

**CHILD EDUCATION IN INDIA—
A GEOGRAPHICAL ANALYSIS**

Dissertation submitted in partial fulfilment
of the requirements for the Degree of
MASTER OF PHILOSOPHY

MUZAMMIL HUSAIN QUASMI

**CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110067
1981**

LAHARLAL NEHRU UNIVERSITY
CENTRE FOR THE STUDY OF REGIONAL
DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES

Gram-JAYENU

Telephone :

New Mehrauli Road,
NEW DELHI-110067

Certified that the dissertation entitled
'Child Education in India - A Geographical
Analysis' submitted by Muzammil Husain Qasmi,
in fulfilment of six credits out of twentyfour
credits for the degree of Master of Philosophy
(M.Phil) of the University, is to the best of
my knowledge a bonafide work and may be placed
before the examiners for evaluation.

G.S. Bhat
CHAIRMAN 28-8-81

Snangia
SUPERVISOR
28.8.81

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CHAPTER-I

I N T R O D U C T I O N

The destiny of India is now being shaped in her classroom. This we believe, is no mere rhetoric. In a world based on science and technology, it is education that determines the level of prosperity, welfare and security of the people. On the quality and number of persons coming out of our schools and colleges will depend our success in the great enterprise of national reconstruction whose principal objective is to raise the standard of our people.

— D. S. Kothari¹

The first two sentences reflecting the gist of the voluminous report of Kothari Commission, ever prepared in the last two decades, which has a detailed discussion and suggestions on the various aspects of education. Since then one and a half decade passed, two fulfilled plans were made and swept on the swinging timescale, implementing some of the recommendations and causing complexity to other ones. The problem has never been fully solved. Even today when a broader outlook of India is taken into account, one is obliged to think and re-think over the causes of the increasing

1. Ministry of Education, Report of the Education Commission 1964-66, (New Delhi, 1966), p. 1.

out of 169 million children in the age group 6 to 18 years who can attend schools upto secondary stages, only 82.6 million are enrolled in all the three stages of primary, middle and secondary. Similarly, rural India constitute 134 million of children in the afore-said age group, while the enrolment figure is 59 million at all stages. The more disparity amongst the states is found in the existing schooling facilities and its availability in the rural habitations. For example, in the states like Haryana and Punjab more than 93 per cent of the people living in rural areas avail primary schooling facilities within the habitation, while in their neighbouring state of Himachal Pradesh only 37 per cent of such people are benefitted in their habitation.³

On the other hand, with drawal of the children from schools before completing their required course at a given stage, poses another problem of wastage and stagnation. This withdrawal is either due to the illiteracy of the parents, their economic backwardness, their occupational structure or the availability of schools nearby. The magnitude of the problem can be realised from the report presented by the Members of the Parliamentary Consultative Committee⁴ for the

3. Ibid. Table 26.

4. Times of India, May 18, 1980.

education ministry which is concerned over the high drop-out rate particularly at the primary stage, i.e. over 70 per cent in several states. The incidence of drop-out is very high in the north-east with Arunachal Pradesh accounting for 81.59 per cent followed by Meghalya (76.57 per cent); Bihar (72.77 per cent); and Madhya Pradesh (68.17 per cent). The position is comparatively better in Kerala (20.6 per cent); Punjab (38.57); and Tamil Nadu (48.3 per cent).⁵

2. Evaluation of the Problem. The basic questions of enrolment, retention in the schools or the related problems of drop-out can be evaluated in terms of existing schooling facilities, the availability of schools at a suitable distance, availability of adequate teachers, the facilities provided in the schools, the family environment, income and the status of the parents or the social condition of the family and the surrounding atmosphere of the child from which he comes out to attend the schools.

3. Objectives: It is an interesting phenomena to conceive the problems in terms of geographic and demographic perception. The aim of the present study is to find out the pattern of child education in India with special reference to the enrolment and drop-out rates. This

5. Ibid.

goal is highlighted with the probable causes and factors from social, economic and demographic characteristics of a region which are directly or indirectly contributory in the attainment of enrolment or drop-out rates. It is also aimed to analyse the present educational structure in India and some of the selected countries both from developed and developing world.

4. Determinants of Child Education A child is reared up in the society and gets his first formal education from his own environment - the family, the society and its social norms and values. His formal education begins at school, yet the environment contributes a lot in the development of a sound mind and sound body. If the environment inside the school as well as outside is more intelligent and favourable, the child will be more intelligent and liable to grasp the knowledge more quickly. On the other side, a child surrounded with poor environment will be slow in the acquisition of knowledge and the possibility of his drop-out from the school would be greater.

Broadly speaking the environment constitutes:

- (i) The School environment and
- (ii) The family environment or the environment outside schools.

(1) The school environment includes the educational facilities provided within the schools and the availability of schools within the habitation or outside the habitation at a distance which is easy to walk. This can be classified into two categories.

(a) Educational Factors It consists of the availability of the schools, enrolment in the schools and distance covered to attend the schools. Both the enrolment and drop-out rates are directly or indirectly proportional to the degree of connectivity in the villages. Poor means of communication often leads to the drop-out. On the other hand, availability of schools nearby habitations, road linkage and better means of communication are contributory factors to increase the enrolment and retention in the schools.

(b) The Availability of Physical Facilities Within the Schools:

This comprises the factors like the available number of teachers in the schools, the condition of school building (such as pucca, kucha, huts or thatched roofs buildings), adequate facilities of classrooms, libraries, laboratories, play grounds, work experience programmes and the wings for recreational activities. These are the pre-requisites of the education and most effective in the attainment of enrolment.

(ii) The family environment or the environment outside the schools constitutes of the following factors.

(a) Economic Background of the Family: The essential elements of this factor are the occupational structure of the family members, their income and other means of livelihood besides main occupation. Generally the poor parents do not afford schooling. The agricultural labourers and cultivators do not get sufficient income to support the family and oftenly engage their children in small household works like looking after younger children or cattle rearing. Some times parents visualise the short-cut method of earning by getting their children employed even on a nominal wage. In todays India child work force is the major obstacle for enrolment in the schools. On the contrary, it is generally seen that industrial workers or the workers engaged in services of tertiary sector try to promote their children towards the better and higher education. In such circumstances the cases of staying are more than the drop-outs.

(b) Social Back-ground of the Family: It includes the caste structure, the literacy rates in the older members of the family and demographic structure like age groups and sex-ratio (female per thousand of males).

The children belonging to scheduled castes and scheduled tribes have long been deprived in the education. As a result their proportion in todays schools'

education is lesser. Also the parents of scheduled castes and scheduled tribes do not tolerate the repetition in a grade and withdraw their children. The literacy rate of the parents is the main factor in the enrolment of their children. Because, the parents perception of the value of education depends to a large extent, upon their own educational status. The children who have crossed the age group, 6-11 years and are still in the primary classes feel wrong to be there and drop-out. Similarly females do not continue their study due to their early marriage or betrothal.

From the above discussed factors, the enrolment ratios and drop-out rates have been selected as dependent variables. The educational, social and economic variables have been taken as independent. A detailed list of dependent and independent variables is given in the Appendix A1.

5. Data Base and Limitation: For an empirical study based on quantitative methods certain facts and figures are required. Likewise, the determinants of child education require a sound and comprehensive data base to prove their identity and effect. No single agency provides data on all the aspects. Therefore, data have been collected from various sources mentioned as follows:

1. Census of India 1971
 - (a) General Economic Tables, Part II-A(I,II).
 - (b) Social and Cultural Tables, Part II-C(II).
2. N.C.E.R.T. "The third All India Educational Survey, 1973." State Tables.
3. Ministry of Education. "Education in India." 1971-72 and 1972-73 yearly report.
4. UNESCO. The Statistical Year Book 1975.
5. United Nations. The Demographic Year Book 1973, 1974, 1975 and 1976.

Most of the data on educational aspect and infrastructural variables have been collected from "Third All India Educational Survey 1973." It is the only source which provides data both on state and district level with rural urban breaks-up, but the data are only for a single year of November 1973 which rules out any temporal analysis. Further the state-tables lack information about infrastructural facilities, number of teachers, pre-primary enrolment, the number of students passing examinations and the quantum of drop-out. Though these informations on district level were collected but are not yet available or published.

Ministry of education publishes yearly report of education but the district level break-up is not available. The rural-urban break-up is also missing. The data for enrolment pyramid and for the calculation

of drop-out rates is taken from these yearly reports namely "Education in India 1971-72" and "1972-73".

The data on age structure and social variables have been taken from the social and cultural tables of the census 1971. The data on economic variables are collected from the general economic tables of the census. But the age-wise structure of the workforce for Assam at the district level is not available, so that the Union Territory of Mizoram which was formerly in Assam does not have data on child work force.

The enrolment data for the selected countries have been taken from the UNESCO' Statistical Year Book 1975. The class-wise break up of enrolment is lacking. Though it generally provides data for three consequent years yet for many of the countries, sex-wise breakup of the enrolment is missing.

6. The Universe and the Sample: The study has been on the two different levels. First, the state^hwise study of India as a whole with rural-urban break-up and secondly, the district-wise study of Kerala. The random sampling of Kerala among the Indian States is due to the strategic location of Kerala on the western ghats which got the first contact with the foreigners and enjoyed the renaissance in the early history of development. Its literacy rates, degree of urbanization

and participation in work force have proved as contributory factors in the cycle of education and literacy. Kerala ranks first in literacy and seventh in the participation of work force.⁶ Whatever variables have been used in the analysis of universe, i. e. India, the same variables and more or less the same techniques have been used in the study of sample area, i. e. Kerala.⁷ The variables mentioned as X_1 to X_{58} in Appendix A1, plus one variable (percentage of pupils attending middle schools upto a distance of 2.0 kilometre) have been taken up in case study. The district-wise data for the later variables X_{59} to X_{72} is not available.

7. Methodology: The specific methods related to the topics are provided as prima-faci to the discussion in the beginning of each chapter. The general aspects of theoretical framework are discussed here which applied in the initial steps of data processing and analysis.

Both quantitative and qualitative methods have been applied to find out the exact extent of the variations in the distribution as well as in the magnitude of their effects on each other. The quantitative

6. See Appendix Tables 5.4 and 5.5

7. See Appendix Tables 5.1 and 5.5

techniques mainly consist of two fold analysis:

(i) Statistical measurement; and (ii) Graphic representation.

(i) Statistical Measurement: Mainly statistical tools and techniques are used, as the work itself demands the application of statistics to arrive at worthwhile results. The crude data have been processed into ratios and percentages form. These ratios or percentages of the variables when platted on a scattered diagram, a linear and in some cases curvilinear picture emerges. This indicates a linear relationship between the variates. A correlation matrix of the variables is worked out to see the exactness and the nature of relationship. Observing the nature of the correlations, the Gross Enrolment Ratios (GER) comprising variables $X_1 \dots X_{24}$ and drop-out rates comprising variables $X_{66} \dots X_{73}$ have been selected as criterion or dependent variables. The possible explanation is sought from the explanatory variables $X_{25} \dots X_{65}$.

The multiple correlation is computed to measure the combined effect of given sets of the explanatory variables. The stepwise regression coefficient defines the best predictor amongst different sets of the variables. The goodness of fit or test of significance is worked out on t-test and F-test formula. The statistical equations applied in the test of significance are given in the Appendix A2.

(11) The Graphic Representation. In the graphic representation, the clarity of the existing situation is sought with the help of maps and pyramids. The pyramids have been constructed according to the enrolment ratios in a given educational system comprising the duration and the structure of the courses at a given stage or level. The pyramids are the simple graphic measurement of educational attainment of different countries and states of India.

The maps exhibit the picture of inequalities at a glance in different sectors of education. They also reflect the disparities within a given set of factors in a region. Since the number of variables is larger and it is not possible to show the distribution of all the variables through choropleth methods, bar-diagram, pie-diagram and cartogram have been used to depict maximum variables in a single map.

8. Research Design: A brief scheme of the research work includes problem evaluation and identification of the variables with methodology in introductory chapter. The review of literature and a comparative study of educational structure in India and in selected countries of the world are discussed in Chapter II. The spatial distribution of enrolment and drop-outs is described in Chapter III. The

educational and socio-economic correlates and their statistical analysis have been discussed in Chapter IV. The sample study of Kerala is presented in Chapter V. A brief summary of the findings and further prospects have been provided in the concluding Chapter VI.

For a ready reference, the detailed list of dependent and independent variables is enclosed with this Chapter.

Appendix-A1

The List of Dependent and Independent Variables

Both the dependent and independent variables coded with X_n which is used in the correlation and regression analysis.

1. The Dependent or Criterior variables include (A) the Gross enrolment ratios (GER), and (B) Drop-out rates.

The variables of each group with their rural-urban break up are listed below.

A. Gross Enrolment Ratio (GER)

- X_1 . GER in class I in the Rural Areas
- X_2 . GER in class I in the Urban Areas
- X_3 . GER in class I in the Total Areas
- X_4 . GER in class II in the Rural Areas
- X_5 . GER in class II in the Urban Areas
- X_6 . GER in class II in the Total Areas
- X_7 . GER in class III in the Rural Areas
- X_8 . GER in class III in the Urban Areas
- X_9 . GER in class III in the Total Areas
- X_{10} . GER in class IV in the Rural Areas
- X_{11} . GER in class IV in the Urban Areas
- X_{12} . GER in class IV in the Total Areas
- X_{13} . GER in class V in the Rural Areas
- X_{14} . GER in class V in the Urban Areas
- X_{15} . GER in class V in the Total Areas
- X_{16} . GER at Primary Stage in Rural Areas
- X_{17} . GER at Primary Stage in Urban Areas
- X_{18} . GER at Primary Stage in Total Areas

- X₁₉• GER at Middle stage in Rural Areas
- X₂₀• GER at Middle stage in Urban Areas
- X₂₁• GER at Middle stage in Total Areas
- X₂₂• GER at Secondary/Higher Secondary stage in Rural Areas
- X₂₃• GER at Secondary/Higher Secondary stage in Urban Areas
- X₂₄• GER at Secondary/Higher Secondary stage in Total Areas

B. Drop-out Rates

- X₆₆• Drop-out rates at the completion of class I
- X₆₇• Drop-out rates at the completion of class II
- X₆₈• Drop-out rates at the completion of class III
- X₆₉• Drop-out rates at the completion of class IV
- X₇₀• Drop-out rates at the completion of class V
- X₇₁• Drop-out rates at the completion of primary stage
- X₇₂• Drop-out rates at the completion of Middle stage
- X₇₃• Drop-out rates at the completion of secondary stage

2. Explanatory or Independent Variables consist of the following groups with X₂₅ to X₆₅. (a) Educational; (b) Distance; (c) Social; (d) economic; and (e) index of infrastructural facilities within the schools.

(a) Educational Variables

- X₂₅• Primary schooling facilities per thousands of student in Rural Areas
- X₂₆• Primary schooling facilities per thousands of students in Urban Areas
- X₂₇• Primary schools per thousands of students in Total Areas.

- X₂₈• Middle schools per thousand of students in Rural Areas.
- X₂₉• Middle schools per thousand of students in Urban Areas.
- X₃₀• Middle schools per thousand of students in Total Areas.
- X₃₁• Secondary/Higher Secondary schools per thousand of students in Rural Areas.
- X₃₂• Secondary/Higher Secondary schools per thousand of students in Urban Areas.
- X₃₃• Secondary/Higher Secondary schools per thousand of students in Total Areas.

(b) Distance

- X₃₄• Percentage of pupils attending primary schools within habitation in rural areas.
- X₃₅• Percentage of pupils attending primary schools outside the rural habitation.
- X₃₆• Percentage of pupil attending Middle schools within the habitation in rural areas.
- X₃₇• Percentage of pupils attending middle schools outside the habitation upto a distance of 3.0 kms.
- X₃₈• Percentage of pupils attending Middle schools covering a distance of more than 3.0 kms.

(c) Social

- X₃₉• Percentage of urban population to total population.
- X₄₀• Percentage of scheduled castes and scheduled tribes population to total population.
- X₄₁• Sex ratio (females per thousand of males).
- X₄₂• Literacy rates in the age group 15-35 years in Rural Areas.
- X₄₃• Literacy rates in the age group of 15-35 years in Urban Areas.
- X₄₄• Literacy rates in the age group 15-35 years in Total Areas.

(d) Economic

- X₄₅• Percentage of child workers to the total workers in the age group 0-14 years.
- X₄₆• Percentage of workers to the total workers in the age group 15-19 years.
- X₄₇• Percentage of workers in primary sectors in Rural Areas.
- X₄₈• Percentage of workers in primary sectors in Urban Areas.
- X₄₉• Percentage of workers in primary sectors in Total Areas.
- X₅₀• Percentage of workers in secondary sectors in Rural Areas.
- X₅₁• Percentage of workers in secondary sectors in Urban Areas.
- X₅₂• Percentage of workers in secondary sectors in Total Areas.
- X₅₃• Percentage of workers in Tertiary sectors in Rural Areas.
- X₅₄• Percentage of workers in tertiary sectors in Urban Areas.
- X₅₅• Percentage of workers in tertiary sectors in Total Areas.
- X₅₆• Percentage of non-workers in Rural Areas.
- X₅₇• Percentage of non-workers in Urban Areas.
- X₅₈• Percentage of non-workers in total areas.

(e) Physical Facilities:

- X₅₉• Composite index for physical facilities in primary schools.
- X₆₀• Composite index of physical facilities in middle schools.
- X₆₁• Composite physical facilities in secondary schools.

- X₆₂• Composite index of physical facilities in Higher Secondary schools.
- X₆₃• Pupil-Teacher Ratio in Primary Schools.
- X₆₄• Pupil-Teacher Ratio in Middle schools.
- X₆₅• Pupil-Teacher Ratio in Secondary/Higher Secondary Schools.

CHAPTER-II

THE STRUCTURE OF EDUCATION

1. Introduction: The stability of the life and its subserviants always depend on the molecular structure of its own. In a pure demagogic discussion, the structure simply means a hierarchy of educational grades in different levels or stages. Education Commission of 1964-66 recognises four essential elements to determine the educational standard of a nation.¹

1. The structure or the division of educational pyramid into their different level or stages and their inter-relationships;
2. The duration of total period covered by the different stages;
3. The extent and quality of essential inputs such as teachers, curricula, method of teaching and evaluation, equipments and buildings;
4. the utilisation of available facilities.

In fact the educational structure consists of the above mentioned four elements plus the administration or management of the schools. If the educational structure of a country is uniform and duly prescribed,

1. Ministry of Education, The Report of Education Commission 1964-66, (Delhi, 1966).



it means a continuous stretch of mind and acceleration of knowledge. On the other hand, a disharmonious structure leads to the wastage of money and time as well as lagging behind in the accumulation of knowledge and process of learning.

This chapter presents twofold analysis of the educational structure. First part of the chapter highlights the present state of literatures dealing with (i) the existing system of education; (ii) the enrolment; (iii) the drop-out rates and (iv) the socio-economic conditions affecting child education in a region. On the basis of literature survey and the nature of the data collected during the study, important hypotheses have been put for further study. The second part of the chapter consists of a comparative analysis of the educational structure in terms of enrolment pyramids. The comparison is made in (i) India and the world, and (ii) India and the states. On the basis of comparison important observation have been made which are the derivatives of the effects of educational system on the attainment of enrolment in a region or country. For the purpose of evaluation, the countries have been selected both from developed and developing world, out of which three countries namely, Japan, U.S.A. and India are the subject of detailed discussion. The definitions



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of the terms used in this chapter is provided in Appendix B1.

2. Methodology: The empirical analysis involves an observation of the enrolment pattern with the duration of the time and various stages which can be termed as "enrolment pyramid."² The ratio for enrolment pyramid is worked-out as the total enrolment of each level or class corresponding to the total school going population in the age group 5-24 years in a country or state. The ratio is then converted into percentage form. The statistical equation is given as

$$E. R. = \frac{\sum_{n=1}^{24} E_n}{\sum_{i=5}^{24} P_i} \times 100$$

where E.R. represents enrolment ratio;

E_n stands for total enrolment in nth level or class and

$\sum_{i=5}^{24} P_i$ represent total school going population in the age group 5-24 years.

For the states and the union territories of India enrolment ratios have been calculated both for boys and girls

2. The term pyramid can rarely be applied in the study of countries, as the classwise data for enrolment is not available. The source is UNESCO statistical year book which provides information in a collective way as enrolment at first level, or second level or third level. The sexwise breakup is much distorted, that is why only total figure is shown in the table and diagrams.

corresponding to each class and stage on the same formula.

PART-A - LITERATURE SURVEY

Estimates indicate that nearly 2,000 titles have been published on the subject of 'new education' in the last 15 years. Anyone who could successfully push a pen, and a publisher - from the new fangled path-finders who brusled with the goarainers of formal education, to disillusioned highschool teachers to Ph.D. scholars to hardcore anthropologists, sociologists and educationists - have had a book or two out on the subject.

- Times of India^{2a}

1. An Overview

Till now, there is no fulfilled literature dealing with the geographical perception of the education. On the other hand, the modern age of interdisciplinary approach brings innumerable literature on education dealing with Economics, Sociology and planning of education and side by side casting glimpse over the areal differentiation and the educational characteristics of a region. The present review is confined only to those materials where somehow regional analysis is mentioned or can be derived from the text.

(a) The Existing System of Education There is an abundant discussion regarding the existing system of education in almost all writings on the education and its related topics. The first country level statistics

2a. Times of India, (New Delhi), April 20, 1980.

on the duration of an educational level, course structure, pattern of classes at schools and university stage and the minimum qualification required for admission in a particular grade, are provided by O.E.C.D. (Organisation for Economic Cooperation and Development) for its member countries in 1972. A group of three countries is presented in one treatise entitled "classification of educational system" - in Finland, Germany and Japan,³ or Belgium, Denmark and United States⁴ or Netherland, Sweden and Turkey.⁵ For a comparative study O.E.C.D has given its own classification of types of education and the length of study, such as pre-primary, primary, general secondary and secondary vocational or specialised, which are termed with different names in the different countries.⁶

The Education Commission appointed by UNESCO on Educational Development has worked out an uniform system of education for all the countries of the world.

3. O.E.C.D.; Classification of Educational System, Finland, Germany, Japan (Paris, 1972).

4. O.E.C.D.; Classification of Educational System, Belgium, Denmark, United States. (Paris, 1972).

5. O.E.C.D.; Classification of Educational System, Netherland, Sweden, Turkey. (Paris, 1972).

6. See table 1 classification of Educational System.

In their report "Learning to be"⁷ they have stated that ten years of education - primary and secondary - should be called basic education throughout the world.

Kobayashi⁸ has analysed the existing educational structure in Japan and pointed out how the system has helped to understand the aptitude of the children even at primary stage. He tried to bring out the effect of 9 years of compulsory schooling at Chugakko⁹ and 3 to 4 years of schooling at Kotogakko¹⁰ on the social mobility of the Japanese society.

In India, the reference on educational structure is found in many reports¹¹ and surveys. Specially the report of Education Commission 1964-66,¹² popularly known as Kothari Commission's report entitled "Education and National Development", brings a qualitative analysis of the existing system of education in the states and Union Territories.

7. UNESCO, Learning To Be (Paris, 1972). Report of Education Commission on Educational Development, 1972.

8. Tetsuya Kobayashi, Society, School and Progress in Japan (Oxford, 1976), pp. 127-30.

9. Chugakko stands for general secondary first cycle.

10. Kotagakko stands for general secondary second cycle.

11. See Reports of University Education Commission, 1948 and Secondary Education Commission, 1954.

12. Ministry of Education, Education and National Development, Report of Education Commission, 1964-66 (Delhi, 1966).

Naryan¹³ has traced the history of new educational pattern of 10+2+3 in India and mentioned the drawbacks of this system - without giving any empirical analysis.

(11) Enrolment and Literacy Rates. The UNESCO's statistical year book¹⁴ provides country level data on enrolment, number of teachers and institutions. The data are cross-tabulated with the broader age-groups and sex structures. It also deals with the definitions of the general terms used, such as, gross enrolment, net enrolment, education at first level, second level and third level and methodology followed in the tabulation of data.

O.E.C.D.¹⁵ has published "Education in OECD Developing Countries - Trends and Perspectives" in 1974. There is a detailed discussion on the regional trends of enrolment and major structural changes in education of five member countries, viz. Greece, Portugal, Spain, Turkey and Yugoslavia. In the study, the indicators of educational progress in relation to the general objectives of the educational development

13. Dr. Shriman Naryan, New Educational Pattern of 10+2+3; (New Delhi, 1978).

14. UNESCO, Statistical Year Book 1973, 1975 (Paris, 1973, 1975).

15. OECD, Education in OECD Developing Countries - Trends and Perspectives (Paris, 1974).

policies, have been selected as (a) enrolment ratio; (b) the educational structure of the labour force; (c) social disparities in educational participation; (d) regional disparities in educational participation; and (e) final consumption expenditure and fixed capital formation in education.¹⁶ The enrolment forecasting for 1980 is based on projection with one per cent population growth. The average annual growth in per capita national income as reflected by GDP and GNP is considered a determining factor in the projection of enrolment.¹⁷

In India, the old references on the statistics of enrolment and institutions are found in the "Report on Public Instructions in Bengal 1895-96."¹⁸ A cross-tabulated data of the number of schools and pupils in public and private institution for two academic years 1894-95 and 1895-96 are collected at district level for Dacca, Rajshahi, Chittagong, Patna, Bhagalpur, Chotanagpur, Orissa and Presidency divisions. This report also analyses the abstract returns of colleges, schools and scholar and returns of expenditure on public instruction in the lower provinces of Bengal at the end of the official year 1895-96.

16. Ibid., pp.77-78.

17. Ibid., pp.52-62.

18. Bengal Presidency; Report on Public Instruction in Bengal 1895-96.

The report of Central Advisory Board of Education 1944¹⁹ analyses the "Post-war Educational Development in India" in terms of schooling facilities, enrolment, literacy achievement, education for adults and handicapped and health of the school child. The emphasis is on the qualitative aspects of education rather than quantitative.

The state report of 1951 census²⁰ provide cross-tabulated data on literacy and education. Later on, one special paper was published "Literacy and Educational Standard 1951" in which state level literacy rates in rural and urban areas and enrolment statistics at primary and secondary stages are given. The "Reports on Literacy" according to 1971 census²¹ reveal more clear picture in the tabulation of data and graphic representation. The equity in literacy is shown with the rural-urban differential, male-female differential and community differential by castes and religion. The density of literature population shows the regional variation in the achievement. Enrolment statistics is given according to the age structure of the pupils.

19. Bureau of Education, India, Post-war Educational Development in India, Report by Central Advisory Board of Education (New Delhi, 1944).

20. Census of India 1951, Literacy and Educational Standard 1951, Paper No.5 (Delhi, 1954).

21. Census of India 1971, Extracts from the All India Census Reports on Literacy, Monograph No.9, (New Delhi, 1972).

With special reference to the Five Year Plans, the First All India Educational Survey²² was organised as early in 1957 by Ministry of Education in collaboration with the states and Union Territories. Its main aim was to identify all the rural habitations with and without educational facilities and to plan the location of schools on a rational basis, so that educational imbalances could be narrowed down. It also provided detailed information about the enrolment, number of schools, number of teachers and the distance of schools. The idea of carrying out such a survey was first proposed as early as in 1911 by Gokhale²³ in his Bill to make better provision for the extension of elementary education but no systematic effort was made until 1957. Besides, Ministry of Education started to publicise yearly statewise report of education in India.²⁴

The second All India Educational Survey²⁵ was held in 1965 in which the important item was the collection of basic line data about various kinds of institutions. The need for equalisation of educational

22. Ministry of Education, Report of All India Educational Survey 1957, (New Delhi, 1960).

23. Nurullah and J. P. Naik; 'A Students History of Education in India (1800-1947), (Bombay, 1951), p. 251.

24. Ministry of Education, Education in India 1971-72, 1972-73, (New Delhi)

25. N.C.E.R.T., Second All India Educational Survey, (New Delhi, 1967).

opportunities in different areas was stressed to derive maximum benefit with minimum additional outlay. The survey was conducted by N.C.E.R.T.

