents and the subjects. Suitable intelligence tests and sensory development tests were constructed and these tests were applied to both the experimental and control groups of children. In addition to these tests, anthropometric measurements were also taken on all children. Table II-21 shows the performance of the subjects in intelligence test.

(a) There was a significant difference between the performance of the control and the experimental subjects with regard to the intelligence tests. This

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3. Courier: The Unesco, November 1972. p.12

4. S.Champakam et al: Kwashiorkor and Mental Development, The American Journal of Clinical Nutrition, Vol.21, No.8, August 1968. pp.844-852

TABLE II-21

AVERAGE PERCENT SCORES OBTAINED FOR DIFFERENT ABILITIES IN THE INTELLIGENCE TEST

Details	Age, Years					
	8-9		9-10		10-11	
	F	M	F	M	F	M
1	2	3	4	5	6	7
Number of observations						
Experimental ..	7	4	4	1	3	-
Matched control ..	15	12	13	2	8	-
Memory						
Experimental ..	18.48	22.03	32.38	70.60	37.26	-
Matched control ..	47.50	46.10	56.52	61.76	65.21	-
Perceptual Ability						
Experimental ..	17.42	17.20	35.98	37.50	38.56	-
Matched control ..	62.56	58.60	77.17	60.94	83.95	-
Abstract Ability						
Experimental ..	14.30	19.43	41.65	33.30	46.26	-
Matched control ..	65.20	62.90	77.22	83.40	83.48	-
Verbal Ability						
Experimental ..	16.08	3.13	28.13	50.00	50.00	-
Matched control ..	36.60	40.66	56.54	31.20	73.30	-

F = Female; M = Male

Source : The American Journal of Clinical Nutrition, Vol.21, No.8, August 1968

difference was particularly marked in the younger age-group (8-9 years) and tended to diminish in the older age-group (10-11 years).

(b) Intersensory organization was poorer in the experimental subjects than in the control subjects. The performance in the intersensory tests was markedly poorer in the younger age-group and tended to improve in the older age-group (10-11 years).

(c) The retardation was noticeable mainly with regard to perceptual and abstract abilities.

2.13.4. S.G.Srikantia and C.Yogananda Sastri[5] in another study observed that the performance of children who once had suffered from an acute episode of proteincalorie malnutrition was distinctly poorer than that of matched controls and this observation of theirs immediately suggests a strong causal relationship between malnutrition and mental function.

Longitudinal Study

2.13.5. A longitudinal study[6] may be expected to provide information as to whether or not, malnutrition permanently impairs ability to learn in later life. Srikantia et al undertook such a longitudinal study and they found that "there were marked differences in the performance of children in tests designed to measure neuro integrative

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5. Observation on Malnutrition and Mental Development, National Institute of Nutrition, Hyderabad, 1968. p.218.

6. S.G.Srikantia et al: Malnutrition and Mental Function, National Institute of Nutrition, Hyderabad.

competence at the first point of study between the two groups. Experimental children committed significantly greater number of mistakes in all the three tests -- visual-kinaesthetic, visual haptic and haptic-kinaesthetic. When the children were first tested for their intelligence, at ages between 8 and 10 years, the experimental group of children performed on the average only half as well as did the control group of children.

2.13.6. Another significant finding of the study was that girls scored lower scores as compared to boys. All boys attended school throughout the period of study, while several girls had left school. It is significant that the mean score obtained by girls who dropped out of school was 27.2, a value considerably lower than the 44.6 scored by girls who continued to attend school. The scores obtained by girls who continued to go to school very closely approximated to that obtained by boys. This suggests that stimulation provided by formal schooling considerably improves the performance of experimental children. Data presented here suggest that malnutrition during early childhood had not altered significantly the subsequent rate of either physical growth or mental development. But the differences, which were initially present between the two groups, persisted even after a lapse of over 13 years.