Both second and first All India Educational surveys were confined to the school education in recognised institutions. In order to meet the widened aspect of the requirement, the Third All India Education Survey²⁶ was held in 1973. Up-dating the data of earlier surveys, it provided age-sex wise data on enrolment, size of habitation, school area of existing primary, middle and secondary education, existing facilities of libraries, audio-visual aids and laboratories etc. which are need^{ed} in the district development plan. The reference year of the survey is made December 1973 but, was only after September 1979 available for public use.

N.C.E.R.T.²⁷ has also published an abstract of the report of Kethari Commission in 1970 in which regional imbalances in the educational development in the districts and states have been discussed. At the state level in case of total enrolment, it ranges from 55 in Rajasthan to 140 in Kerala at the lower primary

26. NCERT, "Educational Facilities and Enrolment" (School Education), Third All India Educational Survey, 1973 (New Delhi, 1979).

27. NCERT, "Education and National Development". Report of the Education Commission 1964-66, (New Delhi, 1970).

stage while the target to be reached is an enrolment of 142 per thousand or 110 per cent of the total population in the age-group 6-10 years.²⁸

Kamat,²⁹ Dhar,³⁰ Pandit³¹ and Nayar³² in their individual articles have presented a good account of the present state of educational statistics in India which are collected and published by different agencies. Their main point of issue is the lack of comparison in data on enrolment and educational facilities, delay in publication and lack of flow in statistics.

Premi³³ in his article "Educational Statistics in the Census and the National Sample Survey in India"

28. Ibid., p. 226

29. A.R. Kamat, "Statistics on Education in India" Some Neglected Areas of Social Statistics Health and Education, Fourth Seminar on Data Base of Indian Economy, Bangalore, 22-24, December 1976.

30. Trilok, N. Dhar, "Educational Statistics in India." Some Neglected Areas of Social Statistics. Fourth Seminar on Data Base of Indian Economy (Bangalore, 1976).

31. H.N. Pandit, "Statistical Needs for Educational Planning in India." Some Neglected Areas of Social Statistics (Bangalore, 1976)

32. P.R. Gopinathan Nayar, "An Appraisal of Educational Statistics in India." Fourth Seminar (Bangalore, 1976).

33. M.K. Premi, "Educational Statistics in the Census and NSS." Some Neglected Areas of Social Statistics (Bangalore, 1976).

has analysed the nature of data collection, tabulation and the significance of educational data for economic and social planning. He has also pointed out, that, to which extent current data can be used by additional tabulation.

Kohli³⁴ has examined the progress of enrolment at primary, middle and secondary stages from 1950-51 to 1975-76. For example at primary level the enrolment of boys and girls rose from 55 per cent and 20.1 per cent in 1950-51 to 109.7 per cent and 97.2 per cent in 1975-76 respectively. At middle stage, the increment was from 20.8 and 4.6 to 81.9 and 55.7 per cent for boys and girls respectively.

(iii) Drop-out Rates Most of the country level work is on the basis of data provided by UNESCO. Brown³⁵ in 1966 studied the problem of wastage in 21 countries including 9 in Asia. He examined the problems of both repetition and drop-out in primary education. His findings in Asiatic countries relate the causes of wastage to the economic and social backwardness of the people.

34. B. R. Kohli, "Status of Women and Education." Fourth Seminar (Bangalore, 1976).

35. R. I. Brown, A Survey of Wastage Problems in Elementary Education, UNESCO Regional Office for Education in Asia (Bangkok, 1966).

A technical seminar on educational wastage and school drop-outs was organised by UNESCO in 1966 and the final report was published by the UNESCO Regional Office for education in Asia. The special issue of the Regional Office Bulletin³⁶ concludes that repetition is commonly followed by drop-out. The countries having a high rate of wastage exhibit that repetition contributes more to wastage than does drop-out. It also suggests that the reduction in wastage cannot be brought about by a single method but involves the whole educational system. The quality of teaching, supervision, instructional material, curriculum, evaluation and school-community relationships are the main points of emphasis where attention is needed.

Brimer³⁷ and Pauli in their joint adventure have discussed in detail the magnitude and the location of the problem. Their findings on chi-square test relate that the number of female drop-outs is significantly greater than the number of male drop-out in rural groups, while in urban groups of the countries, the number of male drop-out is significantly greater than the number of female drop-outs.

36. UNESCO, "The Problem of Educational Wastage." Bulletin of UNESCO Regional Office for Education in Asia, (Bangkok, 1967), Vol. I, No. 2.

37. M. A. Brimer and L. Pauli, Wastage in Education - A World Problem, Studies and Surveys in Comparative Education (Paris, 1971).

Schreiber³⁸ has worked on school drop-out for a longer time and has published nearly four books on the topic. He carried out a project sponsored by National Educational Association to examine the holding-power rates of school system in 128 large cities of Northern America with population over 90,000, in which he found that the rate of wastage was related to the size of the city. In his book "Profile of the School Drop-out: A Reader on America's Major Educational Problem"³⁹ (1968), he analyses the causes of drop-out. He stresses the multiplicity of factors, largely extrinsic to the school and reflecting the current state of society in which there is a high rate of youth unemployment, continuous rise in delinquency, large-scale migration to urban centres and a population explosion. He emphasised that schools must alleviate the early conditions associated with the development of attitudes and behaviour which lead to dropping-out and they must also offer the motivation and the opportunity for greater success in school.

38. D. Schreiber, Holding Power/ Large City School Systems. A Study of the Holding Power Rates of School System based on graduating classes of 1960-63, (Washington, 1964).
39. D. Schreiber, ed. Profile of the School Drop-Outs: A Reader on America's Major Educational Problem. (New York, 1968).

In India, works on educational wastage started before independence. The Provincial Board of Primary Education, Bombay,⁴⁰ published its report in early 1941. It gives the definition of wastage which has been widely used in most of the studies undertaken so far. It discloses that the attainment of permanent literacy is the main objective of primary education (grade I-IV or V), and any child who drops out or withdrawn from school before spending sufficient time at least 120 days in grade IV or V or before actually passing it constitutes a case of wastage. It also specifies the causes of drop-outs in medium context which include two broad aspects; the cost of education and the employment of children within the family or outside the family.

Gadgil⁴¹ and Dandekar in their report of two investigations have studied the effect of castes and occupation on drop-out rates. In their findings they have shown that parents in the caste group Brahmins, Jains, Lingyats, Vanis tolerate more repetition of grades by their children than those in the caste-group Mahars, Chambhars, Mangs, Romoshish, Kaikadis

40. Provincial Board of Primary Education, Bombay, Report on Stagnation and Wastage in Primary Schools, (Bombay, 1941).

41. D.R. Gadgil and V.M. Dandekar, Report of Two Investigations - Primary Education in Satara District, Poona (Poona, 1955).

and others before they withdraw their children. Similarly, the people engaged in business and salaried employment favour the continuation of education of their children more than those engaged in agriculture, artisanship, casual labour etc.

Chickermane,⁴² in his article (1962) correlates the phenomenon of wastage to the socio-economic condition. He points out that the excessive involvement of children in domestic work has come-out to be the significant cause of stagnation which ultimately leads to wastage. It also reveals that the presence of large number of illiterate members in the family is positively related to the phenomenon of wastage. Similar result is found in the report of Chowdhury⁴³ who studies a district of West Bengal. After reporting high drop-out and repetition he ascribes the inefficiency and ineffectiveness of school system to economic factors and to parental indifferences to education.

In 1968, a National Seminar on wastage and stagnation in New Delhi, was organised by NCERT⁴⁴ in

42. D.V. Chickermane, "A Study of Wastage in Primary Education in India." Education and Psychological Review (Baroda, January 1962), Vol. II, pp. 20-21.

43. P. Chowdhury, Report of an Investigation into the Problem of Wastage and Stagnation in Primary Schools in the District of 24-Parganas, (Calcutta, 1965).

44. NCERT, National Seminar on Wastage and Stagnation, Report, (New Delhi, 1968).

which the archaic pattern of Indian Education was severely criticised as being primarily designed in the past to train the elite. A vast programme to improve the school out-put was recommended. Such as to familiarize teachers and education authorities with experimental education and to give priority to the first two grades of compulsory education where failure was observed more intensive.

Besides, NCERT has published individual studies in the series of its research monographs. Sharma⁴⁵ and Sapra have presented the identified causes of wastage and stagnation and the rate of drop-out in 90 sampled schools from Maharashtra (26), Rajasthan (14), Punjab (13), Himachal Pradesh (17) and the Union Territory of Delhi (20). The significant result shows "A high rate of drop-out seems to be associated with a lower per capita income and teacher coming from longer distance to school." Correlation with other school variables like size of class room, physical facilities, fee collection is insignificant. However, privately managed schools in many cases are served by children belonging to higher socio-economic group. Thus the rate of drop-out in such schools became more a function of socio-economic variables than alone of the amount of fee and

45. R.C. Sharma and C.L. Sapra, Wastage and Stagnation in Primary and Middle Schools in India, (New Delhi, 1971), NCERT Research Monograph 2.

and funds charged. The result with selected pupil variables like academic performance, attendance in schools, age at the time of admission, motivation for learning, pupil's perception of parents view of education; and selected family variables like family size, structure of the family castes, occupation, annual income etc. is significant. Sapra's⁴⁶ work : Measurement of Educational Wastage - a review of methodologies gives the cohort and re-constructed cohort method to analyse drop-out, wastage and stagnation. NCERT's⁴⁷ another publication on methodology for measuring drop-out is a handbook for supervisors, which gives simple method of addition and substration to analyse the drop-out, failure, repetition etc. in consequent year. If this method is followed by supervisors throughout the country, the data will readily be available in each year.

(iv) Socio-Economic. A wide range of literature is available dealing with the socio-economic conditions of the children or of the parents which have a definite

46. C. L. Sapra, "Measurement of Educational Wastage - A Review of Methodologies, (New Delhi, 1972). Paper Presented at the Regional Training Seminar on Educational Statistics by AIBPA, New Delhi, Dec. 1970.

47. N. C. E. R. T., "Educational Wastage at Primary Level - A Handbook for Supervisors (New Delhi, 1971).

impact on child education. Here only that literature is referred in which a little or more discussion on areal differences in education is found.

The report prepared by UNESCO's⁴⁸ International Commission on educational development present a good account of the effects of socio-cultural and economic factors on educational development of a nation. The countries having technical know-how to exploit their own resources to the fullest extent are on the verge of educational development. The Commission realizes that it will be more and more difficult to disassociate economic from social objectives and educational policies will have to make increasing allowance for their closer interaction. On the equalisation of educational opportunities they have stated that the economic development has no meaning unless it results in abolition of privilege and more justice for all mankind. The extracts⁴⁹ from the background papers of the report entitled "Education on the move" deals with the correlation between the level of productivity and education. A significant result is found in participation rates, unemployment, rate of serving in long term, rural-urban structure, and important types of economy like subsistence commercialised or industrialised.

48. UNESCO, Learning To Be, n.7, pp.29-30.

49. UNESCO, "Education on the Move." Extracts for the Report of International Commission on Development of Education, (Paris, 1975).

Social class background apparently influences educational achievement throughout the world. In preparation for the 1971 International Conference on Education,⁵⁰ the International Bureau of Education prepared a document called "The Social background of students and their chance of success at school," based on replies to a questionnaire sent out to UNESCO's member states. After analysing these replies, the report concluded "that in practice.... social background [of students] has a very real effect on access to education, academic success and choice of an occupation." The examples are set from the developed world countries like Belgium, Hungary, United Kingdom, Netherland and United States of America.

In the edited volume of Tesconi⁵¹ and Harwitz, Coleman's study leads to conclude that disparities in achievement result from the cultural and social baggage the youngsters take to school with them. Jeneks' study challenges long cherished beliefs about the place of the school in American society. It emphasises among other things that the burden of achieving equality of

50. International Bureau of Education, "The Social background of Students and Their Chance of Success at School," Report of the Thirty Third Conference on Education, September 15-23, 1971, (Geneva, 1972). Geneva Head Quarters of the International Bureau of Education.

51. Charles A. Tesconi and Emanuel Hurwitz, ed., Education for Whom? - The Question of Equal Educational Opportunity (New York, 1974).

educational opportunity cannot be borne by the educational system alone. It depends upon not only what we do elsewhere in the economy, in the polity and in the society at large.⁵²

Barnet⁵³ and Watts have carried on an experimental programme to evaluate the change in parents attitude to the change in pupils attitude at elementary stage. Their review of literature indicates a correlation between attitudes of children and the attitudes of their parents. Responses obtained from the semantic differential instrument, indicated that (a) the attitude of the parents in the control groups and the experimental groups were not significantly different, before treatment, but the two groups were significantly different following treatment with a positive change in attitude of the experimental group; (b) comparison of the attitude of control group before and after treatment indicated no significant change; (c) comparison of the attitudes of the experimental groups before and after treatment indicated a positive change significant at 0.001 level.

52. Ibid., pp.27-31.

53. Barnet and Doleres Verdee Watts, ed. A Parent Education Approach to Attitude Change for Parents of Title I Primary Pupils in Batesville Elementary School, (Mississippi, 1980).

Recently Centra⁵⁴ and Potter of Educational Testing Service, have jointly published an article "School and Teacher Effect - An International Model" in which nearly 40 variables have been selected to observe the impact of causal and formal relationship. In most of the socio-economic variables, the result is significant.

In India, Ministry of Education,⁵⁵ in their studies in educational statistics have analysed, the progress of education of scheduled castes and scheduled tribes in their social and economic context. A comparison of two academic year 1969-70 and 1970-71 reveals a decreasing tendency of scheduled castes enrolment at primary stage, constant at middle stage and a nominal increase of 0.1 per cent at secondary stage, while that of scheduled tribes remains constant at middle and secondary stages.

Premi⁵⁶ has tried to find out the impact of socio-economic correlates of literacy and degree of urbanisation to the enrolment figure of 1951-61. The

54. Johna Centra and David A. Potter, "School and Teacher Effect - An International Model." Review of Educational Research (Washington) Summer 1980, vol.50, No.2, pp.273-91.

55. Ministry of Education, "Progress of Education of Scheduled Castes and Scheduled Tribes 1970-71." Studies in Educational Statistics, No.1-1977. (New Delhi, 1977).

56. M.K. Premi, Educational Planning in India (Implication of Population Trend), (New Delhi, 1972).

result is significant in both the variables. He has also devised methodology of enrolment forecasting in on ward projection, the projection of school life and component method population projection by sex and age structure. His another work relates to the studentworkers⁵⁷ in the age group 5-14 where a socio-demographic analysis is given on the basis of 1961 data. The number of studentworkers is worked out by comparing the status of workers in the age group 5-14, with the enrolment data for the same age group which provides a good estimate, rather than actual statistics.

From Gosh's⁵⁸ edited volume "Educational Strategies in Developing Countries" one can find inferences of the educational system in Brazil, Iran, Tanzania, Nepal and India and the rate of growth in education under some social, political and planning circumstances.

Allan Sable,⁵⁹ has raised the issue of schooling structure both in Oriya and English medium schools

57. M.K. Premi, "Student Workers in the Age Group 5-14 - A Socio Demographic Analysis." The Man Power Journal, VIII (4), January-March 1973, pp.68-84.

58. S.C. Ghosh (ed. & comp.), Educational Strategies in Developing Countries (New Delhi, 1976). Paper contributed by Raza Duran on Brazil, Majid Rehman on Iran, M.G. Keyusa on Tanzania, Mohammed Mohsin on Nepal and Ved Prakash on India.

59. Allen Sable, Education in Orissa - A Study in Selection and Allocation Process (New Delhi, 1977).

pattern of enrolment and attrition rate at the level of primary and secondary education in Ehubneshwar. The statistical techniques are applied to measure the pattern of attrition rate.

Jain⁶⁰ and Prasad have made a note on the pattern of relationship between literacy level and selected population characteristics. The analysis covers 165 villages with 5,000 or more population and 149 towns with less than 20,000 population. They have postulated as (i) higher the percentage of non-agricultural workers, higher is the literacy level, (ii) higher the percentage of male population higher is the literacy level and (iii) higher the percentage of scheduled castes and scheduled tribes population, lower is the literacy level. The analysis of data does not confirm any of the above hypothesis.

2. Hypotheses or the Possible Correlator

On the basis of identified variables with their causal and formal relationship and keeping in view the findings in the literature survey, the following hypotheses have been postulated.

60. M.K. Jain and R. Prasad, "A Note on the Pattern of Relationship Between Literacy Level and Selected Population Characteristics." Population Dynamics and Rural Development. Summary Report on the Proceedings and Progress of Annual Conference of I.A.S.P., 1979 (Delhi, 1979), pp.82-83.

1. Higher the schooling facilities, higher will be the enrolment ratios and lower drop-outs.
2. Greater the distance to be walked to attend school, lower will be the enrolment ratios and higher will be the drop-outs.
3. Higher the percentage of urban population, higher will be the enrolment ratios and higher will be the retention in the schools.
4. Higher the value of literacy, higher will be the enrolment and lower the drop-outs.
5. Higher the sex ratio (females per thousand males) lower will be the enrolment ratios.
6. Higher the percentage of scheduled castes and scheduled tribes population, lower will be the enrolment and higher drop-outs.
7. Higher the percentage of child workers, lower will be the enrolment and higher drop-outs.
8. Higher the percentage of agricultural workers lower will be the enrolment and higher drop-outs.
9. Higher the percentage of workers in industries and services, higher will be the enrolment and lower drop-outs.
10. Higher the physical facilities within the school which improve the quality of education, higher will be the enrolment and lower the drop-out rates.

PART-B - ENROLMENT: A COMPARATIVE STUDY

1. Enrolment Pyramids

(1) India and the World: Once, a child is admitted in the school, it is simply assumed that he will cover all the stages of the education right from the first level to third level, provided that the environment is favourable. But this ideal condition rarely occurs. So, the minimum requirement is, at least to complete the level of general education, i.e., second level of education where specialisation is not necessary. The enrolled students in a grade can be considered as one cohort. With the completion of study, this cohort moves from its own grade to succeeding grades, with some rate of attrition or stepping out of some individuals of the cohort from the mainstream of education.

Secondly the enrolment pattern at higher education that is the university education at third level, in every country is very selective. Only few fortunate students get opportunity for higher education even in a country having a more democratic set-up of education. The enrolment ratios of the selected countries is given in table-2.1, on the basis of which enrolment pyramid is prepared as shown in the world and India's map. The enrolment pyramids simply reveal educational attainment of a country at different levels of education.

Table-2.1: Enrolment Ratios at the Different Levels of Education in India and the World

S.No.	Countries	Year of reference	1st level	2nd level	3rd level
1.	Australia	1972	38.80	21.75	4.43
2.	Brazil	1972	32.11	12.74	1.59
3.	Columbia	1973	33.02	11.30	1.09
4.	India	1971	23.18	8.27	0.78
5.	Indonesia	1971	25.54	3.63	0.48
6.	Japan	1972	27.20	24.81	5.63
7.	Rhodesia	1970	35.07	2.96	0.04
8.	United States	1970	41.87	26.13	11.15
9.	U. S. S. R.	1972	42.84	10.48	5.05

Source: UNESCO's Statistical Year Book 1975 and United Nations Demographic Year Book 1973, 1974, 1975 and 1976.

At a glance the table reveals a decreasing tendency in the enrolment ratios from first level of education to third level in all the countries. The decreasing trend differs from country to country. In countries like India, Columbia, Brazil and U. S. S. R., there is an abrupt change in the first and second level enrolment. The change is more sharp in the case of Indonesia and Rhodesia. In the countries like United States and Australia, the change is more gradual and proportionate while in the case of Japan there is no significant change in the first and second level of enrolment.

Table-2.2: Classification of Educational System

S.No.	J A P A N			OECD Classifi- cation		U. S. A.			OECD Classifi- cation		I N D I A		
	Structure	Dura- tion	Entrance require- ments	Type	Length of Study	Structure	Dura- tion	Entrance require- ments	Type	Length of study	Structure	Dura- tion	Entrance require- ments
1.	<u>Pre-primary Education</u>					<u>Pre-School</u>					<u>Pre-primary</u>		
1.1	Vochien (Pre- primary)	1-3	3, 4 or 5 year old	Pre- pri- mary	-	Nursery Kinder- garden Parent coopera- tive Community Day Care	2-3 1-2 3-5 3-5 3-4	-	Pre-pri- mary -do- -do- -do- -do-		Balwadi Kinder- garden Nursery Bal Samaj sewa kend- ra	2-3 2-3 3-5 2-4	
2.	<u>Primary Education</u>					<u>Primary</u>					<u>Primary</u> To have completed		
2.1	Chogakko (Primary Schools)	6	6 years old	Pri- mary	1-6	<u>Elementary</u> 5-6 years of study Beyond 6 years study Middle	6 2 4		Primary General Second- ary (a) -do-	1-6 7-8 5-8	Lower Primary Upper Primary Middle	1-5 1-3 5-7/8	Lower Primary Primary
3.	<u>General Secondary 1st cycle</u>												
3.1	Chugakko (1st cycle secondary)	3	Leaving certifi- cate of primary	Gene- ral Secun- dary (a)	7-9								
4.	<u>General Secondary 2nd Cycle</u>					<u>Secondary Schools</u>					<u>Secondary Schools</u>		
4.1	Kotogakko	3, 4 or +	Seleç- tion	General & non- voca- tional	10-12/ 13	High School Jr. High School	4/6 3	To have completed elementary -do-	-do- -do-	7-9/12 7-9	High School	7-14	Middle
5.	<u>Special Education</u>												
5.1	Tokushu 1st cycle 2nd cycle	1-3 6 3 3		Second- ary (a) or (b)	1-6 7-9 10-12	Sr. High School	3	Jr. High School	-do-	10-12	Higher Secondary	8-16	High School

The enrolment pyramids give the more clear outlook of the countries. They can be categorised as follows:

- (a) The countries having a broader base of enrolment pyramid and decreasing sharply towards the apex. For example, India, Brazil, Columbia, Indonesia and Rhodesia.
- (b) The countries having a broader base and gradually decreasing towards the apex, as a result the apex is somewhat flattened. For example, Australia, U.S.A. and U.S.S.R.
- (c) The country having cylindrical shape of enrolment pyramid at first and second level of education and less flattened apex at the third level of education as in the case of Japan.

In the first category, India's example is most chronic. Out of 257 million of school going population in the age group 5-24 year, 59.6 million are enrolled at first level, 21.2 million at the second level and only 2 million at the third level constituting a percentage of 23.18, 8.27 and 0.78 respectively. The differential between first, second and third level is 14.91 and 7.39 per cents respectively. The differential in the enrolment pyramid denotes the attrition rate of enrolment at

first level is considered as moving cohort to second and third level. The smaller base of the pyramid as compared to the other developing countries of Latin America, Brazil and Columbia, indicates lesser attainment of enrolment at the first level of education. In this category, Indonesia and Rhodesia present a typical example of the under developed countries, where the base of the pyramid is much flattened but the apex is sharply tapering. They have 3.6 and 3.0 per cent of enrolment at second level and 0.48 to 0.04 per cents of enrolment at the third level of education. The rate of differential is very high as 32.11 and 2.92 in Rhodesia and 21.91 and 3.15 in Indonesia in between first, second and third level of education.

Among the developed world, both U.S.A. and Australia show a proportionate rate of attrition. In the case of U.S.A. there are 76 million school going persons out of which 31.9 million (41.87 per cent) are enrolled at first level, 19.9 million (26.13 per cent) enrolled at second level and 8.5 million (11.15 per cent) enrolled at third level of education. In a moving cohort of 31.9 million of students, 15.74 per cent drop out at first level and 14.98 per cent at the completion of second level. At both the stages, the rate of attrition is equal. Similar is the case

with Australia which constitutes 4.6 million of school going population, out of which 1.8 million (38.8 per cent) is enrolled at first level, 1 million (21.75 per cent) enrolled at second level and 0.2 million (4.43 per cent) at the third level of education. Such type of pyramids exhibit a progressive nature of enrolment attainment.

In the case of Japan, out of 35.6 million of school going population, 9.6 million are enrolled in the first level, 8.8 million in the second level and 2 million at the third level of education. The trend exhibits that almost the whole cohort once entered in the first level moves simultaneously upto the completion of second level with a very negligible attrition of 2.39 per cent at the completion of first level of education. When this cohort moves upward to the higher education only 5.63 per cent of the students remains enrolled with a greater stepping out of 19.18 per cent. The pyramid of Japan represents a good model of educational development.

The most interesting pyramidal form is exhibited by U.S.S.R. which is a developed nation and among big-wigs. Surprisingly the differential in between first and second level is as high as in the case of Rhodesia, e.g. 32.36 per cent. The enrolled students are 39 million

at first level, 9.6 million at the second and 4.6 million at the third level of education out of 91.6 million population in the age group 5-24 years. The flattened apex of the pyramid denotes higher enrolment at university level. Thus it represent both the characteristics of developed and developing world in the attainment of enrolment. The plausible answer to such type of behaviour is the diversion of youth in the workforce due to shortage of manpower⁶¹ which was created after world war II.⁶² This point is also indicated by Rogovsky.⁶³

(ii) India and the States. The enrolment pyramid in most of the states and Union Territories reveals a broader base in class I, followed by a sudden fall in class II and thereafter, a gradual decrease, tapering towards the apex. This tendency shows a high rate of drop-out at the completion of grade I and II. The enrolment ratios for states and the Union Territories are given in appendix tables 2.1 and 2.2.

61. D.I. Valenty (ed.), An Out Line Theory of Population, (Moscow, 1977), pp.204-7.

62. S.V. Kalesnik and V.F. Pavlenko (ed.), Soviet Union - A Geographical Survey (Moscow, 1976), p.141.

63. Moscow News, April 12, 1981.

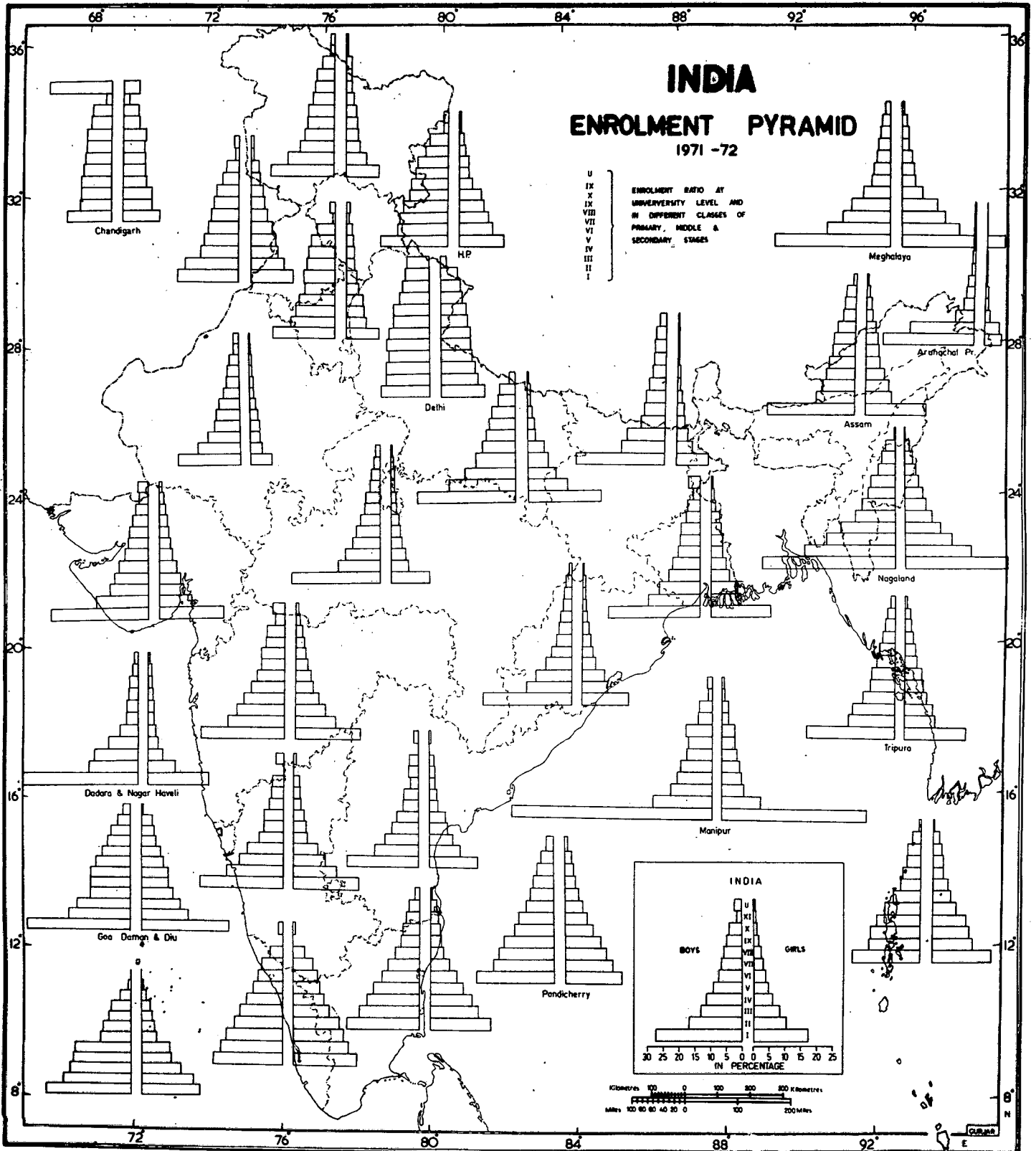
The enrolment pyramid of Andhra Pradesh, Assam, Bihar, Gujrat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal resemble the enrolment pyramid of developing countries like India, Brasil and Columbia.

Manipur, Meghalya and the Union Territories of Arunachal Pradesh, Dadra and Nagar Haveli show their enrolment pyramid similar to those of Indonesia and Rhodesia. The broader base with a sharp fall at the first two levels and a very narrow apex reveals the characteristics of a underdeveloped countries.

The Union Territories of Goa, Daman and Diu and Lakshadweep resemble their pyramids to that of the U. S. S. R.

The enrolment pyramids of Kerala, Tamil Nadu, Punjab, Haryana and Pondicherry have a broader base and flattened apex with a gradual decrease from base to apex. They resemble to the pyramids of U. S. A. and Australia, which show a progressive attainment in the enrolment.

The Union Territories of Delhi and Chandigarh resemble their enrolment pyramids to that of Japan where from grade I to V there is a nominal decrease. Similarly from grade VI onwards the stepping up of the enrolment is negligible. This indicates a high rate



Based upon survey of India map with the permission of the Surveyor General of India.

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
The Boundary of Meghalaya shown on this map is as interpreted from the North-Eastern areas (Reorganisation) Act, 1971, but has yet to be verified.

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Map No. 2

of retention which forms a cylindrical shape of the pyramid. But the apex is much flattened due to their position in a central place of the country or of the state in the case of Chandigarh.

Another interesting feature of the pyramids is the enrolment of girls in the states of Assam, Bihar, Gujrat, Madhya Pradesh, Maharashtra, Orissa and Tripura where after class I, the stepping of the girls is much lesser than those of the boys. Though their ratio at the apex, i. e. in the university education is negligible. This is due to certain socio-economic condition of the region like early marriage and betrothal and their excessive engagement in domestic works.

2. Observation

Observing the enrolment pattern in the context of educational structure of a country, the enrolment pyramid should be like a burning candle. The cylinder of the candle represents the moving cohort of equal number of pupils from one grade or level of education to another, while the flame of the candle represents the final stage of university enrolment. This type of enrolment pyramid reflects a planned and highly developed system of education in a nation. There may

be cases of greater drop-out rates at one level or another. In these cases the proportionate rate of attrition indicates a progressive system of education, while the distorted rate of attrition denotes poor attainment.

These generalisations can be reoriented in the form of age-sex pyramid as generalised by Thompson to define the population transition in the developed and developing countries. Some of the observations made through enrolment pyramids are briefly stated below:

1) The pyramids with a high to low rates of enrolment at the first level of education and a high rate of attrition through out the grades or stages of education, resembles similarity to the high stationary stage characterised by high birth rates and death rates. This is the characteristics of a less developed country like Rhodesia and Indonesia. Among the Indian states, Meghalya and Manipur represent the characteristics of under developed world in the case of enrolment attainment and drop out rates.

2) The high rate of enrolment at the first level of education and high rate of drop out at first level followed by a lower rate of drop out at the second level, resemble similarity to the early expanding stage which is the peculiar characteristics of

developing countries. Examples are India, Brazil, Columbia and the states of central and northern India.

3) High rate of enrolment at first level of education with proportionate rate of attrition at all stages of education present similarity to the low stationary stage of demographically advanced countries like U.S.A. and Australia.

4) A high rate of enrolment both at the first and second level of enrolment with negligible rate of attrition at second level resembles similarity to the declining stage. The example can be seen in the case of Japan.

3. Conclusion

From the literature survey and the foregoing discussion on enrolment pyramid it is concluded that there is a definite impact of educational system of country on the level of educational attainment. A comparative study of the classification of educational system in Japan, U.S.A. and India is shown in table 2 which shows 1 to 6 years of duration for the completion of primary; 6 to 8 or 9 years of duration for the completion of middle or general secondary first cycle in the case of Japan and 10 to 12 years or 8 to 16 years duration to complete the secondary stage of education in the respective ages of the children.

It is also pointed out that countries having a uniform system of education experience lesser intensity of repetition and drop-out than the countries who have no uniform system of education and have tried several methods. The obvious example of the first group countries is Japan and that of second group is India.

In the case of Japan, 9 years compulsory schooling upto the general secondary first cycle, has reduced the rate of attrition at the completion of first level of education. The introduction of revised course of study in 1973 makes a wide range of coverage including Japanese language, science and mathematics compulsory for all at secondary stage. In the case of university education, practically, all universities and colleges limit the number of students on a competitive basis. This is the main reason for greater stepping off at the completion of second level of education which is also exhibited by the enrolment pyramid of Japan.

In the case of United States of America, education is the sole responsibility of the states. Therefore, different types and system of education is found in the different states. The schools are run by different organizations who have their own interest in imparting the education. Similarly there is no national course of study. Each state of U.S.A. suggests a broad curriculum for its schools. The specifics are usually

planned locally which leads to variation among programmes. Such type of educational system creates a kind of competition among the schools and students. It also diverts the aptitude of the students on a larger scale towards the higher education. That is why a proportionate rates of attrition occurs when a cohort moves from one level to another. It also causes for stepping of the students if a particular system is not suitable for him and rejoining after a gap of one or two years.⁶⁴ On the whole the education in U.S.A. is on the very basis of democratic system which often leads to the educated unemployment.⁶⁵

In the case of India, there is no common pattern of educational system in the states and Union Territories. The different system of education is given in appendix table 2. It reveals that in the eastern states of Meghalaya and Union Territory of Mizoram consist of grade A, BI-III and Nagaland A, B, I-II at primary stage. Assam, Haryana, Karnataka, Kerala, Maharashtra, West Bengal and Union Territories of Dadra, Nagar Haveli, Goa Daman Diu and Lakshadweep correspond I to IV grades in

64. S.M. Miller, School Drop-out and American Society, (New York, 1969), pp.21-65.

65. Ibid., 235-37.

primary education. Other states and Union Territories include grades I to V in primary. Similar is the case in middle, secondary and higher secondary stages with a respective shifting of one or two grades from one stage to another. The duration of each of the stage remains almost the same as it was recommended by Kothari Commission⁶⁵ as

- 1) a pre-school stage of one to three years;
- ii) a primary stage of seven or eight years divided into two sub stages - a lower primary stage of four or five years and a higher primary stage of three years;
- iii) a lower secondary or high school stage of three or two years in general education or one to three years of vocational education;
- iv) a higher education stage having a course of three years or more for the first degree followed by a course for the second or research degrees of varying duration.

India has long been experiencing the changes in her educational structure as well as in the provision of course structure. Due to the application of several trial and error methods, the achievement in education is lagging behind. To promote a

65. Ministry of Education, No.12, p.29.

harmonious structure in all the states and Union Territories, the new system of education (10+2+3) was implemented in 1977 with compulsory courses in mathematics, science and social science for all students. The Indian boy should be so nicely trained that he would be better than American, British and Russian students. That is why all the subjects have been made compulsory. But this system is not appreciated by several authors. The boy is to lift the bulk of the books. The parents have to help the students to complete the daily assignments. The text books which have been prepared are not taken seriously by the students and they are unable to cover up the whole course. Moreover, the teachers feel that we are making our children jack of all but master of none.

CHAPTER-III

SPATIAL DISTRIBUTION OF ENROLMENT

Quantitatively, education at all levels has shown a phenomenal development in the post Independence period. In spite of this expansion there is widespread dissatisfaction about several aspects of educational development. For instance it has not yet been possible to provide free and universal education for all children upto 14 years of age...¹

— Resolution of the Govt. of India

PART-A - REGIONAL PATTERN OF ENROLMENT

1. Introduction

Education is the only tool for a social transformation and to make the human resources as much useful as the modern age requires. This can only be fulfilled by getting the total school going population enrolled in the schools. Gross and Net Enrolment Ratios are a measure of the quantity of population going to school in a particular class.

The first part of this chapter deals with the spatial distribution of enrolment while the second part

1. N.C.R.T., Education and National Development.

Report of the Education Commission 1964-65 (New Delhi, 1970). Appendix II Resolution of the Government of India N.P.41, 3(3)64-E.I., Ministry of Education, 14th July 1964.

highlights the pattern of drop-out rates in the states and Union Territories of India,

2. Methodology

The gross enrolment ratio (GER) is defined as total enrolment in a class or stage divided by the population of specific age group which correspond to the age groups of primary, middle and secondary schooling. The net enrolment ratio (NER) refers to the part of enrolment which corresponds to the age groups of primary, middle and secondary schooling. The corresponding age group for primary is 6 to 11 years, for middle is 11 to 14 years and for secondary and higher secondary is 14 to 18 years. Mathematical representation is given as

$$\text{NER} = \frac{\sum_{i=1}^n E_i}{\sum_{j=1}^n P_j} \times 100$$

where 'E_i' represent the enrolment in the 'ith' grade or stage and 'P_j' represent the child population in the 'jth' age group.

$$\frac{\sum_{j=1}^n E_{ij}}{\sum_{j=1}^n P_j} \times 100$$

where 'E_{ij}' represent the enrolment of 'jth' age group in the 'ith' grade or stage.

The enrolment and its parameter of corresponding age group is worked out separately for rural, urban and total areas according to the above method. For example, GER at primary stage in rural areas denotes total enrolment at primary stage corresponding to rural child population in the age group 6 to 11 years.

The pattern of distribution is shown in the three broad categories of concentration high, medium and low. If the range of variation within a particular category is very high, it is further sub divided into very high, high, medium high, medium low, low and very low categories. The classification of concentration into these categories is given according to the mean distribution and frequency of occurrence in a particular series of observation. The coefficient of variation measures the range ^{of} variation of the observations in a series.

3. Pattern of Enrolment Distribution in Rural Areas

1) GER at Primary Stage The mean distribution of GER at primary stage is 88.47 per cent in the rural areas. The average figure for India is 76.2 per cent with a coefficient of variation of 41.05 per cent. In a round figures below 75 per cent constitute low concentration, 75 to 100 per cent constitute medium concentration and above 100 per cent of GER represent

high concentration. The distribution in these categories and their sub categories are given below.

a) High Concentration: It includes 10 observations in the states and Union Territories.

(i) Very high concentration of more than 125 per cent of GER includes the states of Manipur, Meghalya, Nagaland and Union Territories of Mizoram and Lakshadweep.

(ii) High concentration of GER with 100 to 125 per cent includes the states of Assam, Tamil Nadu and the Union Territories of Chandigarh, Pondicherry and Goa, Daman & Diu.

b) Medium Concentration: It comprises 11 observations.

(i) Medium high concentration of 88 to 100 per cent of GER is found in the states of Himachal Pradesh, Kerala, Punjab, West Bengal and the Union Territory of Dadra & Nagar Haveli.

(ii) Medium low concentration of 75 to 88 per cent of GER is found in the states of Gujrat, Karnataka, Maharashtra, Tripura, Uttar Pradesh and Union Territory of Andaman & Nicobar Islands.

(c) Low Concentration It includes 8 observations.

- (i) Low concentration of 65 to 75 per cent of GER includes the states of Andhra Pradesh, Haryana, Madhya Pradesh and Orissa.
- (ii) Very low concentration below 65 per cent of GER is found in the states of Bihar, Jammu and Kashmir, Rajasthan and the Union Territory of Arunachal Pradesh.

The Union Territory of Delhi does not have rural component. The class-wise break up in rural areas shows more or less a similar pattern to the total figure at primary stage.

In class I, the mean distribution is 31.42 per cent while the all India average is 28.7 per cent. The coefficient of variation is 49.48 per cent. The high concentration more than 40 per cent of GER includes the states of Assam, Manipur, Meghal^aya, Nagaland, West Bengal and the Union Territories of Chandigarh, Dadra and Nagar Haveli, Goa, Daman & Diu. Among them the north eastern states of Manipur, Meghal^aya and Nagaland show very high concentration more than 50 per cent of GER. The medium concentration in the range of 28 to 40 per cent of GER includes 6 states and 2 Union Territories such as Gujrat,

Karnataka, Maharashtra, Orissa, Tamil Nadu, Tripura, Uttar Pradesh, Arunachal Pradesh and Pondicherry.

The low concentration below 28 per cent of mean distribution consists of the states of Andhra Pradesh, Bihar, Haryana, Jammu and Kashmir, Kerala, Rajasthan, Punjab, Himachal Pradesh, Andaman and Nicobar Islands and Pondicherry. Among them Rajasthan, Jammu and Kashmir show very low concentration below 18 per cent.

In class II, the mean distribution is 18.62, with all India level as 17.89 per cent. The coefficient of variation is 36.37 per cent. The low concentration below all India level comprises the states of Andhra Pradesh, Bihar, Jammu and Kashmir, Rajasthan, Tripura and Arunachal Pradesh, Haryana, Orissa, Uttar Pradesh and the Union Territories of Andaman and Nicobar Islands exhibit that the GER is more or less equal to the all India level, though they also fall in the category of low concentration. The high concentration only exist in the Union Territories of Chandigarh and Lakshadweep. Other states and Union Territories display a pattern of the medium concentration.

The trend in class III is similar to that of the class II with a mean distribution of 17.8 per cent and all India average as 13.57 per cent. The coefficient of variation is 97.57 per cent which denotes a wide range of variation among the observations. The

High Concentration (of NER 70-80 per cent) comprises the states of Assam (79.85), Himachal Pradesh (73.7), Kerala (77.5), Manipur (76.46), Tripura (74.07) and West Bengal (78.4), the Union Territories of Goa, Daman and Diu (75.1).

Medium High Concentration (NER 60 to 70 per cent) constitutes the states of Haryana (6.16), Karnataka (66.9), Meghalaya (62.9), Uttar Pradesh (61.1) and the Union Territories of Andaman and Nicobar Islands (65.1) and Dadra and Nagar Haveli (68.2).

Medium Low Concentration (50-60 per cent of NER) includes the states of Andhra Pradesh, Madhya Pradesh, Maharashtra, Nagaland and Orissa.

Low Concentration (NER 40 to 50 per cent) comprises the states of Jammu and Kashmir (47.09) and Rajasthan (41.44).

Very Low Concentration (below 40 per cent of NER) is found in Bihar (39.41) and the Union Territory of Arunachal Pradesh (37.22).

The class-wise break-up of Net Enrolment Ratio in rural areas exhibit more or less the similar pattern as the concentration of the primary as a whole. The only exception is Kerala in grade I where

striking figure is the very high concentration in Mizoram where enrolment begins from the grade of III.

Class IV and V with a mean distribution of 12.03 and 8.5 per cent and coefficient of variation as 45.8 and 62.3 per cent respectively show a similar trend. The low concentration in the states of Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa and Rajasthan and the Union Territories of Arunachal Pradesh is even lower than the all India level. The other states and Union Territories have a medium concentration ranging around the mean distribution of GER.

(ii) A Comparative Analysis of GER and NER: The distributional trend of Net Enrolment Ratio at Primary stage reveals the difference between the GER and NER. The aim of this comparison is to find out whether the corresponding school going population in the age group 6 to 11 years has any impact to bring a significant change in the level of educational attainment of the states and Union territories. A clear picture emerges from the following classification:

Very High Concentration (of NER more than 80 per cent) includes the states of Tamil Nadu (83.69) and Punjab (80.1), the Union Territories of Chandigarh (92.07), Lakshadweep (85.9), Mizoram (95.98) and Pondicherry (85.1).

the attainment of NER is very low (4.3 per cent).

Thus, from the simple comparison of GER and NER, one can see that the Eastern states like Manipur, Meghalya, Nagaland and Mizoram which are in first category of very high concentration of GER, now change their positions in the attainment of NER. Similarly the southern states Kerala and Tamil Nadu which were dealt in the concentration of medium high change their respective positions to high and very high attainment of NER. The states of northern India and central provinces somehow remains almost the same. (See Appendix Tables 3 and 4).

It can be easily concluded that the school going population in the age group 6-11 is not a mere contributory factor in the attainment of enrolment (Table 3.1). About 23 per cent of children from Class II onwards come from the age group more than 11 years and in class I 8.8 per cent of the children belong to the age group below 6 years.

(111) GER at Middle Stage. The gross enrolment ratio at this stage is 26.84 per cent for all India with a mean distribution of 32.96 per cent. The coefficient of variation is 52.07 per cent. The pattern of GER in the states and Union Territories is as follows:

Table-3.1: Stage-wise Distribution of Gross Enrolment Ratio (GER)
1973

S.No.	State/Union Territories	Primary			Middle			Secondary/Hr. Secondary		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
	INDIA	76.10	85.95	78.14	16.84	61.36	34.20	10.67	43.36	17.48
1.	Andhra Pradesh	65.96	89.51	70.30	15.46	58.34	23.75	7.42	39.64	13.72
2.	Assam	107.45	104.00	107.13	36.59	102.02	42.34	14.80	72.18	19.48
3.	Bihar	52.16	65.51	53.48	13.54	31.91	15.59	9.87	45.30	13.27
4.	Gujarat	80.69	94.46	84.56	19.40	42.86	25.99	15.25	59.78	27.72
5.	Haryana	73.08	61.88	70.65	34.31	64.39	40.29	12.84	38.01	17.66
6.	Himachal Pradesh	90.82	121.64	92.73	46.61	106.25	50.95	18.04	60.42	21.59
7.	Jammu & Kashmir	54.05	83.48	59.57	30.54	76.07	39.07	8.87	43.76	15.41
8.	Karnataka	75.45	76.06	75.61	31.68	60.56	39.95	8.90	32.88	16.46
9.	Kerala	99.57	94.07	98.70	82.19	104.83	85.85	31.35	70.12	36.99
10.	Madhya Pradesh	74.23	104.19	79.11	17.28	62.88	25.81	3.97	39.72	9.79
11.	Maharashtra	75.21	88.46	79.06	35.98	72.09	47.06	11.58	47.93	22.85
12.	Manipur	134.38	146.47	135.94	41.23	108.18	50.28	13.37	98.80	22.21
13.	Meghalaya	134.63	119.51	132.77	25.34	78.18	32.37	8.14	136.75	17.25
14.	Nagaland	127.86	107.39	125.89	41.23	72.74	43.99	13.45	58.66	17.57
15.	Orissa	73.54	87.08	74.65	18.40	60.83	21.94	7.66	40.06	10.36

S.No.	State/Union Territories	Primary			Middle			Secondary/Hr. Secondary		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
16.	Punjab	90.09	86.66	89.31	37.13	80.39	47.04	10.17	43.82	17.61
17.	Rajasthan	51.83	82.37	57.14	18.94	57.47	26.22	4.71	43.24	11.50
18.	Tamil Nadu	102.14	107.77	104.22	35.95	66.60	47.89	10.17	37.92	20.46
19.	Tripura	81.97	80.93	81.86	30.33	93.76	34.94	9.83	70.54	16.17
20.	Uttar Pradesh	78.48	74.03	77.78	25.02	61.39	30.77	10.48	74.48	20.60
21.	West Bengal	88.11	71.24	83.93	26.80	42.43	30.63	10.41	21.22	13.01
22.	A. & N. Islands	77.54	127.52	87.53	39.94	108.58	53.04	11.45	129.17	26.38
23.	Arunachal Pradesh	54.45	165.04	56.62	5.98	58.48	7.02	0.53	31.81	0.95
24.	Chandigarh	122.65	85.52	89.41	51.16	69.62	68.37	12.47	37.69	36.20
25.	Dadra & N. Haveli	97.19	-	97.19	17.37	-	17.37	8.08	-	8.08
26.	Delhi	-	78.92	78.92	-	74.72	74.72	-	45.69	45.69
27.	Goa, Daman & Diu	108.39	103.51	107.21	52.17	89.11	61.47	23.59	48.45	30.37
28.	Lakshadweep	129.82	-	129.82	54.86	-	54.86	27.48	-	27.48
29.	Mizoram	150.95	119.37	145.94	57.22	68.13	59.17	19.89	76.58	26.83
30.	Pondicherry	101.46	121.42	109.89	46.35	79.23	59.75	18.67	39.58	27.48

Source : N.C.E.R.T. Third All India Educational Survey, School Education, 1973.

Very High Concentration is only in the state of Kerala, i. e. 82.2 per cent.

High Concentration (50 to 60 per cent of GER) is found in the Union Territories of Chandigarh, Goa, Daman and Diu, Lakshadweep and Mizoram.

Medium High Concentration (40 to 50 per cent) comprises the states of Himachal Pradesh Manipur and Union Territory of Pondicherry.

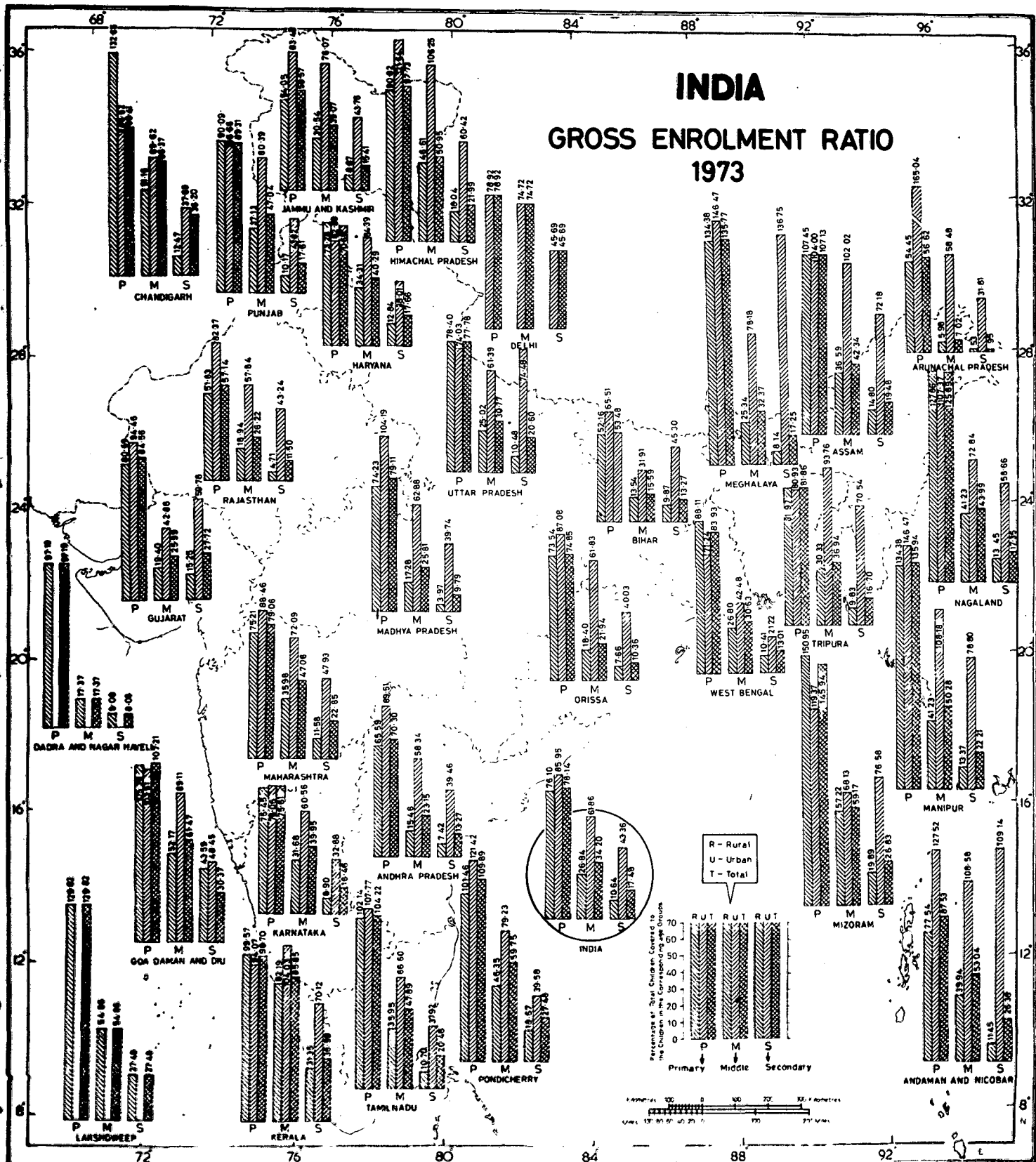
Medium Low Concentration (30 to 40 per cent) includes the states of Assam, Haryana, Jammu and Kashmir, Karnataka, Maharashtra, Tamil Nadu, Tripura and Andaman-Nicobar Islands.

Low Concentration (20 to 30 per cent) includes the states of Meghalaya, Uttar Pradesh and West Bengal.

Very Low Concentration (below 20 per cent of GER) comprises the states of Bihar, Gujrat, Madhya Pradesh, Orissa, Rajasthan and the Union Territories of Arunahal Pradesh, Dadra and Nagar Haveli.

(iv) The Pattern of Net Enrolment Ratio at Middle Stage

The average attainment in NER in Rural India is 15.17 per cent. The very high concentration is located in Kerala (49.1). The rate of high concentration comprises the state of Himachal Pradesh, i. e. 31.15 per cent. The medium concentration in the range of 20 to 30 per cent of NER includes a number of states and the Union Territories such as Haryana, Manipur, Jammu and Kashmir,



Based upon survey of India map with the permission of the Surveyor General of India.

The geographical borders of India extend into the sea to a distance of twelve miles. The boundaries of Meghalaya shown in this map is as interpreted from the North Eastern States Development Act, 1971, but has yet to be verified.

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Map No. 3

Karnataka, Maharashtra, Punjab, Tamil Nadu, Tripura, Chandigarh, Goa, Daman and Diu, Lakshadweep, Mizoram and Pondicherry. In the category of low concentration 10 to 20 per cent of NER are the states of Gujrat, Meghalya, Nagaland, Orissa, Rajasthan, West Bengal and Dadra and Nagar Haveli. Very low concentration below 10 per cent of NER comprises the states of Andhra Pradesh, Madhya Pradesh, Uttar Pradesh and Arunachal Pradesh (Table 3.2).

A comparative analysis of GER and NER at middle stage in rural areas discloses that there is a nominal difference in the classification of the states in the medium and low concentration. On a broader out-look the pattern is similar in both the attainment of GER and NER which means most of the school going population is in the age group of 11 to 14 years.