A Study in Tamil Nadu

2.13.7. Rajammal P.Devadas, et al conducted a study [7] taking 100 children who were 5 to 7 years of age selected

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7. Rajammal P.Devadas et al: Nutritional Status and Mental Ability of 5-7 years old children, Indian Journal of Home Science, Vol.4, No.2, October 1970, Sri Avinashilingam Home Science College for Women, Coimbatore

from two elementary schools in Coimbatore. They were identical in regard to the socio-economic background of the families. Both the schools had midday meals. The sample from each school was divided into four groups, namely, boys and girls belonging to 5 to 6 years of age-group and 6 to 7 years of age-group. A survey was conducted to find out the socio-economic status of the family of the selected sample. Nutritional status was assessed through anthropometric measurements, clinical assessment and haemoglobin estimation. Mental ability was assessed with the help of intelligence tests of the performance type, namely, four patterns of Pintner Patterson battery, since this battery is most popular (Munnally, 1959). In the performance tests the score is the time taken to complete the test correctly. Except for the Goddard Form Board in which the total time taken to complete the test, the lower was the mental ability. The coefficient of correlation which indicates the extent to which two attributes are related was taken for finding out the relationship between nutritional status and mental ability and is given below :

*r between height and mental ability	r between weight and mental ability	r between haemoglobin and mental ability	r between clinical assessment and mental ability
-.14	-.03	-.16	-.12

*r = relationship

The correlation between all these variables was found to be negative. Here in the case of mental ability, the

higher score the child obtains, the lower is his mental ability. Therefore a negative correlation in the present study indicates a positive score.

A beginning in the pre-independence period

2.13.8. Realising such effects of nutrition, Tamil Nadu experimented providing school lunch programme to the pupils from weaker sections of the society as early in 1944-45. The report on 'Postward Educational Development' prepared by the Director of Public Instruction recommended supply of midday meals to more pupils attending elementary schools. But fruitful incentive could not be continued due to constraint of finance and was stopped from 1st April, 1947.[8]

Post Independence development

2.13.9. Till 1955-56 even after implementing the first plan the enrolment ratio was only 55.7 percent for lower primary level and 22.7 percent for primary level. Then it was keenly felt that midday meals should be a vital input to improve the enrolment status as the economically poor pupil could not attend school with empty stomach and the current school lunch programme was evolved purely on a voluntary measure to start with.

The Genesis

2.13.10. The midday meal scheme which was first started at Nagalapuram in Tirunelveli District functioned on a voluntary basis covering 2 lakhs of pupils in 8,000 primary schools in 1956. Tamil Nadu has been a pioneer

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8. Progress of Education in Tamil Nadu, Public Instruction Report, 1946-47, Government of Madras.

in this nation building scheme. The scheme which developed originally as a people's movement for organised charity during July 1956, became a regular feature of school programme, when the Government approved it in 1957.

The contribution structure

2.13.11. Government contributed six paise per meal for 1/3rd of the total enrolment in primary schools. Contribution by the Panchayat Union was two paise and contribution by the public was another two paise. Hence each child under the scheme got a meal during midday that was worth ten paise till October 1974 when the Government raised the share to ten paise with a matching contribution of five paise from the local bodies.[9] Today this scheme is an integral part of the education programme in Tamil Nadu. Table II-22 shows the growth of the midday meals scheme in Tamil Nadu.

The growth

2.13.12. One-third of the total number of pupils in the State, who come from the poorest sections of the population are the beneficiaries. In total 19.58 lakhs of poor pupils in Standards I to VIII of primary and higher primary schools receive midday meals, including the 1.60 lakhs fed in Harijan Welfare Department.

Finance

2.13.13. The provision for the midday meals scheme in the budget for 1975-76 is about Rs 4½ crores. This is supplemented by commodity assistance from the CARE organisation worth about Rs 6 crores every year.

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9. Progress of Education in Tamil Nadu, Note on Demand 17.

TABLE II-22

GROWTH OF MIDDAY MEALS SCHEME IN TAMIL NADU

S.No.	Year		Number of pupils fed (in lakhs	Expenditure met by Government grant (Rs in lakhs)
1.	1957-58	..	2.29	6.93
2.	1958-59	..	4.00	34.10
3.	1959-60	..	7.75	62.91
4.	1960-61	..	8.88	82.78
5.	1961-62	..	11.57	114.30
6.	1962-63	..	11.94	120.60
7.	1963-64	..	13.11	126.79
8.	1964-65	..	15.27	147.00
9.	1965-66	..	16.03	186.00
10.	1970-71	..	18.00	196.00
11.	1975-76	..	19.58	450.00

Source : Serial numbers 1 to 8 from Souvenir — Cheyyar School Improvement Conference published by the State Institute of Education, Tamil Nadu and 9 to 11 Note on Education Demand.