(v) Enrolment Pattern at Secondary and Higher Secondary Stages:

At the secondary and higher secondary stages the pattern of Gross enrolment ratio follows the same trend as it is in the middle stage. The states having higher GER at middle stage show a higher concentration of GER at secondary stage. The only exception is Madhya Pradesh where GER at secondary falls steadily to 3.97 per cent as compared to 17.28 at middle stage. The mean distribution is 12.1 per cent with all India figure as 10.67 per cent. The coefficient of variation at this stage is 57.73.

Table-3.2: Net Enrolment Ratios Corresponding Age Groups 1973

S.No.	State/Union Territories	Primary Stage (6-11 years)			Middle Stage (11-14 years)			Sec./Hr. Sec. Stage (14-18 years)		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
1.	Andhra Pradesh	50.27	71.14	54.12	9.80	36.45	14.95	5.76	24.23	9.37
2.	Assam	79.85	84.01	80.23	18.45	48.54	21.19	8.98	39.69	11.48
3.	Bihar	39.41	48.01	40.26	7.18	14.01	7.94	4.60	19.32	6.01
4.	Gujrat	58.91	69.65	61.93	11.50	29.06	16.43	9.93	42.64	19.09
5.	Haryana	61.62	48.98	58.88	23.59	43.0	27.45	10.67	31.56	14.67
6.	Himachal Pradesh	73.70	96.09	75.08	31.15	72.27	34.14	15.42	48.28	18.17
7.	Jammu & Kashmir	47.09	74.68	52.26	23.05	62.06	30.35	7.77	36.99	13.25
8.	Karnataka	66.92	65.93	66.66	20.48	36.52	25.07	5.57	19.11	9.83
9.	Kerala	77.53	73.55	76.90	49.11	61.09	51.05	16.26	40.44	19.77
10.	Madhya Pradesh	54.74	77.74	58.49	9.46	36.16	14.46	2.73	27.55	6.77
11.	Maharashtra	59.77	71.58	62.32	21.72	42.22	28.01	8.16	33.94	16.15
12.	Manipur	76.46	92.77	78.56	26.37	91.76	32.50	8.76	52.96	14.74
13.	Meghalya	62.92	69.66	63.75	13.48	38.55	16.82	4.42	65.66	8.76
14.	Nagaland	57.20	52.93	56.79	16.69	37.66	18.52	8.13	24.47	9.62
15.	Orissa	52.35	66.14	53.49	10.63	33.29	12.52	11.55	24.29	6.44

S.No.	State/Union Territories	Primary Stage (6-11 years)			Middle Stage (11-14 years)			Sec./Hr. Sec. Stage (14-18 years)		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
16.	Punjab	80.10	72.14	78.28	28.26	56.46	34.72	8.52	34.99	24.36
17.	Rajasthan	41.44	63.35	45.25	11.27	36.63	15.88	3.56	32.87	8.73
18.	Tamil Nadu	83.69	87.26	85.0	23.67	46.46	15.69	7.92	29.67	15.99
19.	Tripura	74.07	76.04	74.27	22.92	69.98	27.82	7.67	57.80	12.90
20.	Uttar Pradesh	61.11	59.06	60.79	8.82	20.51	10.86	6.77	33.35	10.97
21.	West Bengal	78.39	62.58	74.48	15.31	30.37	19.01	8.05	14.59	9.63
22.	A. & N. Islands	65.11	100.96	72.28	9.34	77.91	22.42	3.14	101.06	15.55
23.	Arunachal Pradesh	37.22	122.22	38.88	3.47	43.31	4.26	0.46	26.48	0.81
24.	Chandigarh	92.07	66.93	68.89	29.81	33.02	47.14	10.62	31.31	30.08
25.	Dadra & Nager Haveli	68.19	-	68.19	10.72	-	10.73	5.49	-	5.49
26.	Delhi	-	61.99	61.99	-	49.64	49.64	-	34.25	34.25
27.	Goa, Daman & Diu	75.13	73.83	74.81	21.92	39.72	26.40	12.65	27.83	16.80
28.	Lakshadweep	85.92	-	85.92	21.29	-	21.29	14.40	-	14.40
29.	Mizoram	95.98	77.91	93.12	29.02	27.61	28.83	12.20	25.96	13.88
30.	Pondicherry	85.11	100.31	91.53	29.48	50.65	38.11	14.32	30.09	20.97
	INDIA	60.11	68.71	61.88	15.17	36.36	19.69	6.93	29.08	11.56

Another interesting phenomenon to note is that the GER and NER exhibit the similar pattern of distribution. It reflects that the most of the enrolled students belong to the age group 14 to 18 years. Orissa is the exceptional case where GER (7.6) is lesser than the NER (11.5). The following categories of both GER and NER clearly presents the position of the states and Union Territories.

Very High Concentration includes the states of Kerala and the Union Territories of Goa, Daman and Diu and Lakshadweep.

High Concentration is located in the states of Gujrat, Himachal Pradesh, Mizoram and Pondicherry.

Medium High Concentration comprises the states of Assam, Haryana, Maharashtra, Manipur, Nagaland, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal and the Union Territories of Andaman and Nicobar Islands and Chandigarh.

Medium Low Concentration is found in the states of Andhra Pradesh, Bihar, Jammu and Kashmir, Karnataka, Meghalya, Orissa, Tripura.

Low Concentration existed in two states, i. e. Madhya Pradesh and Rajasthan.

Very Low Concentration below one percent of GER and NER is found in the Union Territory of Arunachal Pradesh.

4. Enrolment Pattern in the Urban Areas

The pattern of enrolment in urban areas shows a high rate of distribution in all the grades and stages as compared to the distribution in rural areas. The exceptional case is Kerala where similarity is maintained in both the rural and urban areas. The main reason for the high concentration in urban areas is the availability of educational facilities within the habitation and the plus point of being urbanised which facilitates the easy means of communication.

(i) GER at Primary Stage: The mean distribution is 91.6 per cent with all India average of 85.95 per cent. The coefficient of variation (37.3 per cent) shows a lesser range of variation. The following categories of concentration is found.

High Concentration (71.20 per cent) includes the states of Himachal Pradesh, Manipur and the Union Territories of Andaman and Nicobar Islands, Arunachal Pradesh (165.04 per cent) and Pondicherry.

Medium Concentration of 80 to 120 per cent can be sub-grouped into (a) medium high and (b) medium low concentration as:

Medium High Concentration in the range of 100 to 120 per cent of GER comprises the states of Meghalaya, Nagaland, Tamil Nadu, Goa, Daman and Diu and Mizoram.

The Medium Low Concentration of 80 to 100 per cent constitutes the states of Andhra Pradesh, Gujrat, Jammu and Kashmir, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, Tripura and the Union Territory of Chandigarh.

Low Concentration below 80 per cent of GER includes the states of Bihar, Haryana, Karnatka, Uttar Pradesh, West Bengal and the Union Territory of Delhi.

The Class-wise break-up is given below:

(a) Class-I: The mean distribution is 25.06 per cent with all India figure as 25.38 per cent. The coefficient of variation is 51.52 per cent. This distribution shows a larger group of the states and Union Territories in the zone of medium concentration. The very high concentration occurs in the states of Manipur and the Union Territory of Arunachal Pradesh. The low concentration below 20 per cent of GER includes the states of Haryana, Rajasthan and Tripura.

(b) Class-II: The mean distribution is 18.89 per cent with all India average as 19.31 per cent. The coefficient of variation is 45.98 per cent. The distribution is similar to the previous class. The high concentration occurs in Arunachal Pradesh (42.9) whereas the low concentration below 15 per cent comprises the states of Bihar and Haryana. Other fall in the category of medium high and medium low concentration.

(c) Class III: The distributional pattern in this class is much static viz. about 15 observations (States/Union Territories) belong to the category of medium low concentration in the range of 10 to 20 per cent of GER while the remaining 14 observations belong to the group of high concentration, i. e. 20 to 30 per cent of GER. The mean distribution is 19.78 per cent with all India average as 17.04 per cent.

(d) Class IV and V: Both the classes exhibit a similar pattern of GER in most of the states and Union Territories. The mean distribution in class IV is 15.42 with all India average of 14.72 per cent. The coefficient of variation is 35.93 per cent. In class V, the mean distribution is 12.79 per cent, all India figure as 9.49 per cent and the coefficient of variation as 53.92 per cent. The states of Bihar, Haryana and Uttar Pradesh show a lower concentration, while the states of Himachal Pradesh, Maharashtra and Manipur display high concentration of more than 20 per cent of GER. All other states and Union Territories normally exhibit a medium concentration in both the classes. Though there is a proportionate decrease from class IV to V but the pattern of distribution remained the same.

(110) A Comparison of GER and NER in Urban Areas:

According to the variation in the series, the distribution pattern of Net Enrolment Ratio (NER) in the Urban areas is more or less the same as the GER. Some exceptional cases are found when the comparative study goes to the class-wise break-up (Appendix Tables 3.1 and 3.2).

In all the states and Union Territories the trend of NER is such that it is lesser in class I with sudden rise in Class II, followed by a gradual decrease upto class V. This trend shows that the students in the urban areas complete their study in class I before entering the age group of 6 to 11 years.

In the Union Territories of Andman and Nicobar Islands and Pondicherry, the NER exceeds 100 per cent, which shows that urban areas have attracted more students from the surrounding rural areas. Otherwise in the case of their own attainment, the attendances of school going population have reached to the saturation point.

5. GER at Middle State

The pattern of GER at this stage in urban areas displays a wide range of concentration in the medium category. The mean of the series is 68.4 per cent while the all India average is 61.36 per cent. The coefficient of variation is 39.53 per cent.

The very high concentration of GER, more than 100 per cent, is located in the states of Assam, Himachal Pradesh, Kerala, Manipur and the Union Territory of Andaman and Nicobar Islands. A high concentration in the range of 80 to 100 per cent of GER includes Punjab, Tripura and the Union Territory of Delhi, Goa, Daman and Diu. The category of medium high concentration ranging from 60 to 80 per cent of GER covers the number of states and the union territories, such as Jammu and Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Orissa, Tamil Nadu, Uttar Pradesh, Chandigarh, Pondicherry and Mizoram. The medium low concentration with a range of 40 to 60 per cent of GER includes the states of Andhra Pradesh, Gujrat, Rajasthan, West Bengal and Arunachal Pradesh. Bihar is the only state displaying a low concentration below 20 per cent of GER.

(1) NER at Middle Stage The net enrolment ratio in urban areas, to some extent, is similar if not identical to that of the GER. The states of Himachal Pradesh, Manipur and the Union Territory of Andaman and Nicobar Islands show a very high concentration of NER even more than 70 per cent. High concentration, i. e. 60 to 70 per cent of NER includes the states of Jammu and Kashmir, Kerala and Tripura. A medium high concentration ranging 50 to 60 per cent is found in Punjab and Pondicherry.

Assam, Haryana, Madhya Pradesh, Tamil Nadu and the Union Territories of Arunachal Pradesh and Delhi lie in the medium low concentration, i. e. 40 to 50 per cent of NER. The low concentration with 30 to 40 per cent of NER includes Andhra Pradesh, Karnataka, Madhya Pradesh, Meghal^aya, Nagaland, Orissa, Rajasthan, West Bengal, Chandigarh, Goa, Daman and Diu. A very low concentration below 30 per cent of NER includes the states of Bihar, Gujrat, U.P. and the Union Territory of Mizoram.

6. Enrolment at Secondary and Higher Secondary Stage

Both the GER and NER exhibit a similar pattern of distribution in those states and Union Territories having a high concentration of enrolment. Such as Meghal^aya, Nicobar and Andaman Islands show a very high concentration of GER more than 100 per cent and NER more than 60 per cent. Manipur shows a high concentration of 18.8 per cent of GER and 52.96 per cent of NER. Himachal Pradesh and Kerala lie in the category of medium high concentration with GER 60 to 80 per cent and NER 40 to 50 per cent. Maharashtra, Punjab, Rajasthan and Delhi are in the range of medium low with 40 to 60 per cent of GER and 30 to 40 per cent of NER. Andhra Pradesh, Madhya Pradesh, Tamil Nadu and Arunachal Pradesh display low concentration in the range of 20 to 30 and 40 per cent of NER and GER. Other states have a tendency of upward or backward shifting from one

category of GER to another category in NER. For example Tripura lies in the category of medium high in GER shifts to the high concentration in NER, Gujrat takes a shift from medium low in GER to medium high in NER. Bihar, Karnatka and West Bengal shift their position from medium low and low in GER to very low concentration in NER.

PART-B: DROP-OUT RATES

An element of wastage is inevitable in any system that takes the human factor into account. This is particularly true of educational system which mainly deal with human material....

- C. L. Sapra²

1. Strategies of Wastage and Stagnation

(1) The Problem A booklet published by N.C.E.R.T. gives the facts of 1928. This study points out that out of every 100 children who enter the first grade, about 60 per cent leave the school before completing their primary education, i. e. upto class V and about 70 to 74 per cent leave the school before completing their middle education, i. e. upto class VIII.³ A

2. C. L. Sapra, Measurement of Educational Wastage—
A Review of Methodology, (New Delhi, 1972)
p. 1.

3. See introduction to N.C.E.R.T., Educational Wastage
At Primary Level (New Delhi, 1975).

study conducted by the same organization for the period of 1950-51 to 1963-64 reveals that of 100 pupils enrolled in our schools in grade I, about 39 drop out or stagnate in grade I; 11 in grade II; 8 each in grade III and IV; 7 in grade V; 3 in grade VI and 2 each in grade VII and VIII.⁴ In terms of money on the assumption of Rs.26.9 as the average annual cost per pupil in primary schools, it is estimated that in 1957-58 Rs.11.51 crores were spent on pupils who did not proceed from grade I to grade II; in 1958-59, the amount spent on pupils who did not proceed from grade II to grade III, was Rs.3.23 crores; in 1959-60, it was Rs. 2.16 crores for pupils who did not proceed from grade III to grade IV and in 1960-61 Rs. 1.94 crores were spent on pupils who did not proceed from grade IV to grade V. Thus, financial wastage on account of diminution of pupils from one grade to other at the primary stage amounted to Rs. 18.84 crores.⁵

Now, one can sense the gravity of the problem not only in the sense of educational wastage but of depriving the child of his fundamental right to live a useful life.

4. R.C. Sharma and C.L. Sapra, Wastage and Stagnation Primary and Middle Schools (New Delhi, 1971), p.1. Research Monograph 2.

5. Ibid.

(11) Conceptual Framework: The two terms "wastage" and "stagnation" are the co-existing phenomena in the cases of drop-out. Their simple definitions are related to the cases of drop-out, which are mainly of the three types in their diverse situations.⁶

1. Those who enter class I but are withdrawn by their parents for one reasons or the other before they complete primary education.
2. Those who enter class I but repeatedly fail in one class or the other and finally drop-out.
3. Those who enter class I but fail in different classes and therefore, take more number of years for completing primary education than the required years.

The first two cases are the instances of wastage whereas the third one is the good example of stagnation.

However, Hartog Committee was first to define the term "wastage" as "the premature withdrawal of children from school at any stage before the completion of the primary courses"; and the "stagnation" as "the retention in a lower class of a child for a period of more than one year."⁷

6. N.C.E.R.T., n.2.

7. Cited in R.C. Sharma, n.3, p.11.

Though, there is an agreement among the scholars regarding the definition of 'stagnation', but the definition of wastage has raised certain controversies on the issue. The main point at issue is whether or not all pupils who drop-out before completing the last grade should be included in the definition of wastage. Thus the two conceptual framework of the definition came out:

1. The wastage should be related to the objectives of education prescribed for the stage under investigation. This objective cannot be accomplished unless one passes the last grade of the stage. For example, the attainment of functional or effective literacy is the main objective of the first level of education grade I-IV/V, and this objective cannot be obtained unless four years schooling is completed, as it is indicated by the studies conducted in the erstwhile composite state of Bombay.⁸ This definition is commonly used in various studies.
2. The second definition is based on the concept of 'incremental gain' in 'learning out comes.' A child gains partial knowledge in each year. The earlier he leaves the school, the more

8. Sharma, n.3. P.12
Sapra, n.1. P.2

will be the wastage. So, the year should be considered instead of stage. This definition was used by Chickermane and the author of Poona study, D.R. Gadgil and 24-Parganas study by P. Chowdhary.⁹

The Article 45 of the Indian constitution provides for universal, free and compulsory education for all children upto the age of 14, which means education upto grade VII or VIII. Completing grade VII/VIII is enough for the retention of literacy but not enough to live a good life. In the present study the second definition is accepted.

(iii) Methodology Several methods and techniques have been suggested and adopted by different authorities to measure the extent of wastage and stagnation.¹⁰ Most of the studies are based on the calculation of backward projection or on some pre-assumptions which bring an estimate of the dropouts instead of a net result.¹¹ These drawbacks are mainly due to the non-availability of the data of some important elements; such as the data of the each successive year for enrolment, fresh enrolment, successes and failures of pupils in a grade.

9. Ibid., p.13

10. See for a detailed discussion on methodology Sharma and Sapra, n.3, pp.14-19.

11. Sapra, n.1, pp.7-19.

However, in the present study the following methods have been worked out.

$$d.r. = \frac{EnX - m - f - EnX+1}{EnX}$$

or

$$d.r. = \frac{EnX - (EnX+1 + m + f)}{EnX}$$

where 'd.r.' denotes for drop-out rates; 'EnX' stands for total enrolment in class X; 'EnX+1' represent the enrolment in succeeding class to the class 'X'; 'm' stands for the total number of death in class 'X' according to the mortality rate; 'f' shows the number of fresh enrolment in class 'X+1'.

This method has two major limitations. First, the data for the fresh enrolment in any class is not available and there is ^{no} indication in any survey either conducted by N.C.E.R.T. or the Ministry of Education to find the number of migrant students or the number of repeaters. Secondly, the mortality rate which is taken from the life table 1971¹² census, in the single year of age group is not available for each districts and states of India. The mortality rate on a broader scale at the zonal level is taken from the life table.

12. Census Commissioner, Census of India 1971, Life Table (Delhi, 1974).

In the present situation it is also not possible to find out the maximum years taken by the repeaters to complete a course of study, so that stagnation can be determined.

Keeping these unavoidable difficulties, the only possible way of estimation remains left through the enrolment in successive years and classes. An attempt is made to find out the total number of drop-out in a year at all stages and grades in each state and Union Territories. For this purpose following method is applied:

$$d.r. = \frac{EnX - EnX+1}{EnX}$$

However, at the zonal level mortality rate is also considered on the following formula:

$$d.r. = \frac{EnX - (EnX+1+m)}{EnX}$$

In both the cases, the ratio is converted into the percentage form. One ^{can} compare the difference from the appendix table 6.

Source: The data for the enrolment is taken from the Ministry of Education, ¹³ for the year 1971-72 and 1972-73. Though the data for rural and urban break-up is not available yet the analysis on the total aspect is significant and authentic.

13. Ministry of Education, Education in India 1971-72 and Education in India 1972-73 (New Delhi, 1975, 1978).

(iv) Spatial Distribution of Drop-Outs

(a) The Trend: The trend of drop-out rate is more closely associated with the educational structure and the prevailing system according to the duration and stages. This trend is almost similar in all the states and Union Territories. At All India level, the trend is such that it gradually decreases from class I to class IV, then there is a slight increase in class V, followed by a decrease in class VI and then a gradual increase upto class IX, followed by a sudden uplift in class X. The drop-out rate is more at the initial and final grades of a stage with some exception such as Assam where the fresh enrolment in class II almost negate the effect of drop-out. In some of the states and Union Territories, the drop-out in class III is greater than that in class II. This phenomenon occurs only in those states and Union Territories where primary stage education is divided into lower and upper stages. Lower primary includes the grades of I to III and upper primary consists of grades IV to V/VI. The examples are Bihar, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Tripura and West Bengal and all the Union Territories other than Arunachal Pradesh.

(b) The Distribution Pattern: Everywhere in the states and Union Territories, the drop-out rate in class I is higher as is shown in table 3.3. The high rate of

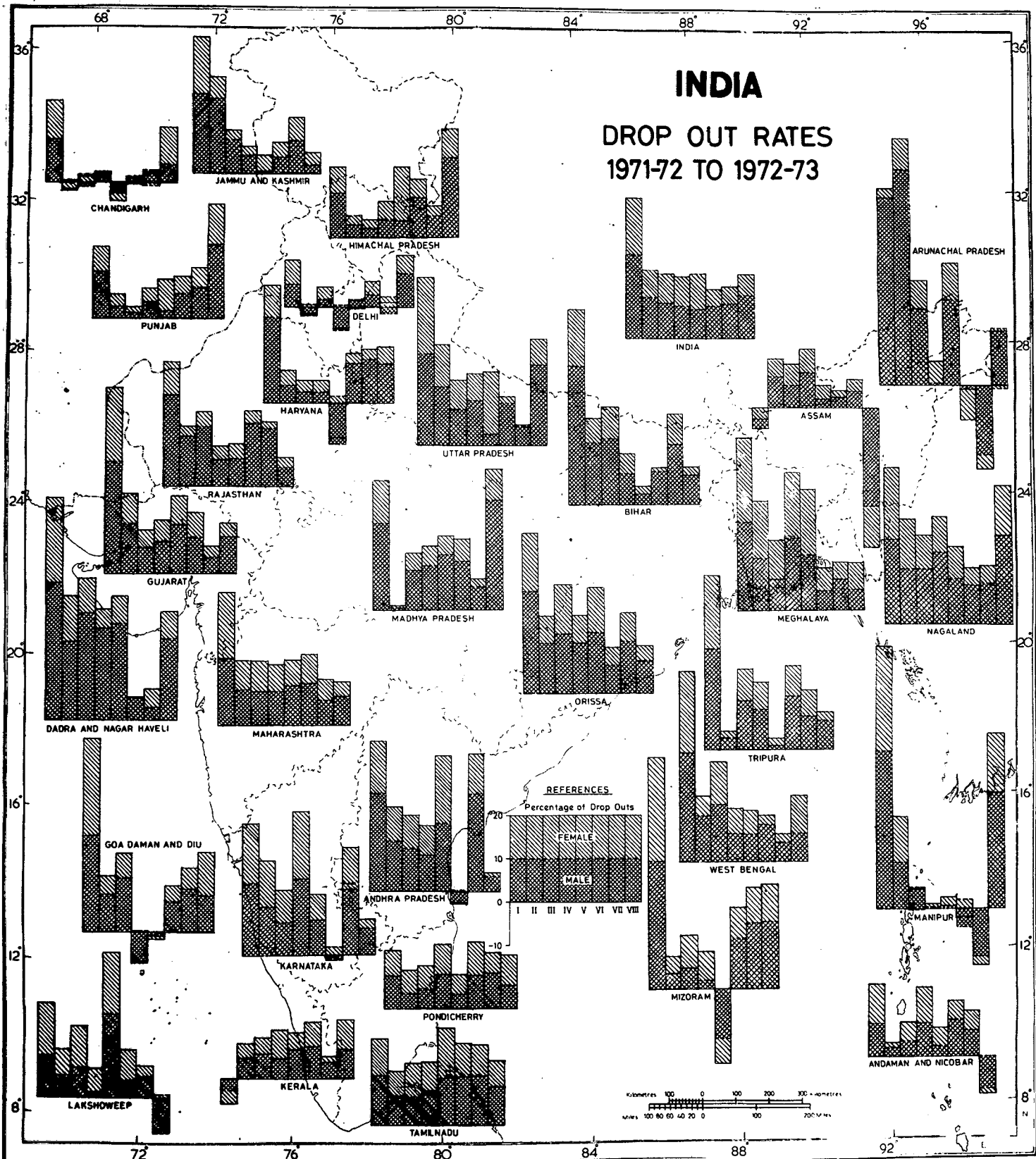
Table-3.3

Cumulative Drop-out in 1971-72 to 1972-73 at Various Stages According to Structure of Education

S.No.	State/Union Territories	Primary	Middle	Secondary
	INDIA	61.54	33.77	60.89
1.	Andhra Pradesh	72.96	29.30	98.61
2.	Assam	8.90	14.79	5.59
3.	Bihar	71.66	27.56	16.43
4.	Gujrat	63.72	34.17	35.20
5.	Haryana	36.70	34.78	83.68
6.	Himachal Pradesh	14.43	41.66	87.75
7.	Jammu & Kashmir	58.16	23.41	96.05
8.	Karnataka	66.80	35.06	23.43
9.	Kerala	17.11	25.80	97.36
10.	Madhya Pradesh	45.71	46.99	-
11.	Maharashtra	56.46	45.11	82.72
12.	Manipur	69.10	26.56	81.14
13.	Meghalya	61.22	54.36	28.11
14.	Nagaland	53.31	57.73	64.56
15.	Orissa	71.21	34.67	23.35
16.	Punjab	31.43	42.68	75.95
17.	Rajasthan	54.14	33.73	50.58
18.	Tamil Nadu	58.97	42.38	32.12
19.	Tripura	59.11	36.81	39.33
20.	Uttar Pradesh	70.68	36.09	-
21.	West Bengal	67.43	30.50	58.89
22.	Andaman & Nicobar	38.86	16.88	-
23.	Arunachal Pradesh	100.46	18.28	-
24.	Chandigarh	18.79	15.35	77.22
25.	Dadra & Nagar Haveli	83.65	37.55	48.53
26.	Delhi	12.11	18.18	-
27.	Goa, Daman & Diu	18.59	23.19	43.55
28.	Lakshadweep	45.85	43.39	39.64
29.	Mizoram	62.61	13.26	46.54
30.	Pondicherry	42.75	34.04	38.36

concentration more than 50 per cent of 'd.r.' found in the states of Manipur and the Union Territories of Dadra, Nagar Haveli and Mizoram. The medium-high concentration includes the states of Bihar, Gujrat, Meghal^aya, Tripura and West Bengal and the Union Territories of Arunachal Pradesh, Goa, Daman and Diu where the rate ranges in between 40 to 50 per cent. In the range of 30 to 40 per cent of medium low concentration lie the states of Andhra Pradesh, Jammu and Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Nagaland and Orissa. In the category of low concentration in the range of 20 to 30 per cent of drop-out rates are the States of Haryana, Rajasthan, Tamil Nadu, and Lakshadweep of Union Territories. The states of Himachal Pradesh, Punjab and the Union Territories of Andaman and Nicobar Islands, Chandigarh, Delhi and Pondicherry exhibit a very low concentration below 20 per cent of drop-out rates. Delhi is the lowest in the range.

Assam and Kerala have a greater number of fresh enrolment in class II in 1972-73 (i. e. 5.17 and 6.1 per cent respectively) more than that in class I in 1971-72, which negates the drop-out rates in this class. That is why the drop-out rate in both the states is shown with negative sign. The negative variability in the series also results in a higher coefficient of variation, i. e. 52.17 per cent while the mean distribution is 31.53 per cent.



Based upon survey of India Map with the permission of the Surveyor General of India.

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern areas (Reorganisation) Act, 1971. But has yet to be verified.

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In class II, the mean distribution is 15.08 per cent with a high coefficient of variation as 76.8 per cent. The very high rate of drop out nearly 60 per cent occurs in the Union Territory of Arunachal Pradesh. The states of Bihar, Jammu and Kashmir, Karnataka, Manipur, Nagaland and Uttar Pradesh and the Union Territory of Dadra and Nagar Haveli show a medium concentration in 20 to 30 per cent of drop out rates. Andhra Pradesh, Assam, Gujrat, Maharashtra, Orissa, Rajasthan, Tamil Nadu, West Bengal, Goa, Daman & Diu and Lakshdweep exhibit low concentration of 10 to 20 per cent of drop-out rates. The other states and Union Territories display a very low rate of drop-out below 10 per cent which includes the states of Madhya Pradesh. Delhi and Chandigarh indicate fresh enrolment in class III in the year 1972-73.

The drop-out rate in class III range from very low category to medium high, the coefficient of variation is 55.42 per cent. The high rate of drop-out more than 30 per cent includes the Union Territory of Dadra and Nagar Haveli. Bihar, Nagaland, Orissa, West Bengal and Arunachal Pradesh show a medium-high concentration 20 to 30 per cent of drop-out rates. Most of the states and the Union Territories lie in the range of 10 to 20 per cent of drop out rates, i.e. medium low concentration. The very low concentration below 5 per cent of drop out rate is found in the states of Manipur, Punjab and the Union Territory of Chandigarh and Delhi.

From class IV onwards the coefficient of variation tends to be high. This is due to the reason of being class IV and V as the final grade in primary stage. In class IV the high rate of drop-out is in the states of Karnataka and Meghal^aya, i. e. more than 30 per cent. The very low rate below 5 per cent includes Manipur (0.9) and the Union Territory of Chandigarh (2.6). The other states and the Union Territories range in the low concentration to medium low. Delhi, Goa, Daman and Diu exhibit negative signs of fresh enrolment in the succeeding class V.

In class V, the remarkable drop-out rate lies in the state of Andhra Pradesh and the Union Territory of Lakshadweep exhibiting more than 30 per cent of drop-out rates. Arunachal Pradesh, Dadra and Nagar Haveli and the state of Meghal^aya range nearer to the high concentration. The Union Territories of Mizoram, Chandigarh, Goa, Daman and Diu and the State of Haryana display the sign of fresh enrolment. The very low concentration below 5 per cent of drop out rates found in the states of Bihar, Manipur, Tripura and Delhi.

The drop-out rate in class VI includes 66 per cent of the observations in the medium range of (10 to 20 per cent) concentration. Assam, Karnataka and Chandigarh exhibit very low rate of drop-out. Andhra Pradesh,

Manipur and Arunachal Pradesh show negative signs. The remaining four observations lie in the category of low concentration.

The class VII and class VIII, as they are the final grades of the middle stage, there is more variation in the series.

In class VII, out of 30, 13 states range in the medium concentration of 10 to 20 per cent of drop out rates. Andhra Pradesh, Bihar, Karnataka and the Union Territory of Mizoram exhibit higher rate of drop out rates. Delhi is alone to display a very low rate of drop out. Manipur denotes a higher percentage (13.27) of fresh enrolment in the succeeding class VIII in 1972-73; and similar is the case with Arunachal Pradesh (20.38).

In class VIII, high concentration of drop out rates confines to the states of Manipur, Nagaland and Madhya Pradesh. Low concentration is located in the states of Andhra Pradesh, Bihar, Jammu and Kashmir, Rajasthan. The other states and Union Territories range in the medium concentration of drop-out rates other than Assam, Arunachal Pradesh and Lakshadweep which indicate fresh enrolment in succeeding class IX.

The drop-out rate in class IX exhibit high concentration in the states of Kerala, West Bengal,

Nagaland and Jammu and Kashmir in the range of 25 to 40 per cent. The very low concentration occurs in Bihar (1.99), Delhi (2.7) and Meghalaya (4.9). Others range in the medium-high and medium low concentration of drop-out rates other than Arunachal Pradesh which exhibit a very high rate of fresh enrolment more than 90 per cent.

Class X, which is also the final grade of the secondary stage display a greater number of variation in the series of observations. The very high concentration of more than 80 per cent drop out rates includes the states of Andhra Pradesh, Haryana, Himachal Pradesh, Jammu and Kashmir, Kerala and Lakshadweep. The states of Manipur and Punjab follow the next high concentration in the range of 70's. Maharashtra, Rajasthan and West Bengal in the 40's of medium concentration. Bihar, Madhya Pradesh, Meghalaya and Delhi, Mizoram show a very low concentration below 10 per cent of drop-out rates. Others fall in the category of low concentration.

A comparison of drop-out rates with mortality rates in the states and zones of India is given in Appendix Tables 5 and 6. The distribution pattern is shown in the map by sex structure.

(v) One Year Cumulative Drop-out Rates at Primary, Middle and Secondary

A one year cumulative drop out rate is shown in the table 3.4 according to the educational structure of the

Table-3.4

Drop-out at the Completion of Final Class in
Each Stage in Accordance with Structure

S. No.	State/Union Territories	Primary	Middle	Secondary
	INDIA	15.38	15.76	55.45
1.	Andhra Pradesh	32.61	33.17	99.68
2.	Assam	14.57	6.83	38.53
3.	Bihar	4.56	22.11	-
4.	Gujrat	12.63	6.59	-
5.	Haryana	8.76	13.55	87.98
6.	Himachal Pradesh	16.84	26.05	80.38
7.	Jammu & Kashmir	4.57	5.26	83.84
8.	Karnatka	33.65	25.28	-
9.	Kerala	10.97	5.20	99.74
10.	Madhya Pradesh	17.65	33.64	-
11.	Maharashtra	14.57	11.19	41.72
12.	Manipur	2.61	41.58	79.80
13.	Meghalya	16.32	10.00	5.90
14.	Nagaland	24.55	13.48	17.36
15.	Orissa	24.73	11.35	-
16.	Punjab	9.21	27.05	78.66
17.	Rajasthan	9.21	6.92	42.58
18.	Tamil Nadu	22.47	14.72	-
19.	Tripura	2.94	9.42	26.24
20.	Uttar Pradesh	17.29	25.61	-
21.	West Bengal	12.72	15.36	41.91
22.	Andaman & Nicobar	6.84	8.50	-
23.	Arunachal Pradesh	29.59	13.42	-
24.	Chandigarh	4.27	13.59	71.44
25.	Dadra & Nagar Haveli	26.56	7.28	-
26.	Delhi	1.59	12.49	-
27.	Goa, Daman & Diu	1.16	15.67	24.45
28.	Lakshadweep	6.87	7.35	89.36
29.	Mizoram	12.93	19.59	2.72
30.	Pondicherry	8.03	12.34	-

states and Union Territories. At all India level it shows a drop out rate of 61.54 per cent at the completion of primary education, 33.77 per cent at the completion of middle education and 60.89 per cent at the secondary education in one year span.

The state-wise break up of drop out rates at primary stage reveals a high rate of concentration more than 70 per cent of drop out rate in the states of Andhra Pradesh, Bihar, Orissa, Uttar Pradesh and the Union Territories of Arunachal Pradesh, Dadra and Nagar Haveli. The medium high concentration in the range of 50 to 70 per cent of drop-out rate includes the states of Gujrat, Jammu and Kashmir, Karnataka, Maharashtra, Manipur, Meghalaya, Rajasthan, Tamil Nadu, Tripura, West Bengal and Mizoram. In the medium low concentration 30 to 50 per cent of drop-out rates fall in the states of Haryana, Madhya Pradesh, Punjab, Andman and Nicobar Islands, Lakshadweep, Pondicherry. In the low concentration 10 to 30 per cent of drop-out rate comprises the states of Himachal Pradesh, Kerala and the Union Territories of Chandigarh and Delhi. Assam is the only state having a very low concentration below 10 per cent at the primary.

At the middle stage fifty per cent of the observations range in the medium concentration of 30's and 40's. Meghalaya and Nagaland display a high rate of

drop-out more than 50 per cent. In Arunachal Pradesh, the enrolment in class VII and VIII exceeds than the previous enrolment in class VI and VII resulting in 18.3 per cent of fresh enrolment.

The cumulative drop-out rate at secondary stage is more vulnerable in the nature. Most of the students leave the school at this stage and they are absorbed in the work-force. According to the second definition of the wastage it does not come under the wastage, but the classwide examination of the cases show that it should also come under the category of wastage, as it accounts in accelerating the problems of unemployment and inefficiency in the work.

The distribution pattern at secondary stage reveals a very high concentration more than 80 per cent of drop-out rates in the states of Andhra Pradesh, Haryana, Himachal Pradesh, Jammu and Kashmir, Kerala, Maharashtra and Manipur. The under lined states show more than 90 per cent of drop-out rates. The high concentration of 60 to 80 per cent of drop-out rate includes the states of Nagaland, Punjab and Chandigarh. In the range of 40 to 60 per cent of medium high concentration are the states of Rajasthan, West Bengal, Dadra and Nagar Haveli, Goa, Daman and Diu. The medium low concentration of 20 to 40 per cent of drop-out rate comprises the states of Gujrat, Karnataka,

Meghalaya, Orissa, Tamil Nadu, Tripura, Lakshadweep and Pondicherry. Bihar and Assam constitute low concentration below 20 per cent of drop-out rates.

2. Conclusion - A Regional Analysis

The distribution of enrolment and drop-out rates as shown in the maps 3 and 4 exhibit some distinct region of high medium and low concentration within the states and Union Territories. The regions which have emerged from the distribution pattern have a greater similarity to the existing physical features of the country. Examples are given below from both the rural and urban areas.

(i) Rural Areas: The distribution of gross enrolment ratio at primary stage exhibit a region of high concentration in the north-eastern India comprising the states of Assam, Manipur, Meghalaya^a and Mizoram. Another region of high concentration is situated in South India comprising the states of Kerala and Tamil Nadu. The northern states of Uttar Pradesh and Punjab which have a plain topography exhibit medium range of concentration. Another region of medium concentration is in Western India comprising the states of Gujrat^a, Maharashtra and Karnataka, which show their homogeneity in physiography, (coastal plain, low level plateaus, and mountains of western ghats) climate and soil. There are three regions

of low concentration, (i) the mountaineous region of Jammu and Kashmir in the north and Arunachal Pradesh in the north-east; (ii) the desert region of Rajasthan; and (iii) the central and eastern India comprising the states of Madhya Pradesh, Orissa and Bihar.

The gross enrolment ratio at middle stage exhibit a region of high concentration in southern states of Kerala. A region of medium concentration emerge in western India comprising the states of Karnataka and Maharashtra, Rajasthan, Gujrat, Madhya Pradesh, Orissa, Bihar, Bengal and Uttar Pradesh form a region of low concentration. The similar region emerges at the stage of secondary education.

(ii) Urban Areas: The distribution pattern of GER at primary stage reveals a region of medium-high concentration in southern India - Kerala and Tamil Nadu. The region of medium low concentration emerges in the southern and western parts of India comprising the states of Andhra Pradesh, Maharashtra and Gujrat. Another region is found in Northern India comprising the states of Punjab and Jammu and Kashmir. The region of low concentration emerges in parts of northern and eastern India comprising the states of Haryana, Delhi, Uttar Pradesh, Bihar and West Bengal.

At middle stage, the region of high concentration is found in (1) Punjab and Himachal Pradesh, (2) Kerala, (3) Assam and Manipur. A larger region of medium concentration emerges comprising the states of Karnataka, Madhya Pradesh, Maharashtra, Orissa, Uttar Pradesh and Tamil Nadu. This region covers central India and parts of northern and southern India. The region of low concentration is found in North Western India comprising the states by Gujrat and Rajasthan.

At secondary stage, a definite region of low concentration is found in the north-western parts of India comprising the states of Punjab and Rajasthan. Another region of low concentration comprises the states of central and south-eastern India such as Madhya Pradesh, Maharashtra, Andhra Pradesh and Tamil Nadu.

(iii) Drop-out Rates: In case of drop out rates, class I and II have their a more dominant character in comparison to other classes of primary stage.

At the completion of class II, the region of high concentration mostly found in northern India, for example Bihar and Uttar Pradesh forms one region and Manipur, Nagaland and Arunachal Pradesh form another region of high concentration. Jammu and Kashmir and Himachal Pradesh form a third region for a high rate of drop-outs. The western part comprising the states of

Rajasthan, Gujrat^a and Maharashtra and the eastern parts comprising the states of West Bengal, Orissa, Andhra Pradesh and Tamil Nadu constitute a region of low drop-out rates.

At the completion of class I, the region of high concentration emerges in north-eastern states of India such as Bihar and Bengal form one region and the Union territory of Arunachal Pradesh followed by Manipur reveal another region. Andhra Pradesh, Karnataka, Maharashtra and Madhya Pradesh form a region of medium concentration. Kerala and Tamil Nadu in southern India and Rajasthan, Haryana, Punjab and Himachal Pradesh of northern India exhibit a region of low drop-outs.

The cumulative rate of drop-outs at primary, middle and secondary stages clarifies more the regional pattern. At primary stage, the region of high drop-out rates emerges in parts of northern and eastern India comprising the states of Uttar Pradesh, Bihar, Orissa and Andhra Pradesh. The central and western India comprising the states of Karnataka, Maharashtra, Madhya Pradesh and Rajasthan form a region of medium rate of drop-outs. The low rate of drop-out form small patches within the country like Kerala, Chandigarh, Delhi and Pondicherry.

The cumulative rate of drop-outs at middle and secondary stages reveal individual characteristics of the states. Yet, a region of high drop-out rate at middle stage is formed in central India comprising the states of Madhya Pradesh and Maharashtra. The region of medium concentration is emerged in the eastern states of Orissa and West Bengal and the western states of Rajasthan and Gujarat. At the secondary stage, the region of high concentration constitutes the states of Andhra Pradesh and Maharashtra in central India and Haryana, Himachal Pradesh, Jammu and Kashmir in northern India.

CHAPTER-IV

FACTORS AFFECTING CHILD EDUCATION

The very substance of education, its essential relationship to man and his development, its interaction with the environment as both product and factor of society must all be deeply scrutinised and extensively re-considered.

— UNESCO¹

PART-A: CORRELATION ANALYSIS

1. Introduction

The impact of environment as both the product and factor of society blooms in several studies² made so far. But there has not been a thorough investigation of demarcating the degree to which these factors exert

1. UNESCO, Learning To Be, (Paris, 1960) p.69. (Emphasis added)
2. See Literature review in chapter I and P. Chowdhary's Report of an Investigation into the Problems of Wastage and Stagnation in Primary Schools in the District of 24-Parganas (Calcutta; Directorate of Public Instruction 1965); D.R. Gadgil and V.M. Dandekar's Report of Two Investigations - Primary Education in Satara District (Poona: Gokhale Institute of Politics and Economics, 1955); UNESCO's extracts from background papers prepared for the report of the International Commission on the Development of Education, Education on the Move (Paris, 1975).

on the child education. Here is an effort to determine the level and the extent of some of the important factors affecting child education with their main correlates of enrolment and drop-outs.

Broadly speaking the environmental factors in the child education mainly affect the degree of perception, intelligentia and the competitive endeavour among the children which ultimately results either in more staying or drop-out from the main stream. This effect is not only limited to the child education but extends to its final product, i.e. the achievement of functional literacy. The examples can be seen amongst the children attending schools in rural and urban areas within the country or from the developed world outside the country. The children aspiring in the modern age of democratisation and technocratisation are, at their early age, aware of the threat of atomic destruction and environmental pollution. Even they can understand the crucial problems at international level, like racial prejudice and in some countries, specially South Africa, apartheid policy of injustice. The highly competitive society where success is measured in terms of dollars and cents and which is considered as the highest form of social achievement, mould the children to thrive for competition from their very early age. On the other hand, in a custom-bound

society like that of rural India, the environment does not help the students to get rid of the traditional type of education even at the age of their senior schooling. It creates an escaping tendency to face the competition and a belief in luck and fate. Though striving for development and modernisation calls for much more serious reflection.

Thus the potentiality of the environment determines the degree of intelligence, perception and the forthcoming capabilities of the children. In other words, if the environment is intelligent, the children in and outside the school will be more clever and intelligent. On the contrary, the children surrounded by a dull environment are more prone to the contagious disease of drop-out, spreading the germs of illiteracy.

Environment includes innumerable factors both from physical and human aspects. Among these two factors of human aspects are more interactionary, such as social, demographic and economic. Physical aspects consist of the availability of the schools over space, the distance covered by the students to attend the school and the availability of infrastructural facilities within the schools. With the limitation and availability of the data the following four factors have been selected for a detailed discussion.

- (i) Educational;
- (ii) Social and Demographic;
- (iii) Economic; and
- (iv) Physical Facilities.

Further, under each category, those variables have been added which are directly contributing towards the attainment of enrolment or mainly responsible for drop-outs.

(i) Educational Factors: The variables included are mainly of three types:

1. The Gross Enrolment Ratios (GER) which are also the dependent variables including enrolments at primary, middle and secondary and higher secondary stages both in rural and urban as shown in Appendix Table (X₁ to X₂₄);
2. The number of Schools, primary, middle and ssecondary/higher secondary schools in rural and urban areas given in Appendix Table 7 (X₂₅ to X₃₃).
3. The distance walked to attend primary and middle schools in rural areas. This includes the availability of primary schools or middle schools within the habitation or outside the habitation as shown in Appendix Table 8 (X₃₄ to X₃₈).

(a) Methodology: In the second category of the variables, the number of schools at each stage is worked out per thousands of students in the corresponding age groups, viz., 6 to 11 years for primary, 11 to 14 years for middle and 14 to 18 years for secondary/higher secondary schooling. The following method is applied:

$$\frac{S_x}{P_x} \times 1000$$

where 'S_x' represent the total number of schools in stage 'x' viz., primary, middle or secondary/higher secondary. 'P_x' denotes the total school going population at the corresponding stage of 'x'. The multiplier of thousand is only used to raise the value of ratio upto the extent where statistical analysis is feasible.

In the case of distance covered by the pupil to attend primary or middle schools, the walking capability of a child is taken into account. The pupils of class I or II who constitute the majority at primary stage mostly range in the age groups of 5 to 7 years. Their infancy hinders even to walk a to and fro distance of one kilometer. Therefore, only two variables have been taken as follows:

1. Percentage of pupil attending primary within the habitation in rural areas;
2. Percentage of pupil attending primary outside the habitation in rural areas;

When a child enters in middle school, his age range is 10 to 14 years and he can easily walk to and for a distance of 3 kilometres. So, the following three variables have been selected.

1. Percentage of pupils attending middle school within the habitation.
2. Percentage of pupils attending middle school upto a distance of 3 kilometres.
3. Percentage of pupils attending middle school with a distance of more than 3 kilometres.

Percentage of each variable is calculated to the total number of pupils attending primary or middle schools in the rural areas. In the urban areas distance becomes meaningless as most of the population is served with schooling facilities within the habitation and also due to the more frequent services of the communication.

(b) Hypothesis: To test the validity of educational variables following hypothesis have been postulated.

1. Higher the number of schools per thousand of students, higher will be the enrolment and lower drop-outs.
2. Higher the value of educational facilities within the rural habitation higher will be the enrolment and lower the drop-outs.
3. Greater the distance to be walked to attend the school, lower will be the enrolment and higher the drop-outs.

(c) Distribution of Schooling Facilities: At all India level, the schooling facilities per thousand of students account as six primary, two middle and less than one secondary/higher secondary schools. The state-wise distribution is given in Appendix Table 7 and shown on the Map No.5. Curtailing the details only some important inferences are liable to mention. The mean distribution, standard deviation and the coefficient of variation is given below in Table 4.1.

Table-4.1: Mean, S.D. & C.V. of Educational Variables X_{25} to X_{38}

	Mean X	S. D.	C. V.
X_{25}	8.6623	5.3378	61.6210
X_{26}	3.0753	2.1491	69.8826
X_{27}	7.8020	5.0018	64.1092
X_{28}	2.9193	1.7837	61.1003
X_{29}	1.8100	1.3676	75.5580
X_{30}	2.7720	1.6441	59.31096
X_{31}	1.0130	0.6630	65.4492
X_{32}	2.3527	1.8653	79.2838
X_{33}	1.2383	0.6736	54.3972
X_{34}	79.0772	16.4618	20.8188
X_{35}	20.9746	26.4584	78.4682
X_{36}	53.0032	24.3852	46.0070
X_{37}	30.2999	19.1796	63.2992
X_{38}	9.2636	6.7531	72.8993

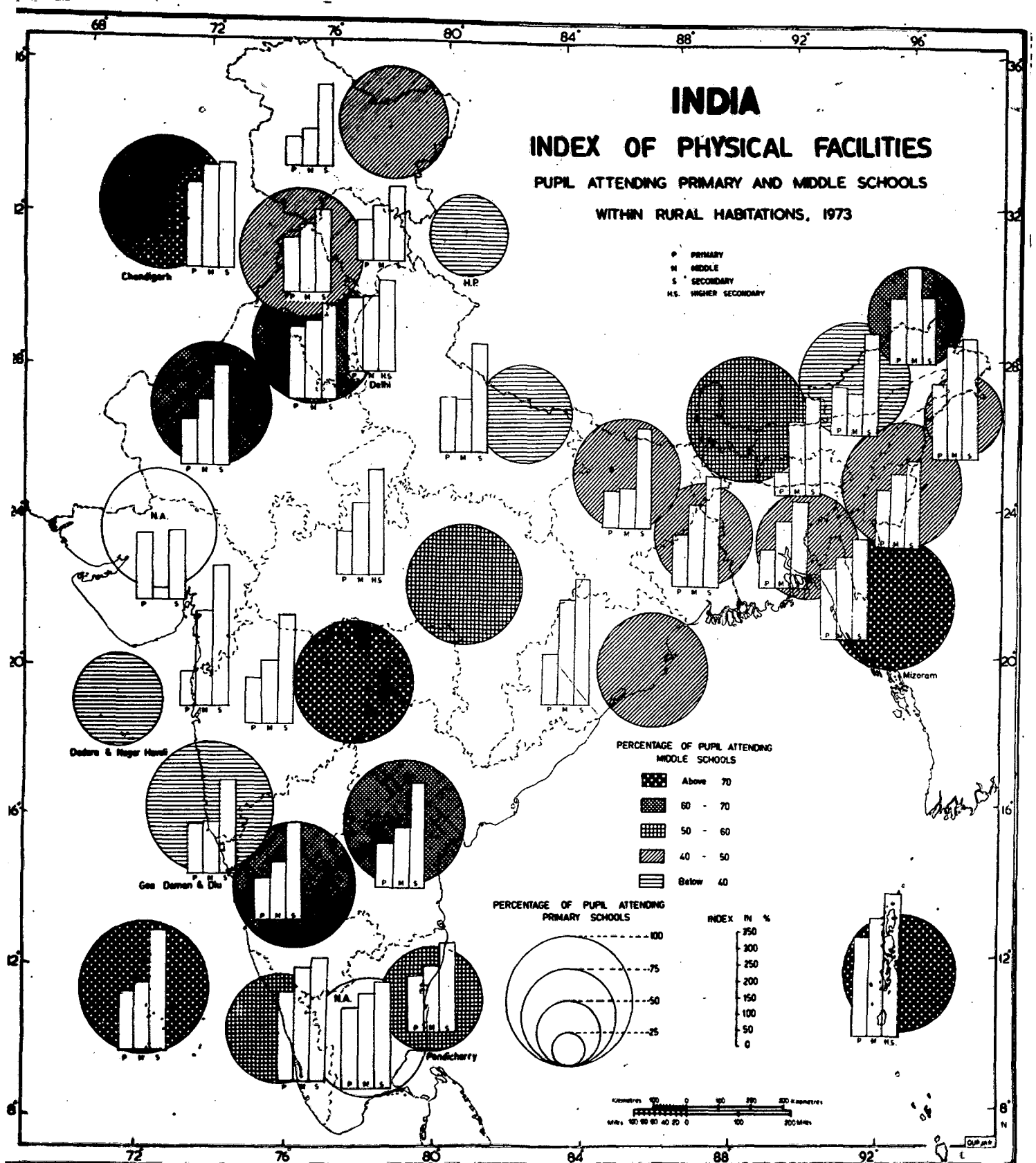
The Table-4.1 presents a high range of coefficient of variation (C.V.) at each stage of primary, middle and secondary both in rural and urban areas.

Secondly, the ratios of primary schools in the north-eastern states of Meghalya, Assam and Nagaland are very high, which explains the higher concentration of GER at this stage. Apparently a positive correlation is being established. Similar is the case in the distribution of secondary and higher secondary schools which coincides with the distribution of GER at this stage. On the other hand, C.V. of primary schooling within habitation in rural areas is much less, i.e. 20.81 per cent, which may or may not coincide with the C.V.'s of GER of primary.

Andhra Pradesh, Haryana and Punjab of the states and Chandigarh, Mizoram, Lakshadweep and Go, Daman and Diu of the Union Territories exhibit high percentage of pupils attending primary and middle schools within rural habitations (see map No.6).

(d) Correlation Analysis: To test the relevancy of the aforesaid hypothesis a correlation matrix is worked out on the Pearson's formula. As GER is taken as dependent variables, its correlation is sought with other educational variables. The correlation is worked out for rural, urban and total areas (see appendix tables 14, 15 and 16).

Rural Areas: The following criterion variables have been taken, X_1 , X_4 , X_7 , X_{10} , X_{13} , X_{16} , X_{19} and X_{22}



Based upon survey of India map with the permission of the Surveyor General of India.

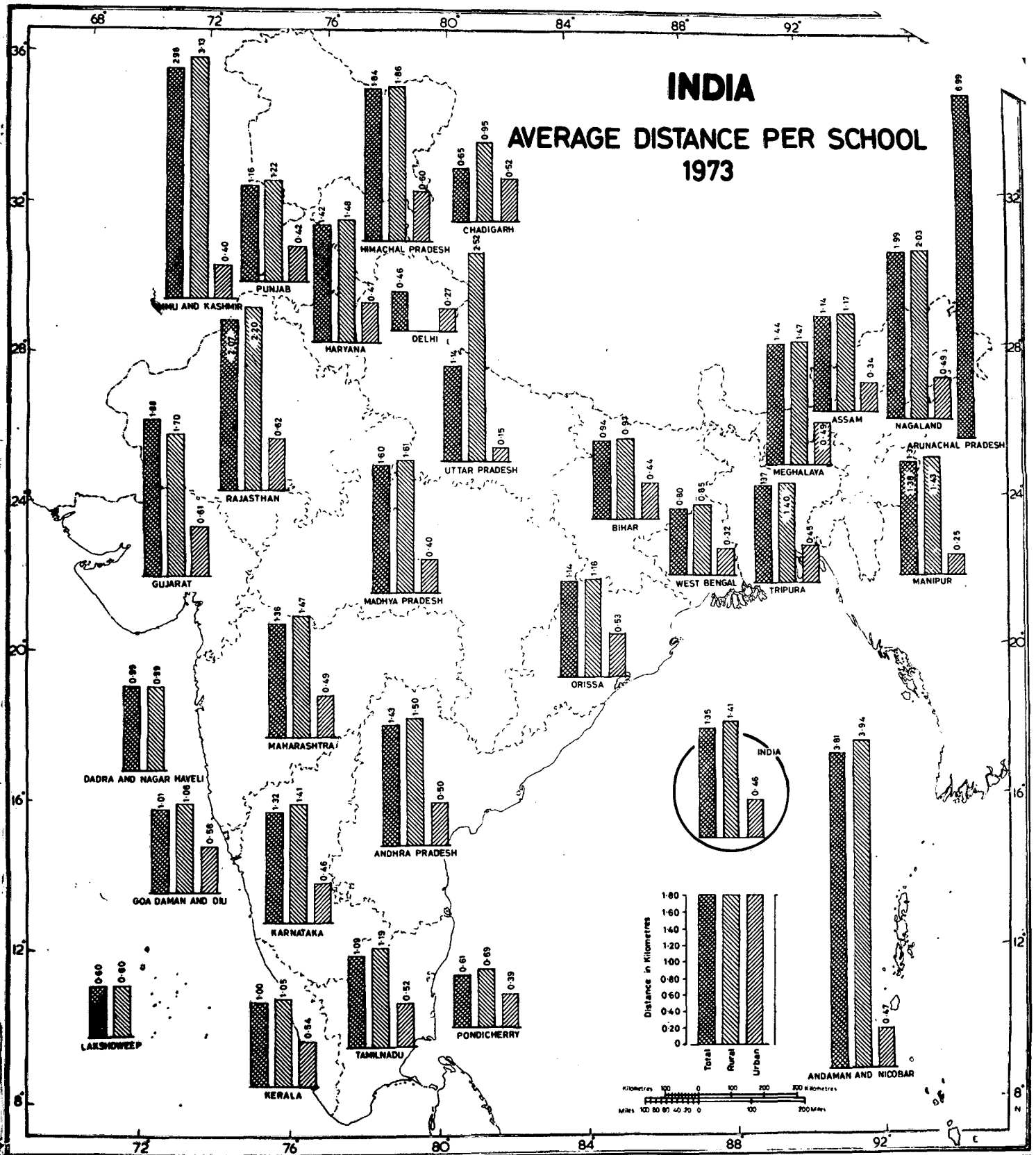
The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971, but has yet to be verified.