Note : The sudden rise in 1975-76 was due to upward revision of Government contribution from 6 paise to 10 paise and increase in number of children fed.

Midday meals as a vital incentive to promote enrolment

2.13.14. Provision of school lunch served as a booster in improving enrolment. The effect of the midday meals can be seen from the following table which shows the mean annual percentage growth of enrolment during five years prior to introduction of midday meals and 15 years after introduction of midday meals.

TABLE II-23

MEAN ANNUAL PERCENTAGE GROWTH OF ENROLMENT BY STAGES

Period		6-11 age-group			11-14 age-group		
From	To	Boys	Girls	Total	Boys	Girls	Total
50-51	55-56 ..	2.60	0.55	-	0.96	0.84	-
55-56	60-61 ..	2.40	3.20	2.85	2.38	1.56	1.99
60-61	65-66 ..	3.24	4.82	3.53	3.72	2.18	2.95
65-66	68-69 ..	1.10	1.93	1.51	1.47	2.00	1.75

Source : Computed from Educational Statistics, Directorate of School Education, Madras

Impact of Midday Meals

2.13.15. It is seen from the table that there is a spurt in the mean annual average percentage growth since the introduction of midday meals programme from 1956. The increase in the mean annual growth percentage between 1955-56 and 1965-66 is distinctly seen but there is slag in the percentage growth since 1965-66 for boys and girls. This indicates that the provision of midday meals and other incentives such as supply of free uniforms, books

and slates had definite impact on enrolment of children in I to VIII standards. It may be asked whether palpable growth in the decade 1955-56 to 1965-66 may be due to provision of more number of schools in villages at a walkable distance. It is also a factor but it is only a supporting factor and not a cause. The provision of midday meals and free supply of books and slates etc. acted as an incentive in attracting the pupils from the weaker sections and poor strata. Once they know that such compensatory provisions are made in schools more pupil enrol in schools. Only when sufficient number of pupils are there to enrol in a certain area, schools are opened. Opening of schools is an effect and not a cause.

2.13.16. Rajammal P.Devadas and A.Radhakumari conducted a study with the following objectives :

"To organise a school lunch programme for 30 children of five to seven years of age who constituted the 'school lunch' group and to assess the effects of the school lunch through a five-month study on the nutritional and health status, nutrition education, food habits, social development, attendance and performance in school of the children in the school lunch group in comparison with thirty children of the same age and sex distribution in the 'control' group whowere not receiving the school lunch. The school lunch was planned to furnish a third of the daily nutritional requirements within the cost of 10 paise per meal in the Madras Midday Meals Scheme.

2.13.17. Some of the general findings of the study are :

(a) The percentage of haemoglobin level and the 'RBC' count of the school lunch group were higher and they got higher scores for general health status also

(b) Children participating in this programme also showed greater social development and thus this programme had helped in increasing attendance and performance at school. It acted as a strengthening force to academic inputs.

Attendance in school

2.13.18. A comparison of the percentages of attendance of both the groups, showed that the percentage of attendance of the school lunch group improved from the first half to the second half of the experiment by 9, while there was a decrease in the control group to the extent of 9 percent.

Performance in the school

2.13.19. From the average percentage of the marks obtained in school tests by the school lunch and control groups for their studies during the first and second halves of the experimental period, it was observed that the pupils of the school lunch group registered an increase of 7.2 percent in the performance while the increase was only 3.7 percent for the control group.

The Tamil Nadu scene

2.13.20. Thus even within the funds available the Tamil Nadu primary education scene presents a picture of promise wherein this State can take rank among other states in growth, socio-economic impact and also in levering up the weaker sections. The ancillary services like midday meals scheme have helped in strengthening this effort. However, one cannot but wish that more financial allocations are given to the primary sphere than to higher education as at present, to avoid the criticism of top being heavy and bottom being weak.[10]

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10. M.N.Pandit: Indian Educational System: Top heavy and bottom weak, NCERT, New Delhi, 1977. p.20.