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Map No. 6

Table-4.2: Correlation Coefficient of Educational Variables
in Rural Areas 'r'

GER	X ₂₅	X ₂₈	X ₃₁	X ₃₄	X ₃₅	X ₃₆	X ₃₇	X ₃₈
X ₁ class I	0.6952			-0.0595	0.0597			
X ₄ class II	0.2748			-0.0011	0.0010			
X ₇ class III	0.1030			0.2498	-0.2500			
X ₁₀ class IV	0.1018			0.1966	-0.1971			
X ₁₃ class V	0.2026			0.2265	-0.2271			
X ₁₆ Primary	0.5184			0.1861	-0.1843			
X ₁₉ Middle		0.3306				0.0517	-0.0116	0.1496
X ₂₂ Sec./Br. S.			0.6572					



Based upon survey of India map with the permission of the Surveyor General of India.

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.

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Map No. 7

corresponding to GER in class I to V, primary, middle and secondary/higher secondary stages. Among the explanatory variables X_{25} , X_{28} , X_{31} , X_{34} , X_{35} , X_{36} , X_{37} and X_{38} have been worked out. The value of 'r', i.e. correlation coefficient is shown in Table 4.2.

The t-test³ of significance is shown in table 4.2.1 at the 28th degree of freedom at the different level of significance.

Table-4.2.1: t-test of Significance at Different Level

Variables	r	$t_{28}=1.7$ 0.1	$t_{28}=2.05$ 0.05	$t_{28}=2.47$ 0.02	$t_{28}=2.76$ 0.01
$X_1 X_{25}$	0.6952				5.12
$X_{16} X_{25}$	0.5184				3.21
$X_{19} X_{28}$	0.3306	1.85			
$X_{22} X_{31}$	0.6572				4.61

From both the Tables it is clear that the significant positive correlation exists between the GER and the number of schools per thousands of students at each stage. A high positive correlation is found between the

3. t-test is calculated on the formulae

$$t = \frac{r}{\sqrt{1-r^2}} \quad N-2$$

where $N=30$.

GER in class 1, primary and secondary stages and the number of primary and secondary schools per thousand of students which are significant at the level of 0.01. The correlation coefficient at middle stage is 0.3306 which is also significant at the level of 0.1. Though the positive correlation exists between the availability of primary and middle schooling facilities within the rural habitation and the attainment of GER, the correlation coefficient is insignificant. Similarly, a negative correlation is established with the pupil attending primary outside the habitation and middle upto a distance of 3 kilometer, which is also not significant. The negative correlation of GER in class I and II to the schooling facilities within the habitation is -0.0595 and -0.0011 respectively and can be neglected, but it explains the phenomena of over crowding in the village upto such extent that it negates the effect of schooling facilities. Similarly, positive correlation of GER at middle stage to the schooling facilities outside the habitation explains the insufficiency of middle schools within the habitation.

(e) Urban Areas The value of correlation coefficient is shown in Table 4.3 between the variables of X_2 , X_5 , X_8 , X_{11} , X_{14} , X_{17} , X_{20} and X_{23} of the criterion variables and X_{26} , X_{29} , X_{32} of explanatory variables. It

Table-4.3: Correlation Coefficient in Urban and Total Areas

cc	Urban Area			Total Area		
	X ₂₆	X ₂₉	X ₃₂	X ₂₇	X ₃₀	X ₃₃
Class I	0.3341			0.6831		
Class II	0.1742			0.1666		
Class III	0.6842			0.0897		
Class IV	0.4504			-0.0249		
Class V	0.5449			0.1032		
Primary	0.6163			0.4434		
Middle		0.5719			0.0938	
Sec./Hr. Secondary			0.7733			0.4876

Table-4.3.1: Test of Significance d.f.=28

Correlated Variable		r-value	t=1.7 0.10	t=2.05 0.05	t=2.47 0.02	t=2.76 0.01
X ₂	X ₂₆	0.3341	1.87			
X ₈	X ₂₆	0.6842				4.96
X ₁₁	X ₂₆	0.4504			2.66	
X ₁₄	X ₂₆	0.5449				3.43
X ₁₇	X ₂₆	0.6163				4.21
X ₂₀	X ₂₉	0.5719				3.68
X ₂₃	X ₃₂	0.7733				6.45
X ₃	X ₂₇	0.6831				4.95
X ₁₈	X ₂₇	0.4434			2.62	
X ₂₄	X ₃₃	0.4876				2.95

reveals that the number of institution per thousand of students is highly correlated with the GER at their respective stages of primary, middle and secondary. In most of the cases the test of significance is ^{at} 0.01 level (as shown in table 4.1). In class I, the correlation coefficient is significant at the level of 0.1, and in class II it is insignificant.

(f) Total Area: The correlation is shown between the variables $X_3, X_6, X_9, X_{12}, X_{15}, X_{18}, X_{21}, X_{24}$ of dependent variables and X_{27}, X_{30}, X_{33} of the independent variables. The r-value is shown in table 4.1. The only significant variables are in class I at primary and secondary stage with the level of significance as 0.01, 0.02, and 0.01 respectively. The correlation coefficient at middle stage is insignificant as the r-value is only 0.0938.

(ii) Social and Demographic Factors: The Demographic variables are :

Percentage of urban population to total population (X_{39});

Percentage of scheduled castes and scheduled tribes to the total population (X_{40}); and

Sex Ratio (X_{41}). (Female per thousand male).

The social variables include the literacy rates in the age group of 15-35 years for rural, urban and

total areas denoted with X_{42} , X_{43} and X_{44} respectively.

(a) Distribution Pattern: The degree of urbanisation is very high in most of the Union Territories like Chandigarh, Delhi, Arunachal Pradesh and Pondicherry. Among the States, Gujrat, Tamil Nadu and West Bengal contain more than 40 per cent of urbanisation. Other states range nearly to all India level of urbanisation i.e. 33.8 per cent other than Assam and Bihar which show the lowest degree of urbanisation (see Appendix Table 9).

The scheduled castes and scheduled tribes population is mostly concentrated in the states of Meghalya, Nagaland and the Union Territories of Arunachal Pradesh, Dadra and Nager Haveli, Lakshadweep and Mizoram with more than 80 per cent of concentration. In Madhya Pradesh, Orissa and Manipur constitute more than 30 per cent of scheduled castes and scheduled tribes population. The all India figure is 21.54 per cent.

The sex ratio in most of the states is lower except Kerala and Dadra and Nagar Haveli where the ratio is 1016 and 1007 respectively (see Appendix Table 9).

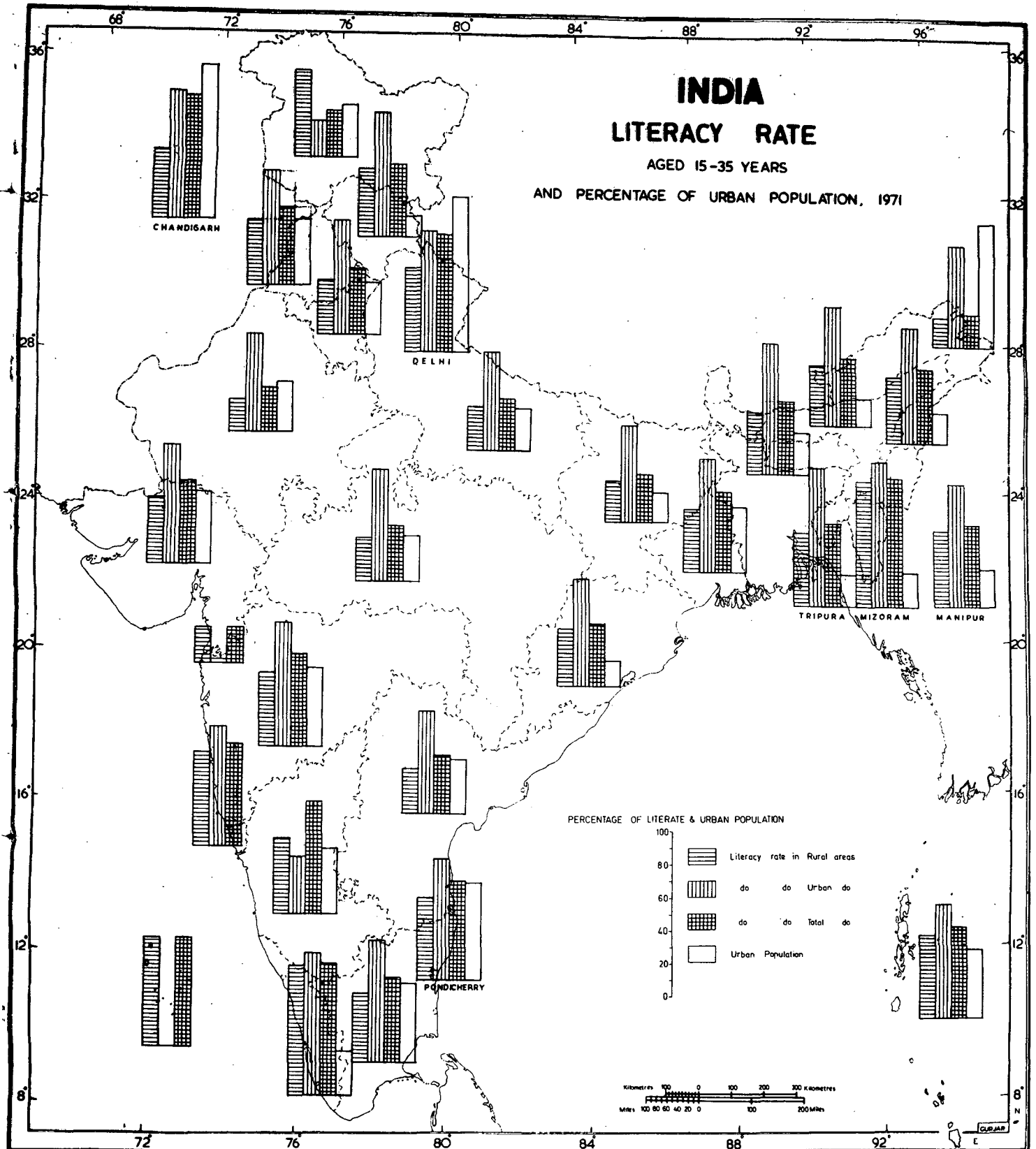
The literacy rate in the age group of 15-35 years reveals a high concentration in the urban areas in contrast to the rural areas as shown in the Appendix

Table 9 and Map No. 8. At all India level, the literacy rate in this age group is 42 per cent with a breakup of 68.6 per cent in urban areas and only 34.3 per cent in the rural areas which is exactly half of the urban areas. The high concentration more than 70 per cent is exhibited by most of the states and Union Territories in urban areas while amongst the rural areas, Kerala and the Union Territory of Mizoram fall in such category. The mean distribution and coefficient of variation is shown in the table 4.4 which clarifies the even distribution of each of the above mentioned variables.

Table-4.4: \bar{X} , S.D., & C.V. of Social Demographic Factors

Variables	Mean \bar{x}	S.D.	C.V.
X ₃₉	31.3569	22.7937	72.69117
X ₄₀	33.9016	28.7328	84.7535
X ₄₁	918.3333	80.8643	8.8055
X ₄₂	42.0166	14.9440	35.5669
X ₄₃	64.2033	21.9873	34.2464
X ₄₄	48.5066	16.6023	34.2269

(b) Hypothesis: Relating to the nature of social and demographic variables, following hypotheses have been putforth.



Based upon survey of India map with the permission of the Surveyor General of India.

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
 The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern

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Map No. 8

1. Higher the urban population, higher will be the enrolment;
2. Higher the proportion of Scheduled Castes and Scheduled Tribes population, lower will be the enrolment ratio;
3. Higher the sex ratio (predominantly female), lower will be the attainment in enrolment;
4. Higher the value of literacy rate, higher will be the enrolment ratio.

(c) Correlation with Criterion Variables: Correlation coefficient of each of the variable is listed below.

Table-4.5: r-value of Social and Demographic Factors

	Total X_{39}	Total X_{40}	Total X_{41}	Rural X_{42}	Urban X_{43}	Total X_{44}
Class I	-0.2875	0.2491	0.1806	-0.1819	0.3805	-0.1636
Class II	-0.0024	-0.0545	0.1152	-0.0122	0.4565	-0.1276
Class III	-0.0652	0.4112	0.1878	0.5734	0.5128	0.5127
Class IV	0.1103	0.1658	0.1448	0.6890	0.7541	0.7915
Class V	0.0486	0.2496	-0.0964	0.3272	0.5165	0.3266
Primary	-0.1724	0.4853	0.2606	0.4047	0.6922	0.5022
Middle	0.4261	-0.2644	-0.1242	0.7737	0.7003	0.8741
Secondary	0.5527	-0.3126	-0.1966	0.7360	0.5708	0.8401

Table-4.5.1: Significant Test of Social and Demographic Variables

Variables	t-value	$t_{0.1}$	$t_{0.05}$	$t_{0.02}$	$t_{0.01}$
X ₂₁ X ₃₉	0.4261			2.49	
X ₂₄ X ₃₉	0.5527				3.51
X ₉ X ₄₀	0.4112		2.39		
X ₁₈ X ₄₀	0.4853				2.94
X ₂₄ X ₄₀	-0.3126	-1.74			3.70
X ₇ X ₄₂	0.5734				
X ₁₀ X ₄₂	0.6890				5.03
X ₁₃ X ₄₂	0.3272	1.83			
X ₁₆ X ₄₂	0.4047		2.34		
X ₁₉ X ₄₂	0.7737				6.46
X ₂₂ X ₄₂	0.7360				5.75
X ₂ X ₄₃	0.3805		2.18		
X ₅ X ₄₃	0.4565			2.71	
X ₈ X ₄₃	0.5128				3.16
X ₁₁ X ₄₃	0.7541				6.08
X ₁₄ X ₄₃	0.5165				3.19
X ₁₇ X ₄₃	0.6922				5.07
X ₂₀ X ₄₃	0.7003				5.19
X ₂₃ X ₄₃	0.5708				3.68
X ₉ X ₄₄	0.5127				3.16
X ₁₂ X ₄₄	0.7915				6.85
X ₁₅ X ₄₄	0.3266	1.83			
X ₁₈ X ₄₄	0.5022				3.07
X ₂₁ X ₄₄	0.8741				9.52
X ₂₄ X ₄₄	0.8401				8.20

The analysis of correlation coefficient of each of the variables leads to some of the important results. The percentage of urban population (X₃₉) has least correlation with the enrolment at primary stage, mostly negative other than class IV and V. On the other hand

strong relationship establishes with the enrolment at middle and secondary stages. The correlation coefficient is 0.4261 and 0.5527 at middle and secondary stages, which are significant at the level of 0.02 and 0.01. The least correlation having negative tendency with GER at primary stage is only due to the ubiquitous distribution of enrolment and least differentials between rural and urban attainment. Whereas the differential at middle and secondary stages touches its peak (map no.3).

The correlation between the enrolment ratios and the percentage of scheduled castes and scheduled tribes is positive with primary education and is significant at 0.05 level in class III and 0.01 at primary stage. Contrary to the primary stage, it is negatively correlated at middle and secondary stages. The correlation coefficient is significant at 0.1 level or 95 per cent. This results show an active participation of scheduled castes and scheduled tribes in education at primary stage.

Sex ratio shows a positive correlation with primary level and negative correlation at middle and secondary stage. The correlation coefficients in all stages are insignificant as the r-value are 0.2606, -0.1242 and -0.1966 at primary, middle and secondary stages respectively.

The literacy rate both in rural and urban areas is positively correlated to the attainment of enrolment at all stages of education and is significant at 0.01 level. The only exception is in the enrolment of class I and II where literacy rate is not positively correlated in rural and total areas.

(iii) Economic Factors: Economic factors are of two folds. (1) Child work force in the age group 0-14 and 15-19 years and general work force in primary, secondary and tertiary sectors of rural, urban and total areas; (2) Non workers both in urban and rural areas. The variable included from X_{45} , X_{46} to X_{58} .

(a) Distribution of Child Workforce: About six per cent of the total workforce is in the age group 0-14 years. Andhra Pradesh, Bihar, Gujrat, Karnataka, Kerala, Madhya Pradesh, Meghalya, Orissa, Rajasthan, Arunachal Pradesh and Dadra and Nagar Haveli have greater than six per cent of their total work force in this age group. Other states and Union Territories have lower child workforce than the all India average. About 10 per cent of the total workforce come from the age group 15-19 years. Though this age group is considered in the full stream of workforce, yet the total school going population at middle and secondary stages belongs to this age group. Therefore, a consideration is duly paid to this age group also. Most of the states and union territories have a concentration in this age

group in between 9 to 12 per cent of total workforce.

(b) General Workforce⁴ Out of every hundred workers 72 are engaged in primary sector; 11 in secondary sector and 17 in tertiary sector. This trend changes from rural to urban areas. In the rural areas out of every 100 workers 85 are engaged in primary, 6 in secondary and 9 in tertiary sectors. In urban areas 14 per cent in primary, 31 per cent in secondary and 55 per cent are engaged in tertiary sectors. The trend of workforce in the states and Union Territories is the same as average Indian figures. The only exceptional trend exists in Kerala and in those Union Territories where urban population consists of majority like Chandigarh and Delhi, where least percentage of population is engaged in primary activity. Another interesting phenomenon of the workforce distribution is the urban workforce in tertiary sector, which in most of the states and Union Territories is more than all India level of 55 per cent. On the contrary urban workforce in secondary sector, in most of the states and union territories is lower than all India level of 31.32 per cent. To understand the distributional variation in the states and Union Territories, the mean distribution of each variable and their coefficient of variation is given below in Table 4.6.

4. General Workforce have been grouped into three categories of primary, secondary and tertiary sectors from the nine categories of census data 1971 as provided in General & Economic Tables Part A-II.

Table-4.6: Showing Mean, S.D. and C.V.

Variables	\bar{X} Mean	S.D.	C.V.
X ₄₅	4.8643	2.4131	49.6084
X ₄₆	0.8903	0.2366	26.5731
X ₄₇	76.6059	17.6162	22.9958
X ₄₈	12.9206	9.7271	75.2836
X ₄₉	65.3389	21.7013	33.2134
X ₅₀	9.5750	9.7272	101.5895
X ₅₁	23.4486	10.6269	45.3199
X ₅₂	12.3480	9.5256	77.1347
X ₅₃	13.8206	9.3086	69.35308
X ₅₄	56.9632	19.2671	33.8237
X ₅₅	22.3176	14.7837	66.2423
X ₅₆	64.4999	7.9066	12.2583
X ₅₇	63.6066	18.7169	29.42603
X ₅₈	65.5732	7.4469	11.3566

(c) Non Workers: The economic table of the census 1971 accounts 67 per cent of the total population in the category of non-workers. In rural areas this percentage is 66 while in urban areas it increases to 71. The rural areas of Assam, Kerala, Punjab, Tripura and West Bengal exhibit more than 70 per cent of non workers. On the other hand, the urban areas of most of the states and Union Territories show higher percentage of non-workers above 70.

(d) Possible Hypotheses: Relating to the economic activities, the following hypotheses can be put forth.

1. Higher the percentage of child workforce, lower will be the enrolment;
2. Higher the percentage of workforce in primary sector, lower will be the enrolment;
3. Higher the percentage of workforce in secondary or tertiary sectors, higher will be the enrolment;
4. Higher the percentage of non-workers, higher is likely to be the enrolment in schools.

(e) Correlation of GER with Economic Variables: The correlation analysis of GER with economic variables is shown in the Appendix Tables 14, 15, 16 and their significance is discussed below.

In the case of child workforce, the correlation is highly negative in both the groups 0-14 years and 15-19 years of ages. In the first age group 0-14 years the correlation coefficient range from -0.4313 at primary stage to -0.7921 at middle and -0.771 at secondary stages. Except class I and II, all the classes of primary shows a high negative correlation coefficient as -0.4977, -0.68 and -0.5394 in class III, IV and V respectively. The test of significance in all the cases is at 0.01 level with a minor change

in the level of significance at the stage of primary that is 0.02. In the second group of 14-19 years of workforce, similarity is maintained with the first group. The correlation coefficients are -0.7452, -0.5858, -0.5385, -0.4267, -0.5231 and -0.4967 in class III, IV, V, primary, middle and secondary. The positive correlation in class I and II particularly in the age group 15-19 which is significant at the level of 0.05, can be explained either in terms of spurious correlation where the aged pupils get enrolled in lower classes. They generally do not leave up their economic activities for the sole purpose of acquiring knowledge.

The correlation of GER with the labourforce in primary sector (X_{49}) reveals a very high negative correlation at the middle and secondary stages. The correlation coefficient is -0.6833 and -0.7744 at middle and secondary stage which is highly significant at the level of 0.01. In class IV and V, the r-value is negatively significant at the level of 0.1 and 0.05 respectively. The rural areas show a negative correlation at middle and secondary stages which is significant at the level of 0.1. In class IV and V correlation coefficient is -0.2366 and -0.2834. In the urban areas, positive correlation is exhibited which is highly significant in class III

where r-value comes as 0.7312 significant at the level of 0.01. But others are not significant. This type of correlation clearly denotes the impact of urbanisation even in the primary sector.

The correlation with the workforce in the secondary sectors (variable X_{52}) positively correlated in class II, IV and V of primary stages as 0.3747, 0.3955 and 0.3569 which are significant at the level of 0.05 and 0.1. A positive correlation established with the enrolment at middle and secondary stages as 0.5612 and 0.6267 which are significant at the level of 0.01. In the rural areas the correlation coefficient is only significant at the middle and secondary stage at the level of 0.1 and 0.05 whereas in the urban areas, the correlation coefficient is significant in class I and II, IV of the primary stage and at the middle stage at the level of 0.1 in class I and II, 0.05 in class IV and 0.01 at middle stage.

The correlation of the workers in tertiary sectors is highly positive as 0.6411 and 0.7325 at middle and secondary stages. But in the case of rural areas there exists no more significant correlation other than at the stage of middle. It is the urban areas where correlation is highly significant at all stages and classes of primary. The significant test is at the level of 0.01.

In the case of non-workers, the correlation is positively significant at the middle and secondary stages in total areas. In the rural areas significant correlations are exhibited, whereas in the urban areas, the correlations are highly positive and significant at the level of 0.01 in all classes and stages.

(iv) Physical Facilities The variables of physical facilities include the facilities and inputs within the school. The variables have been classified into two groups as follows:

1. Composite index of physical facilities and
2. Pupil-teacher ratio.

The composite index of physical facilities includes seven variables⁵ in itself as they are given below.

- (a) Percentage of schools having pucca buildings;
- (b) Percentage of schools having semi pucca buildings;
- (c) Percentage of schools with the availability of classrooms;
- (d) Percentage of schools having hostel facilities;
- (e) Percentage of schools having playgrounds;

5. N.C.E.R.T., Third All India Educational Survey, 1973
School Building (New Delhi, 1979).

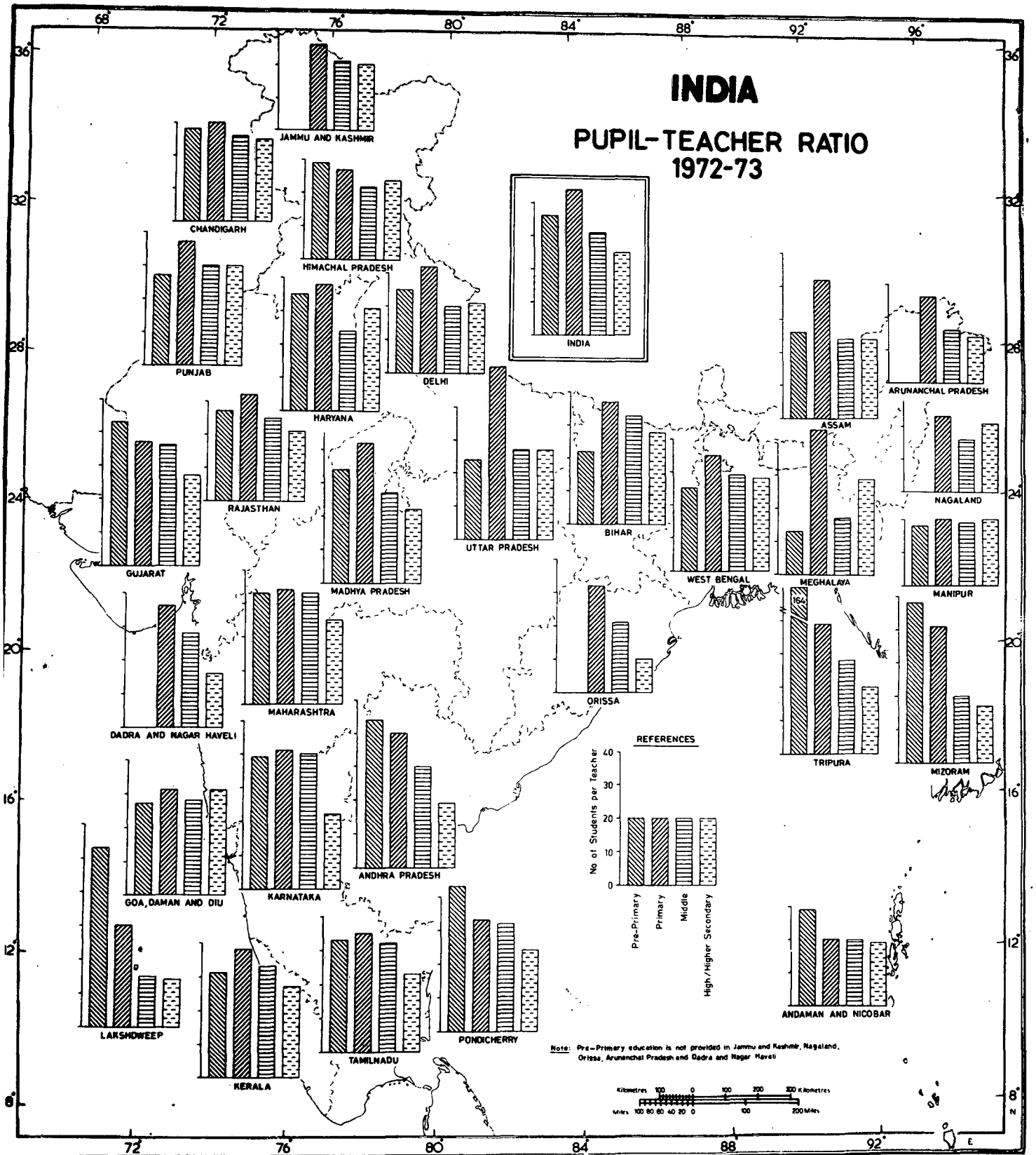
- (f) Percentage of schools having work experience programme;
- (g) Percentage of schools having agricultural programmes.

To find out a composite index, the percentages of all the seven variables have been added in one weighted value. The composite index is worked out for each school of primary, middle, secondary and higher secondary in every state and Union Territory. The variables are shown in Appendix Table 11 as X_{59} , X_{60} , X_{61} , and X_{62} for primary, middle, secondary and higher secondary schools. The pupil-teacher ratio is worked out with the total number of teachers to the total number of students at the corresponding stages of primary, middle and secondary schools (see Appendix Table 12).

(a) Hypothesis: In response to the infrastructural variables only one hypothesis can be postulated.

Higher the value of each of the infrastructural facilities higher is likely to be the enrolment.

(b) Correlation: The correlation of infrastructural facilities with the GER does give any significant result. The correlation coefficient is shown in table 4.7. The only noticeable case is in class IV where correlation coefficient is 0.4783 which is significant



The territorial waters of India extend into the sea to a distance of twelve nautical miles from the appropriate base line.

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Map No.9

at the level of 0.01. The negative correlation with pupil-teacher ratio explains the shortage of teachers at each stage.

Table-4.7: Correlation of GER with Physical Facilities Variables

	X_{59}	X_{60}	X_{61}	X_{63}	X_{64}	X_{65}
Class I	-0.2724			-0.1626		
Class II	0.0736			-0.1859		
Class III	0.2599			0.1602		
Class IV	0.4783			-0.0381		
Class V	0.2345			-0.1940		
primary	0.1805			-0.0755		
Middle		0.1703			-0.0220	
Secondary			-0.2017			-0.2699

(c) Correlation of Drop-out with Socio-Economic Variables:

Whatever, the educational, socio-economic and infra-structural variables are contributing to the attainment of enrolment, their reciprocals are the main contributing factors in the drop-out rates. Similar is the case in the formulation of the hypotheses as discussed earlier. The explanatory variables which are mainly responsible for drop-out can be listed as X_{35} , X_{37} , X_{38} , X_{40} , X_{41} , X_{45} , X_{46} , X_{49} , X_{59} , X_{60} , X_{61} , X_{63} , X_{64} and X_{65} . The correlation matrix is shown in table 4.8 and Appendix Table 17.

The drop-out rates are positively correlated with the schooling facilities outside the habitation at primary stage (X_{35}). The r-values of 0.3044, 0.3403 and 0.3120 at the completion of class II, III and primary education are significant at the level of 0.1. There is no significant correlation with schooling facilities outside the habitation at middle stage. A positive correlation establishes with population of scheduled castes and scheduled tribes (X_{40}) at the completion of class I, II, III, IV, V and primary which are significant at the level of 0.1, and 0.02 in the case of class III. Positive correlation exists also for sex ratio in class III, primary and middle stages and is significant at 0.1 level.

A very significant correlation of drop-out exists with the child workforce in the age group 0-14 years, at the completion of class II, III, IV, V and primary. The correlation coefficients are significant at the level of 0.01, whereas at the completion of middle stage it is lower and significant at the level of 0.1. The correlation (0.3037) coefficient with the workforce aged 15-19 is only significant at the level of 0.1 at the completion of class II and IV and highly significant at the level of 0.01 at the completion of class V.

Table-4.8: Correlation of Drop-out Rates with Other Variables

Variables	X ₃₅	X ₃₇	X ₃₈	X ₄₀	X ₄₁	X ₄₅	X ₄₆
Class I X ₆₆	0.0102	0.0832	0.3130	0.4135	0.2468	0.2744	0.0258
Class II X ₆₇	0.3044	0.2009	0.0738	0.4031	0.1851	0.4966	0.3315
Class III X ₆₈	0.3403	0.3010	0.1103	0.4585	0.3546	0.4306	0.1945
Class IV X ₆₉	0.2766	0.0781	0.2650	0.3173	0.1666	0.5081	0.3071
Class V X ₇₀	0.2591	0.0281	-0.1546	0.3159	0.2523	0.5912	0.5800
Primary X ₇₁	0.3120	0.0491	0.1453	0.3224	0.3091	0.6146	0.2918
Middle X ₇₂	-0.1065	0.1619	0.2940	-0.0669	0.3432	0.3037	0.1603
Secondary	-0.1499	0.0877	-0.0074	-0.2127	0.0548	-0.0985	0.1652

Variables	X_{49}	X_{59}	X_{60}	X_{61}	X_{63}	X_{64}	X_{65}
Class I C X_{66}	0.4619	-0.3885	-0.1023	0.1781	-0.0368	0.1119	-0.1798
Class II X_{67}	0.4609	0.5039	-0.4329	-0.3156	-0.0795	-0.1603	-0.2726
Class III X_{68}	0.4799	-0.3829	0.1862	0.4297	0.1585	0.0302	-0.3556
Class IV X_{69}	0.5044	-0.2930	0.1476	0.2975	0.3576	0.1995	-0.1254
Class V X_{70}	0.2481	-0.2184	0.0530	0.2109	0.0735	-0.0592	-0.2848
Primary X_{71}	0.5181	-0.1856	0.1155	0.2189	0.1961	0.1234	-0.4236
Middle X_{72}	0.2686	-0.2846	-0.1889	-0.150	0.1987	0.1434	0.1183
Secondary X_{73}	-0.1969	0.0198	-0.0556	0.2061	-0.1948	-0.0886	0.1563

The correlation with the workforce in primary sectors in rural areas, is much significant at the completion of primary and its classes. The significant test range at the level of 0.01.

A noticeable negative correlation is found with the availability of infrastructural facilities within the primary school, in class I and III. The correlation coefficients are -0.3885 and -0.3829 which are significant at the level of 0.05.

With the pupil-teacher ratio the only significant correlation coefficient is found at the primary stage in class IV as 0.3571 which is significant at the level of 0.1.

PART-B: MULTIPLE CORRELATION AND REGRESSION

1. Methodology

To identify the most effective variable and the combined effect of educational, socio-economic and infrastructural factors in the determination of enrolment and drop-out rates, the multiple correlation and regression exercises have been done for the states as a whole and for rural and urban areas separately.

The selection of variables in each area is made on the basis of their correlation coefficients with GER and drop-out rates. To avoid the effect of multicollinearity, only those independent variables have been selected

which are correlated with dependent variables but their correlation is insignificant. The regression equation is given as

$$X_1 = a + b_2 X_2 + b_3 X_3 \dots + b_n X_n$$

The multiple correlation coefficient 'R' is adjusted for the degree of freedom into 'R' and its square 'R²' is used in the estimation of regression coefficient. F-test and t-test is provided in brackets under regression equation.

2. Rural Areas

The enrolment ratios X_1 , X_7 , X_{10} , X_{13} , X_{16} , X_{19} and X_{22} have been taken as dependent variables and X_{25} , X_{28} , X_{31} , X_{34} , X_{36} , X_{50} , X_{53} , X_{56} , X_{59} , X_{60} , X_{61} , X_{63} , X_{64} and X_{65} as independent or explanatory variables. The regression equation at each stage and in the classes of primary are given (Table 4.9).

(1) Primary Stage: The GER at primary stage (X_{16}) taken as dependent variable and five independent variables, namely, the number of primary schools per thousand of students (X_{25}), percentage of pupils attending primary within rural habitation (X_{34}), Literacy rates in the age group 15-35 (X_{42}), Percentage of nonworkers (X_{56}) and index of infrastructural facilities within primary schools (X_{59}) are introduced for regression. But the regression is only significant with the following three variables as given in equation.

Table-4.9: The Value of Multiple Correlation and Regression Coefficient of the Variables in Rural Areas

Grade/Step No.	Dependent variable	Independent variable	Intercept	Regression coefficient	t-test	R	R ²	F-test
Primary 3	X ₁₆	X ₂₅		3.730	4.382			
		X ₄₂		0.919	2.971			
		X ₅₉	3.2388	0.084	0.971	0.697	0.4858	9.436
Class I 4	X ₁	X ₂₅		2.485	5.404			
		X ₄₂		-0.227	-1.449			
		X ₅₃		0.376	1.444			
		X ₅₆	-14.4234	0.444	1.462	0.716	0.5127	8.066
Class II 2	X ₄	X ₂₅		0.483	2.019			
		X ₅₀	12.3704	0.215	1.648	0.361	0.1303	2.572
Class III 3	X ₇	X ₄₂		0.898	5.916			
		X ₅₆		-1.101	-3.835			
		X ₆₃	20.3782	0.895	2.926	0.766	0.5866	13.884
Class IV 3	X ₁₀	X ₂₅		0.273	1.916			
		X ₄₂		0.238	4.522			
		X ₅₉	-3.8771	0.021	1.399	0.719	0.517	10.599

Grade/Step No.	Dependent variable	Independent variable	Intercept	Regression coefficient	t-test	\bar{r}	\bar{r}^2	F-test
Class V 3	X ₁₃ X ₄₂	X ₂₅		0.330	1.819			
		X ₄₂		0.085	1.220			
		X ₅₀	0.5952	0.155	1.388	0.413	0.171	2.560
Middle 4	X ₁₉	X ₂₈		1.184	0.950			
		X ₄₂		0.843	5.910			
		X ₆₀		0.041	1.459			
		X ₆₄	-26.3775	0.435	1.271	0.781	0.6099	11.610
Secondary 6	X ₂₂	X ₃₁		2.464	1.919			
		X ₄₂		0.242	4.006			
		X ₅₀		0.242	2.323			
		X ₅₃		-0.157	-1.537			
		X ₆₁		0.023	3.478			
		X ₆₅	-14.551	0.330	2.610	0.867	0.7552	15.075

\bar{R} value is significant at 95 percent level of confidence. The regression coefficients of X_{25} and X_{42} are significant at 99.5 per cent level of confidence. The combined effect of the variables X_{25} , X_{42} and X_{53} explains 48.6 per cent contribution in the attainment of enrolment. X_{25} i.e. the number of primary schools explains 37 per cent change in the attainment of enrolment while literacy rate X_{42} brings only a change of 9 per cent. The effect of infrastructural facilities is negligible as \bar{R} remains the same at both the IInd and IIIrd steps of regression.

The class-wise break-up of primary and their regression equation is also given to the effect of other explanatory variables in different classes.

(a) Class I: The GER X_1 is regressed on X_{25} , X_{42} , X_{50} , X_{53} , X_{56} , X_{59} but the significant regression equation comes only with four variables as X_{25} , X_{42} , X_{53} and X_{56} .

The value of \bar{R} is significant at 95 per cent level of confidence and that of regression coefficient at 90 per cent level of confidence. The combined effect of the variables explain 51.3 per cent contribution in the attainment of enrolment in class I.

The more significant variable is X_{25} which alone is responsible for a 25 per cent change in the attainment of enrolment in Class I. The percentage of nonworkers X_{56}

and workers in tertiary sectors (X_{53}) explain a change in the enrolment by 4 per cent. The negative effect of literacy rate X_{42} is logical and can be probably explained in terms of distribution. The states of Manipur, Meghalaya and Nagaland rank first, second and third in the attainment of enrolment in class I, get 9th, 20th and 15th position in the number of primary schools.

(b) Class II: The regression equation of GER in class II (X_4) on the number of primary schools (X_{25}) and the percentage of workers in secondary sector (X_{50}) is worked out. The value of \bar{R} is insignificant. The regression coefficient is significant at 90 per cent level of confidence. The combined effect of explanatory variables are very low, i.e. 13 per cent only. One unit change in X_{25} may cause 0.48 per cent change in X_4 . Similarly a nominal change may be brought in X_4 , by a unit change in the X_{50} .

(c) Class III: The GER X_7 is regressed on X_{42} , X_{56} , X_{56} , X_{63} , which is significant. The regression with other independent variables X_{25} , X_{34} , X_{50} and X_{53} becomes insignificant. The \bar{R} value is significant at 95 per cent and that of regression coefficient is significant at 99.5 per cent level of confidence. The combined effect of the independent variables literacy rates, non-workers (X_{56}) and pupil-teacher ratio (X_{63})

explain 58.66 per cent contribution in the attainment of enrolment. The more effective variable is X_{56} which explains a negative of 11 per cent. Both the literacy rate and pupil-teacher ratio explain a change of 9 per cent. The negative effective of X_{56} is probably due to its distribution in the series, for example, Kerala and Nagaland rank first and third in the attainment of enrolment while their ranks in the percentage of non-workers is 8th and 25th.

(d) Class IV: The average multiple correlation coefficient is significant at 95 per cent and the regression coefficient is significant at 99.5 per cent in the case of literacy rate X_{42} and at 95 per cent with number of primary schools X_{25} and at 90 per cent with the variable X_{59} i.e. the index of infrastructural facilities. The combined effect of the three variables explain 51.7 per cent contribution in the attainment of GER in class IV. The effect of the variables X_{25} and X_{42} to change in the level of enrolment is rather significant than the variable X_{59} .

(e) Class VI. The value of \bar{R} is insignificant. The regression coefficient of X_{25} and X_{50} is only insignificant at 90 per cent level of confidence. 17.1 per cent contribution of all the independent variable is a nominal in the attainment of GER in class V.

(ii) Middle Stage: The GER X_{19} taken as dependent variable and seven independent variables X_{28} , X_{42} , X_{50} , X_{53} , X_{60} , X_{64} selected for regression. The regression is significant only with four variables X_{28} , X_{42} , X_{60} and X_{64} .

\bar{R} value is significant at 95 per cent level of confidence. The regression coefficient of X_{42} and X_{60} are significant at 99.5 and 90 per cent level of confidence. The combined effect of the variables explain 61 per cent contribution in the attainment of enrolment at middle stage. Individually, X_{28} i.e. the number of middle schools per thousand of student explain a change of 12 per cent, but its regression coefficient is not significant as the variable was entered at IV step and \bar{R} remains the same as it was in the III step. The literacy rate X_{42} explains a change of 8 per cent. The index of infra-physical facilities within the schools at middle stage (X_{60}) explains a nominal change of 0.4 per cent. The pupil-teacher ratio at middle stage (X_{64}) explains a change of 4 per cent in the attainment of enrolment.

(iii) Secondary/Higher Secondary Stage GER X_{22} : The selected independent variables are X_{31} , X_{42} , X_{50} , X_{53} , X_{61} , X_{65} . The value of \bar{R} is significant at 99 per cent level of confidence. The regress coefficient of the variables X_{42} , X_{61} and X_{65} is significant at 99.5 per

cent level of confidence and that of X_{50} , X_{31} and X_{53} is significant at the level of 97.5, 95 and 90 per cent respectively. The combined effect of all the six variables explain 75.5 per cent contribution in the attainment of enrolment at secondary stage. The number of secondary/higher secondary schools per thousand of students (X_{31}) alone explain 24.6 per cent change in the attainment of enrolment. The literacy rate and percentage of workers in secondary sectors (X_{42} , X_{50}) explain a nominal change of 2.4 per cent. The pupil-teacher ratio at secondary stage (X_{65}) explain a significant change of 3.3 per cent. On the contrary, the percentage of workers in tertiary sectors (X_{53}) is having a negative effect. The effect of physical facilities brings a negligible change of 0.2 per cent.

3. Urban Areas:

The Gross Enrolment Ratios in class I, II, III, IV, V, Primary, Middle and Secondary is taken as dependent variables which comprises the columns of X_2 , X_5 , X_8 , X_{11} , X_{14} , X_{17} , X_{20} and X_{23} respectively. The independent variables are listed as X_{26} , X_{29} , X_{32} , X_{39} , X_{43} , X_{51} , X_{54} , X_{57} , X_{59} , X_{60} , X_{61} , X_{62} , X_{63} , X_{64} , X_{65} (Table-4.10).

(1) Primary Stage: The dependent variable is the GER at primary stage (X_{17}). The independent variables are number of primary schools (X_{26}), literacy rate (X_{43}),

Table-4.10: Computed Value of Multiple Correlation and Regression Coefficient of the Variable Selected in Urban Areas

Grade/Step	Dependent variables	Independent variables	Intercept	Regression coefficient	t-test	\bar{R}	\bar{R}^2	F-test
Primary 5	X ₁₇ X	X ₂₆		7.070	4.171			
		X ₄₃		0.390	1.601			
		X ₅₁		0.450	1.309			
		X ₅₃		0.615	2.630			
		X ₆₃	44.9241	-1.311	-2.890	0.869	0.7552	17.935
Class I 5	X ₂	X ₂₆		2.013	2.268			
		X ₅₁		0.729	2.199			
		X ₅₄		0.459	2.927			
		X ₅₇		-0.346	-1.345			
		X ₆₃	15.38609	-0.516	-1.954	0.735	0.5402	7.306
Class II 4	X ₅	X ₃₉		-0.089	-1.591			
		X ₅₁		0.271	2.308			
		X ₅₄		0.293	5.096			
		X ₆₃	9.5202	-0.318	-2.151	0.753	0.5670	9.873
Class III 4	X ₈	X ₂₆		4.082	4.638			
		X ₄₃		0.211	1.787			
		X ₅₄		-0.171	-1.434			
		X ₅₉	-7.7882	0.066	2.025	0.770	0.5929	10.905

Grade/Step No.	Dependent variables	Independent variables	Intercept	Regression coefficient	t-test	R	R ²	F-test
Class IV	4	X ₁₁	X ₂₆	0.459	1.448	0.804	0.6464	13.475
			X ₄₃	0.130	3.091			
			X ₅₉	0.080	1.686			
			X ₆₃	7.6143	-0.204			
Class V	4	X ₁₄	X ₂₆	1.298	2.683	0.686	0.4706	6.907
			X ₄₃	0.058	0.912			
			X ₅₄	0.099	1.440			
			X ₆₃	7.557	-0.237			
Middle	5	X ₂₀	X ₂₉	4.760	1.893	0.757	0.573	8.247
			X ₃₉	-0.184	-1.037			
			X ₄₃	0.452	1.99			
			X ₅₁	0.529	1.353			
			X ₅₄	-5.597	0.522			
Secondary	5	X ₂₃	X ₃₂	11.857	5.601	0.819	0.6707	12.127
			X ₄₃	0.321	1.378			
			X ₅₄	-0.323	-1.207			
			X ₅₇	0.319	1.114			
			X ₆₅	-8.8859	0.467			

percentage of workers in secondary and tertiary sector (X_{51} , X_{54}) and pupil-teacher ratio (X_{63}).

The value of \bar{R} is significant at 99 per cent level of confidence. The regression coefficient of each of the variables is significant at the level of 99 per cent other than X_{43} and X_{51} which are significant at 90 per cent level of confidence. The combined contribution in the attainment of enrolment is 75.52 per cent. Out of these variables, the availability of schools X_{26} alone explain a change of 71 per cent in the attainment of enrolment. Another effective variable is the pupil-teacher ratio (X_{63}) which explains a change of 13 per cent. The percentage of workers in tertiary sectors (X_{54}) explain a change of 6 per cent and that of secondary sectors 4.5 per cent. The literacy rates (X_{39}) explain 3.8 per cent change in the enrolment.

The negative effect of pupil-teacher ratio can probably be explained in terms of inverse distribution to enrolment; for example, Arunachal Pradesh, Manipur, Andaman and Nicobar Islands and Karnataka rank I, II, III and IV in the attainment of enrolment while their rank in respect of pupil-teacher ratio is 17th, 19th, 19th and 16th respectively. On the contrary, Uttar Pradesh, Meghalaya, Madhya Pradesh, Mizoram and Assam

rank I, II, III, IV and V in the pupil-teacher ratios, whereas in the attainment of enrolment, their rank is 25th, 6th, 10th, 7th and 15th. Such type of frequency distribution also exists in the classes of primary.

The regression equation in each class of primary education is given below.

(a) Class I: The variable X_2 (GER in class I) is taken as dependent and X_{26} , X_{43} , X_{51} , X_{54} , X_{57} and X_{63} as independent. The regression coefficient is significant only upto V steps excluding X_{43} .

The average multiple correlation coefficient is significant at 95 per cent level of confidence. The regression coefficient range from 99 per cent to 90 per cent level of confidence. The combined effect of the variables explain 54 per cent contribution in the attainment of enrolment. A 20 per cent change is explained by X_{26} followed by X_{51} and X_{54} , i.e. the percentage of workers in secondary and tertiary sectors as they explain 7.3 and 4.6 per cent change. The attributes of non-workers (57) and pupil-teacher ratio are negative due to their inverse correlation with enrolment.

(b) Class II: The regression equation of X_5 is significant only with four independent variables X_{39} , X_{51} , X_{54} and X_{63} . The value of R is significant at 95 per

cent. The regression coefficient at 99 to 90 per cent. The combined attributes of the variables in the attainment of enrolment are 56.7 per cent. The negative effect of urban population X_{39} is perhaps due to the highest concentration (95 per cent) urban population in the Union Territories in Delhi and Chandigarh where the enrolment in class II is very low (17 per cent). The most effective variable is pupil-teacher ratio (X_{63}) which explains nearly 32 per cent change, followed by X_4 the percentage workforce in secondary sector explaining 27 per cent change in the attainment of enrolment.

(c) Class III: X_8 is regressed upon X_{26} , X_{43} , X_{54} , X_{59} . Other variables (X_{51} , X_{57} , X_{63}) deleted. The value of \bar{R} is significant at 95 per cent and the regression coefficient is significant in the range of 99 to 90 per cent level of confidence. The combined attributes of the variables are 59.3 per cent. The most effective variable is X_{26} which roughly explains 41 per cent change in the enrolment.

(d) Class IV: The regression of X_{11} is carried on with four explanatory variables X_{26} , X_{43} , X_{57} and X_{63} . The value of \bar{R} is significant at 95 per cent. The coefficient of regression is significant at different (level of 99.5, 97 and 90 per cent) levels of confidence.

The combined effect of the explanatory variables contribute 64.64 per cent in the attainment of enrolment.

(e) Class Vi The dependent variable is X_{14} on the explanatory variables X_{26} , X_{43} , X_{54} and X_{21} . The value of \bar{R} is significant at 95 per cent but the regression coefficient of X_{43} is insignificant. The regression equation upto IIIrd step excluding X_{43} is significant.⁶ The combined effect of schooling facilities X_{26} , workforce in tertiary sectors X_{54} and pupil-teacher ratio X_{63} explain 47.3 per cent contribution in the enrolment. The change due to X_{26} is more than other variables.

(ii) Middle Stage The dependent variable is X_{20} i. e. GER at middle stage. The selected independent variables are X_{29} , X_{39} , X_{43} , X_{51} , X_{54} , X_{57} , X_{60} and X_{61} . The regression equation is significant only upto IV steps including X_{29} , X_{39} , X_{43} , X_{51} , X_{54} .

\bar{R} is significant at 95 per cent level of confidence. The significance test of regression coefficient range 97 per cent to 90 per cent. The

$$6. \quad X_{14} = 7.6855 + 1.443 \times 26 + 0.141 \times 54 - 0.213 \times 63$$

$$\qquad\qquad\qquad (3.172) \qquad\qquad\qquad (2.767) \qquad\qquad\qquad (-1.617)$$

$$\bar{R} = 0.688 \qquad\qquad R^2 = 0.4733$$

$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad (8.991)$$

combined effect of the explanatory variables is 57.3 per cent. The schooling facilities X_{29} explains a change of 47 per cent followed by X_{51} and X_{54} the work force in secondary and tertiary sectors explaining 5.3 and 5.2 per cent change.

The regression equation in 6th step⁷ including X_{64} is given below where \bar{R} value is significant but the regression coefficient of two explanatory variables X_{39} and X_{64} becomes insignificant even at 90 per cent level of confidence.

(iii) Secondary/Higher Secondary Stage: X_{23} is the dependent variable regressed on eight explanatory variables as X_{32} , X_{43} , X_{51} , X_{54} , X_{57} , X_{61} , X_{62} and X_{65} . The significant regression equation given upto 5th steps after which the value of \bar{R} started to decrease.

The value of \bar{R} is significant at 99 per cent level of confidence. The regression coefficient is significant in the case of two variables X_{32} and X_{43} . With an average combined effects, the explanatory variables show a contribution of 67.1 per cent in the attainment of enrolment. A 100 per cent change is explained by the individual variable X_{32} .

$$\begin{aligned} 7. X_{20} &= 9.24215 + 4.204 \times 26 - 0.187 \times 39 + 0.466 \times 43 \\ &\quad (1.622) \quad (-1.049) \quad (2.042) \\ &+ 0.761 \times 51 + 0.456 \times 54 - 0.634 \times 64 \dots (15)b \\ &\quad (1.638) \quad (1.800) \quad (-0.931) \\ \bar{R} &= 0.756 \quad \bar{R}^2 = 571536 \\ &\quad (6.978) \end{aligned}$$

Table-4.11: Computed Value of Multiple Correlation and Regression Coefficient of the Variables for Total Areas

Grade/Step No.	Dependent Variables	Independent variables	Intercept	Regression coefficient	t-test	R	R ²	F-test
Primary 3	X ₁₈	X ₂₇		3.119	5.870			
		X ₃₉		-0.263	-2.129			
		X ₄₄	17.3865	1.190	7.452	0.862	0.863	27.543
Primary 4	X ₁₈	X ₂₇		3.213	6.125			
		X ₃₉		-0.251	-2.068			
		X ₄₄		0.954	4.215			
		X ₄₅	38.1943	-2.150	-1.446	0.868	0.753	22.046
Class I 4	X ₃	X ₂₇		1.949	4.636			
		X ₃₉		-0.159	-1.251			
		X ₄₅		1.494	1.467			
		X ₅₅	2.89612	0.474	2.022	0.701	0.4914	7.444
Class II 2	X ₆	X ₂₇		0.443	2.239			
		X ₅₂	11.631	0.315	3.034	0.499	0.249	5.120
Class III 3	X ₉	X ₄₄		0.230	0.929			
		X ₄₅		-2.662	-1.518			
		X ₆₅	-0.70265	0.614	1.615	0.554	0.3069	4.772

Grade/Step No.	Dependent Variables	Independent variables	Intercept	Regression coefficient	t-test	R	R ²	F-test
Class IV	4	X ₁₂	X ₄₄	0.228	5.167			
			X ₄₅	-0.771	-2.453			
		X ₄₅	X ₅₅	-0.141	-3.433			
			X ₅₈	14.6135	-0.088	-1.304	0.857	0.73445
Class V	4	X ₁₅	X ₂₇	0.268	1.647			
			X ₃₄	0.085	1.587			
			X ₄₄	-0.097	-1.230			
			X ₄₅	13.51611	-1.650	-3.150	0.607	0.4445
Middle	2	X ₂₁	X ₄₄	0.707	4.893			
			X ₄₅	18.7912	-2.278	-2.291	0.892	0.795
Secondary	5	X ₂₄	X ₄₄	0.260	3.402			
			X ₄₅	-0.701	-1.287			
			X ₅₂	0.132	1.211			
			X ₅₅	0.157	2.326			
			X ₆₅	-0.71846	0.298	1.956	0.898	0.8064

The value of \bar{R} is significant in both the steps 3rd and 4th steps of regression at 99 per cent level of confidence.

The range of regression coefficient is 99 per cent to 90 per cent level of confidence. The third regression shows that the combine effect of the three variable schooling facilities, urban population and literacy rate explain 74.3 per cent contribution in the attainment of enrolment. The more important change is possible by X_{27} which alone stands for a change of 3.2 unit. Including X_{45} in the 4th step, the combined effect of the variables explain 75.3 per cent contribution in the enrolment. The negative effect exerted by X_{45} is 2.2 unit change in the enrolment with one unit change in child workforce. The negative effect of urban population can probably be explained in terms of distribution as discussed earlier.

The class-wise regression equation at primary stage has also been worked out but in most of the steps the value \bar{R} is insignificant. The regression equation is given only for those steps where the value of \bar{R} is highest.

(a) Class I GER in class I X_3 is the dependent variable. The value of \bar{R} is significant at the level of 95 per cent. The regression coefficients of the

variables are significant upto 90 per cent level other than X_{39} . The combined effect of the variables explain 49 per cent contribution in the enrolment. X_{27} , the schooling facility or the number of primary schools explain 2 unit change in the enrolment of class I by a unit change in the number of schools. The child workers X_{45} is a contributory factor as their work at this age of 6 or 7 year is not worth of economic significance.

(b) Class II: The regression coefficient is significant only upto 2nd step. The value of \bar{R} is insignificant but the regression coefficient of both the variables are significant at 99 and 97 per cent level of confidence. The combine effect explain 25 per cent contribution in the enrolment of class II. X_{52} represents the workers percentage in secondary sectors.

(c) Class III: The value of \bar{R} is not significant. The regression coefficient of X_{45} and X_{65} is significant at 90 per cent. The combined effect of the variables explain 31 per cent contribution in the enrolment.

(d) Class IV: Both the multiple correlation coefficient and regression coefficient of the variables are significant at 99 to 90 per cent level of confidence. The combined effect of the four variables explain 73 per cent contribution. The negative effect of the workers

in tertiary sectors and the non-workers (X_{55} , X_{58}) can be explained from the distribution tables though the correlation of each X_{55} and X_{58} with the enrolment is positive but not significant.

(e) Class Vi The value of average multiple correlation coefficient is insignificant. The regression coefficient of X_{27} , X_{34} and X_{45} is significant at different levels. The combined variables explain 44 per cent contribution in the enrolment. The availability of schooling facilities within the habitation has negligible effect in the change of enrolment.

(ii) Middle Stage The GER at middle stage X_{21} is the dependent variable and X_{30} , X_{36} , X_{39} , X_{44} , X_{45} , X_{52} , X_{55} , X_{58} , X_{60} and X_{64} were introduced in the regression equation as explanatory variable. The significant equation is only with two variables X_{44} and X_{45} at 1st and 2nd steps.¹¹

$$11. X_{21} = -4.5086 + 0.959 X_{44} \dots\dots\dots(23) a$$

(9.524)

$$\bar{R} = 0.892 \qquad \bar{R}^2 = 0.795664$$

(54.852)

The value of \bar{R} is significant at 95 per cent. The regression coefficient is significant at 99 per cent level of confidence. The literacy rate X_{44} in first step explain 76 per cent contribution while the combined effect of the variable X_{44} and X_{45} explain 79 per cent. The negative effect of the child workers X_{45} at this stage explain a change of 2.3 unit in the enrolment corresponding one unit change in the variable X_{45} .

(iii) Secondary/Higher Secondary Stage The dependent variable is X_{24} and the independent variables are X_{44} , X_{45} , X_{52} , X_{55} and X_{65} which prove significant in the regression equation. The value of \bar{R} is significant at 99 per cent level of confidence. The regression coefficient of the variables are significant at different levels. The combinations of the explanatory variables make a significant contribution of 81 per cent in the attainment of enrolment at secondary stage. The change in the pupil teacher ratio at secondary stage explain a change of 0.3 unit in the enrolment. The literacy rate is the second factor which also explain a change of 0.3 unit. The workforce in secondary and tertiary sectors explain a change of 0.1 and 0.2 unit respectively.

4. Drop-out Rates

The independent variables are X_{66} , X_{67} , X_{68} , X_{69} , X_{70} , X_{71} , X_{72} and X_{73} explaining drop-out at the

completion of class I, II, III, IV, V and the corresponding final classes of primary, middle and secondary stages according to the educational structure and duration (Table 4.12).

(1) Selection of Explanatory Variables: Those variables have been selected in the multiple correlation and regression which are directly or indirectly helpful in the stopping off the students from the educational stream. Such as availability of primary and middle schools outside habitation (X_{35} , X_{37} and X_{38}); the percentage of scheduled castes and scheduled tribes (X_{40}); the sex ratio (X_{41}); the child workforce (X_{45}); workforce in the age group 15-19 (X_{46});¹² workforce in primary sectors (X_{49}); insufficiency in the availability of physical facilities (X_{59} , X_{60} , X_{61} , X_{62}) and higher pupil-teacher ratio (X_{63} , X_{64} , X_{65}).¹³

The multiple correlation and regression equation at the completion of each stage and classes have been analysed.

(11) Primary Stage: X_{71} is taken as dependent variable and X_{35} , X_{40} , X_{41} , X_{45} , X_{49} , X_{59} and X_{63} treated as independent.

12. A considerable proportion of the pupils from class IV onwards falls in the age group of 14 years and above.

13. The want of physical facilities and pupil-teacher ratio is explained with the existing facilities.

Table-4.12: Value of Multiple Correlation and Regression Coefficient of the Variables Responsible for Drop-outs

Grade/Step No.	Dependent Variables	Independent variables	Intercept	Regression coefficient	t-test	R	R ²	F-test		
Primary	7	X ₇₁			0.196	2.399	0.823	0.677	8.123	
				X ₃₅		0.086				1.878
				X ₄₀		3.804				2.141
				X ₄₁		7.197				5.637
				X ₄₅		-0.198				-1.955
				X ₄₉		0.094				3.309
				X ₅₉	-42.1559	0.198				1.114
Class I	4	X ₆₆			-0.193	1.081	0.539	0.2905	3.582	
				X ₃₅		0.170				1.749
				X ₄₀		0.248				1.510
				X ₄₉	25.344	-0.069				-1.237
Class II	4	X ₆₇			0.122	0.990	0.600	0.36	4.637	
				X ₃₅		0.157				2.278
				X ₄₀		2.020				1.910
				X ₄₅	-3.943	0.020				0.154
Class III	4	X ₆₈			0.112	1.394	0.608	0.3696	4.818	
				X ₃₅		0.121				2.690
				X ₄₀		1.099				1.589
				X ₄₅	2.0298	0.005				0.058

Grade/Step No.	Dependent variables	Independent variables	Intercept	Regression coefficient	t-test	R	R ²	F-test
Class IV	4	X ₆₉	X ₃₅	0.092	1.051			
			X ₄₀	0.102	2.109			
			X ₄₅	1.454	2.346			
			X ₆₃	-12.0475	0.353	1.780	0.611	0.37332
Class V	6	X ₇₀	X ₃₅	0.219	2.347			
			X ₄₀	0.195	3.762			
			X ₄₁	4.273	2.094			
			X ₄₅	5.369	6.144			
			X ₄₉	-0.416	-3.858			
			X ₅₉	-46.6961	0.060	1.806	0.795	0.6336
Middle	5	X ₇₂	X ₃₈	0.596	1.687			
			X ₄₁	5.664	2.070			
			X ₄₅	3.440	1.788			
			X ₄₆	-15.537	-1.029			
			X ₄₉	-27.912	-0.264	-1.509	0.407	0.165
Secondary	5	X ₇₃	X ₄₀	-0.159	-0.598			
			X ₄₅	-0.579	-1.357			
			X ₄₆	100.16	1.683			
			X ₄₉	-0.115	-0.230			
			X ₆₁	-19.808	0.088	1.263	0.368	0.135

The value of \bar{R} is significant at 99 per cent level of confidence. The regression coefficients are significant in the range of 99 to 95 per cent level of confidence other than X_{63} . The combined effect of the variables explain 67.7 per cent contribution in the drop-out rates. The more contributory variable is the child work-force in the age group 0-14 years (X_{45}) which explains a 7.2 unit change in the drop-out rates with one unit change in the child workers. Sex ratio (X_{41}) explains 3.8 unit change and about 2 unit change is explained by each variable of X_{35} and X_{63} i.e. the number of primary schools outside the habitation and pupil-teacher ratio at primary stage. The negative effect of X_{49} , the workers in primary sectors is probably due to the majority of enrolled students belonging to the families where agriculture is the main occupation.

The classwise breakup of regression equation at primary stage is given below.

(a) Class I: The dependent variable is X_{66} . The explanatory variables are X_{35} , X_{40} , X_{49} , X_{59} . The multiple correlation coefficient is insignificant. The regression coefficients of X_{40} and X_{49} are significant at 95 and 90 per cent level of confidence. The combined effect explain 29 per cent contribution. The negative effect of X_{35} and X_{59} is probably due to the inverse correlation in the distribution of variables in the series.

(b) Class II: The dependent variable is X_{67} and independent variables are X_{35} , X_{40} , X_{45} and X_{49} at 4th step. With the entrance of X_{59} at 5th steps,¹⁴ the value of \bar{R}^2 decreases from 36 per cent to 34.7 per cent.

In both the steps, the value of \bar{R} is not significant. The regression coefficient is significant for X_{40} and X_{45} , at the level of 95 per cent. The significant change is only made by X_{45} by 2.3 units.

(c) Class III: The depend variable is X_{68} and the independent variables are X_{35} , X_{40} , X_{45} , X_{49} and X_{41} . The value of \bar{R} remains the same at both the 4th and 5th¹⁵ steps. The \bar{R} in both the cases is insignificant. The regression coefficients of X_{35} , X_{40} and X_{45} are significant in the range of 99 to 90 per cent level of confidence. The combined effect of the variables roughly explain 37 per cent attributes in the drop-out rates. The significant change is due to the child workforce X_{45} which explains one unit change in the

$$14. X_{67} = -11.36602 + 0.125 \times 35 + 0.156 \times 40 + 2.316 \times 45$$

$$\quad \quad \quad (1.001) \quad \quad (2.247) \quad \quad (2.005)$$

$$\quad \quad \quad + 0.037 \times 49 + 0.029 \times 59$$

$$\quad \quad \quad (0.275) \quad \quad (0.677)$$

$$\bar{R} = 0.589 \quad \bar{R}^2 = 0.346921$$

$$15. X_{68} = -11.16133 + 0.119 \times 35 + 0.12 \times 40 + 1.129 \times 45$$

$$\quad \quad \quad (1.476) \quad \quad (2.658) \quad \quad (1.630)$$

$$\quad \quad \quad -0.029 \times 49 + 1.653 \times 41 \quad \dots (28) b$$

$$\quad \quad \quad (-0.314) \quad \quad (0.982)$$

$$\bar{R} = 0.608 \quad \bar{R}^2 = 0.369664$$

$$\quad \quad \quad (4.042)$$

drop-out rate with a unit change in the variable itself.

(d) class IV: X_{69} is the dependent and X_{35} , X_{40} , X_{41} , X_{45} and X_{63} taken as independent. The regression equation at IV step. The regression is also observed with the entrance of X_{41} at V steps.¹⁶ The value of \bar{R} is insignificant in both the steps and decreases from 37.3 per cent in IV steps to roughly 37 per cent in V steps. The significant contribution is made by X_{45} where a unit change is responsible for 1.5 unit change in the drop-out rates.

(e) Class VI X_{70} is taken as the dependent and X_{35} , X_{40} , X_{41} , X_{45} , X_{49} and X_{59} as independent at the V steps of regression. The value of \bar{R} is significant at 95 per cent. The significance of regression coefficient range from 99 to 90 per cent level of confidence. The combined effect of the variables explain 63.36 per cent contribution in the drop-out rates. The significant level of change is explained by X_{45} and X_{41} which are responsible for a change of 5.4 units and 4.3 units respectively.

$$16. X_{69} = 0.69061 + 0.099 \times 35 + 0.111 \times 40 + -1.691 \times 41$$

(1.116)
(2.241)
(-0.884)

$$1.57 \times 45 + 0.404 \times 63 \dots 29(b)$$

(2.467)
(1.95)

$$\bar{R} = 0.608$$

(4.028)

$$\bar{R}^2 = 0.369664$$

2. Test of Hypothesis and Conclusion

The foregoing discussion of correlation and regression analysis testifies most of the hypotheses. The result obtained from the selected variables are given briefly for rural and urban areas and for India as a whole.

(1) Rural Areas: Among the educational variables enrolment is highly related with the number of available schools per thousand students and is significant at 99 per cent level of confidence; while that of middle and secondary stages is significant at 90 and 99 per cent level of confidence respectively. It proves that higher the number of schools per thousand of students, higher will be the enrolment and lower will be the drop-outs.

There exists no significant correlation of enrolment with the schooling facilities within the habitation. Therefore, the hypothesis that the higher the number of schooling facilities within the habitation, higher will be the enrolment ratio is not accepted.

There is a significant correlation between the availability of schooling facilities outside the habitation and the drop-out rates at primary stage and its classes II and III. It proves the hypothesis 'greater

the distance to be walked to attend the school, higher will be the drop-out and lower will be the enrolment.'

Among the social variables there is a significant positive correlation of enrolment with the literacy rates in the age group 15-35 years, at all stages of education. It proves the hypothesis that higher the number of literate people in a family higher will be the enrolment and lower will be the drop-outs.

The significant negative correlation of enrolment and work-force in primary activity proves the hypothesis that higher the percentage of workforce in primary sector lower will be the enrolment.

There is no significant correlation of enrolment or drop-out rates with the percentage of non-workers which rejects the hypothesis, 'higher the percentage of non-workers higher is likely to be the enrolment.'

The regression analysis reveals that there are two common determinants of child education in rural areas at all the stages of general education. These are the number of schools per thousand of students and the literacy rates. The third factor is the availability of physical facilities at primary stage, while at middle and secondary stages pupil-teacher ratio holds the third position in order of importance.

3. Urban Areas

In urban areas, the enrolment is highly correlated with the number of schools at all stages. It proves 'higher the number of educational facilities higher will be the enrolment and lower will be the drop-outs.'

A high positive correlation of GER is found with the literacy rates which proves 'higher the value of literacy rates higher will be the enrolment and lower drop-outs.'

A significant positive correlation exists between GER and the percentage of workforce in tertiary sectors at all stages of education. Therefore, the hypothesis 'higher the workforce in tertiary sectors higher is the enrolment and lower drop-outs' is accepted.

The significant positive correlation of enrolment in the grades of primary and middle stages with the workforce in secondary sectors proves 'higher the percentage of workforce in secondary sectors higher will be the enrolment and lower drop-outs.'

There is a significant positive correlation of enrolment with the percentage of non workers which testifies 'higher the percentage of non workers, higher will be the enrolment.'

In urban areas, the most common factor to determine the enrolment at all stages of education is the number of schools per thousand students. Other determinants according to their regression coefficients, are the percentage of workers in tertiary and secondary sectors and literacy rates, at the stages of primary and middle. But in the case of secondary education pupil-teacher ratio is the second determinant followed by literacy rates and percentage of workers in tertiary sectors.

4. India as a Whole

The analysis of the total region combining both rural and urban areas gives a positive and significant correlation of enrolment with the number of schools per thousand students, percentage of urban population, literacy rates, percentage of workforce in secondary and tertiary sectors and percentage of non-workers which accept the related hypotheses as discussed earlier. Similarly, a significant negative correlation of enrolment and positive correlation of drop-out rates with the variables like scheduled castes and scheduled tribes, child workforce, workforce in the primary sector and in the age group of 15 to 19 years prove the related hypotheses to these factors.

There exists no significant correlations of enrolment with the sex ratio, availability of physical facilities within the school and pupil-teacher ratio, which rejects the related hypotheses as postulated in introductory chapter. But, the definite direction of relationships as negative in the case of sex ratio and positive in the case of physical facilities and pupil-teacher ratio indicates the validity of the formulated hypotheses which requires further investigations.

In conclusion, the number of schools per thousand students and the literacy rates are the most significant variables to determine the enrolment ratio at any stage of education and both in rural and urban areas. On the other hand, percentage of child workforce and sex ratio are the common determinants of drop-out rates at primary and middle stages, while the drop-out at secondary education is mainly due to entrance in workforce in the age group 15 to 19 years.

CHAPTER-V

ENROLMENT PATTERN AND THE IMPACT OF SOCIO-ECONOMIC FACTORS IN THE DISTRICTS OF KERALA

1. Introduction

Hitherto, the discussion was focussed on a macro level study units, i.e. the states and union territories of India. A micro level study in the districts of Kerala is presented here, to ascertain whether education with its associated factors remains synonymous to the state level, or is there any significant change in the existing norms and trends. The selection of the districts of Kerala as a random sample is only due to the strategic location of Kerala on the western ghats. From the very beginning, the interaction of foreigners and the opening of the sea routes alongwith the development of trades in this region has raised the level of conscience of Konkans and Keralites. Today, Kerala is on the peak of literacy rates and school enrolment.

2. Methodology

The variables which have been selected in the state-level study have also been considered in the district-wise study of Kerala. A nominal change is made in the walking distance to attend middle schools outside the rural habitation upto a distance of 1

kilometer, 2 kilometers and more than 2 kilometers (as shown in Appendix Table 13(C)), in quest of to observe any significant change in the behaviour of correlation. In Kerala the educational structure is such that the primary education consists of only upto grade IV. Therefore, the number of dependent variables have been reduced from X_{24} to X_{21} . Similarly, due to the limitation of data, the infra-structural variables within the schools and the drop-out rates have been deleted, so that the total number of variables comes down to 56. The list of the variables alongwith their mean distribution and standard deviations are shown in Appendix Table 13(F).

Secondly, the number of observations are only ten,¹ therefore, multiple correlation and regression analysis is hardly feasible. Though an attempt is made to find out trivariate relationship with two independent variables which are highly correlated with the enrolment. To assess the impact of a particular variable on enrolment, the regression analysis is carried out with individual variables.

1. The number of districts have been taken according to the 1971 census. Idukki was formed in 1973 comprising of $\frac{1}{3}$ tahsils of Ernakulam and $\frac{2}{3}$ tahsils of Kottayam. The enrolment figure of Idukki has been adjusted proportionately to the districts of Ernakulam and Kottayam.

3. Distribution of GER in the Districts of Kerala

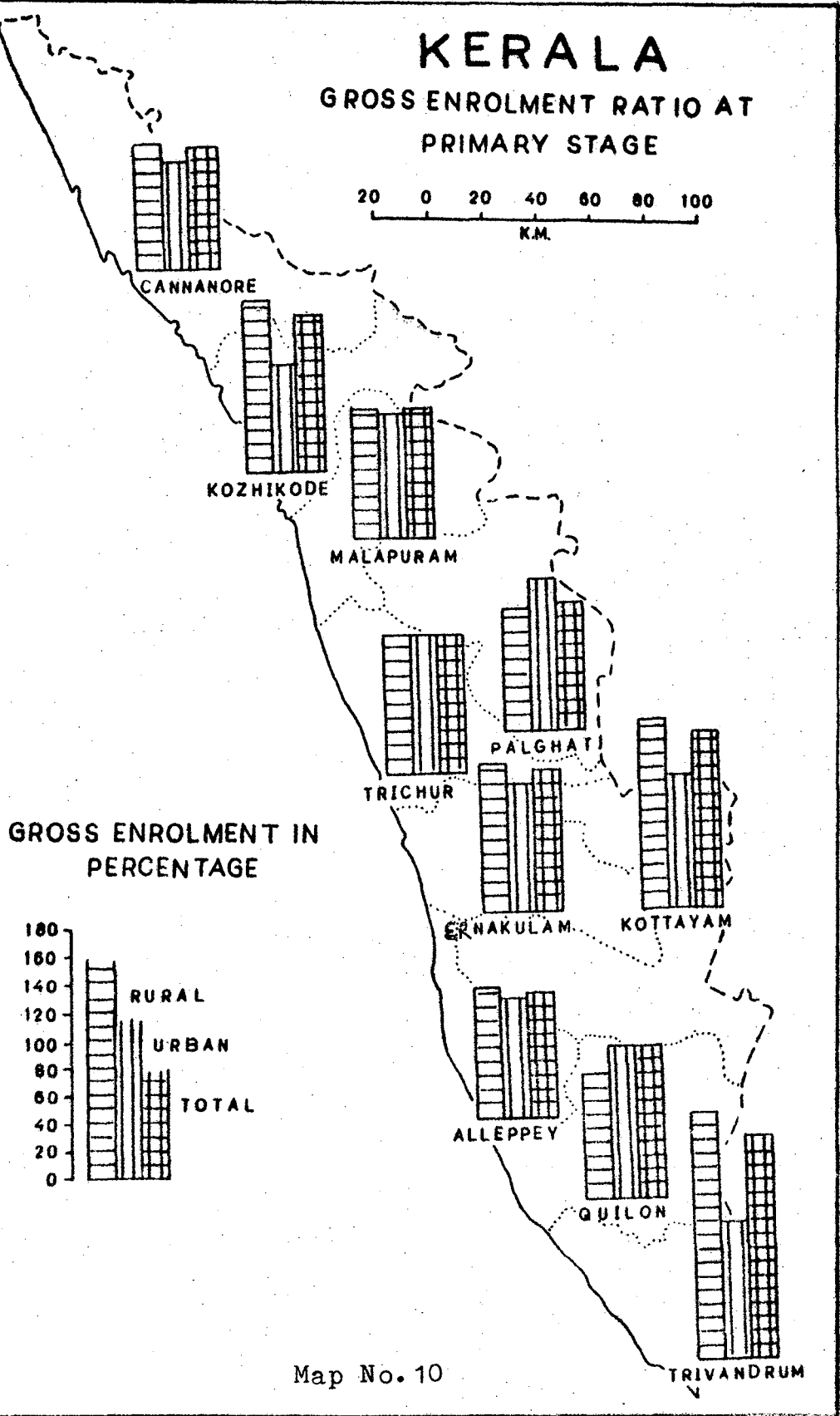
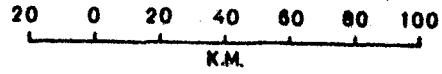
(1) Primary Stage In most of the districts of Kerala, the distribution of GER in rural areas displays a high concentration. The mean distribution is 110.64 per cent with state level average as 99.57 per cent. The coefficient of variation is 26.56 per cent.

According to the previous state level classification in rural and urban areas, the districts of Kerala have been grouped in their respective levels of attainment. Thus, in the rural areas, the two districts Quilon and Palghat range in the medium low concentration whereas the three districts Trivandrum, Kottayam and Calicut exhibit a very high concentration more than 120 per cent of GER. The two districts Trichur and Eranakulam show a high concentration more than 100 per cent. Malappuram and Alleppy lie in the category of medium high.

In the urban areas, the GER at this stage in each district is slightly lower than the rural areas. This is a reverse trend as compared to the state level distribution. The plausible reason may be the equal consciousness and the rate of literacy in the rural people as well as in the urban and the availability of the schools within the rural habitation.

KERALA

GROSS ENROLMENT RATIO AT PRIMARY STAGE



Map No. 10

The mean distribution is 96.15 per cent with 94.07 per cent for Kerala. The coefficient of variation is 14.72 per cent. Trivandrum is the only notable district having a high concentration more than 120 per cent. The districts Palghat, Trichur and Quilon represent medium high concentration. Other districts show a medium-low concentration.

There exist no more discrepancies in the districts of Kerala in either case of class-wise break-up at primary stage or in rural-urban structure of GER. The two districts Trivandrum and Kottayam show a high concentration in Rural Areas in grade I to IV. The others range in the medium concentration (Table 5.1) and Appendix Table 13(a).

(ii) GER at Middle Stage Unlike the state level GER at this stage in all the district of Kerala both in rural and urban areas is very high. The mean distribution in rural areas is 87.24 and in urban areas is 128.48 per cent. The coefficient of variation in urban areas is 50.68 per cent double than the rural areas.

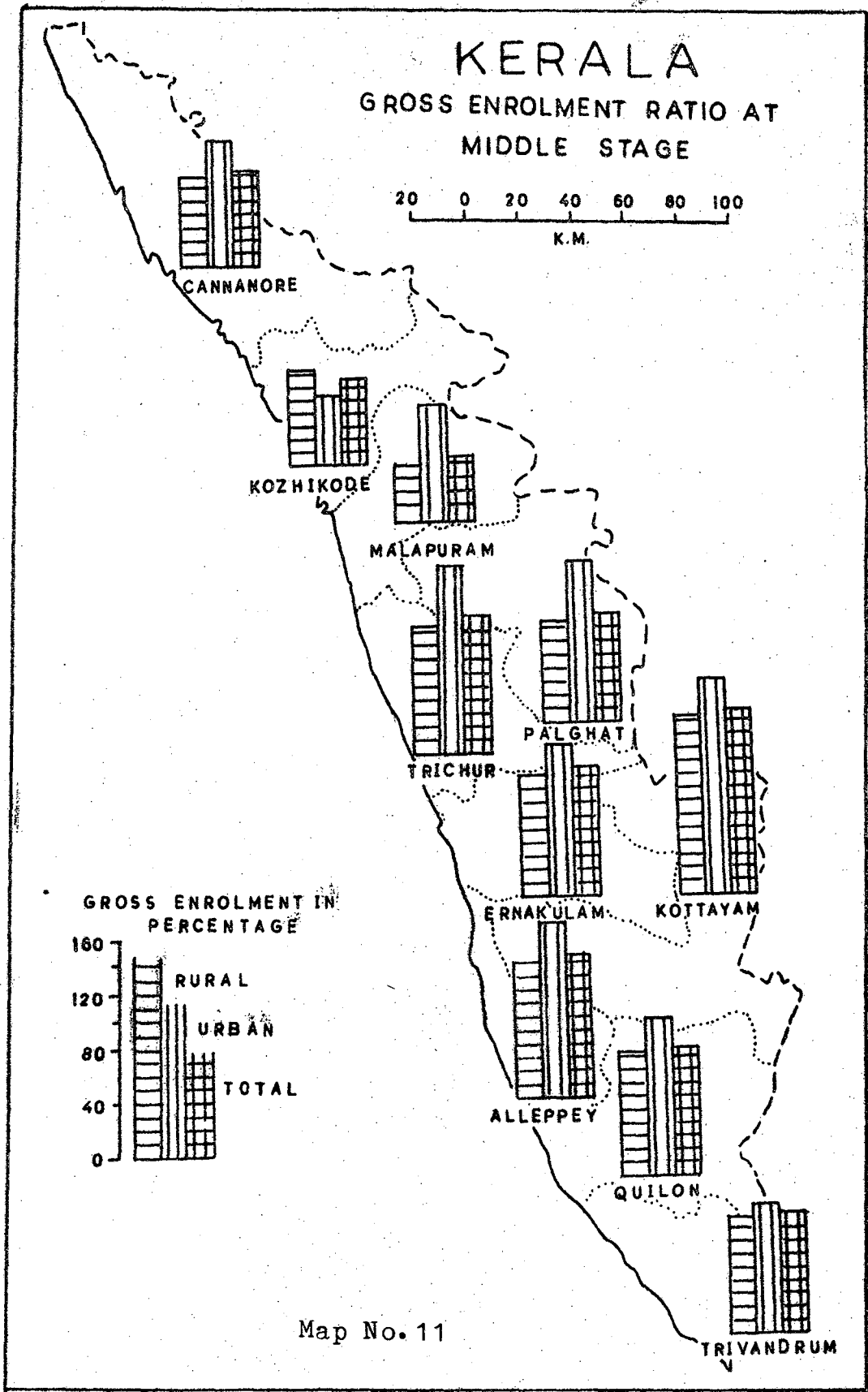
In the rural areas Kottayam and Alleppy show a very high concentration more than 100 per cent. Trichur, Ernakulam, Quilon and Trivandrum display high concentration of GER in the range of 80 to 100

Table-5.1: District-wise Distribution of GER in Kerala 1973

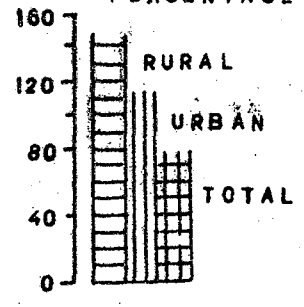
S.No.	State/ Districts	Primary Stage			Middle Stage			Sec./Hr. Sec. Stage		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
	KERALA	99.57	94.07	98.70	82.19	116.81	87.30	31.35	70.12	36.99
1.	Cannanore	93.03	77.63	91.66	68.26	95.31	71.83	17.07	84.37	26.00
2.	Calicut	126.16	78.88	112.26	73.36	53.04	67.41	31.70	52.63	37.91
3.	Malappuram	99.17	92.99	98.77	50.97	95.61	53.91	17.02	57.24	19.71
4.	Palghat	85.72	109.50	88.56	74.02	119.80	79.92	22.47	60.67	27.41
5.	Trichur	100.33	101.81	100.50	94.30	137.23	99.71	49.65	34.11	45.02
6.	Ernakulam	104.09	92.04	102.92	91.90	115.13	98.33	44.54	53.46	47.20
7.	Kottayam	132.47	93.40	127.16	134.57	161.94	138.29	64.50	118.93	71.54
8.	Alleppy	93.15	85.14	91.77	100.99	131.78	106.20	56.81	105.20	65.00
9.	Quilon	89.39	108.81	90.88	94.07	119.68	96.00	50.26	98.09	53.67
10.	Trivandrum	182.15	121.40	162.97	89.98	97.17	91.81	13.07	54.60	17.85

KERALA

GROSS ENROLMENT RATIO AT MIDDLE STAGE



GROSS ENROLMENT IN PERCENTAGE



Map No. 11

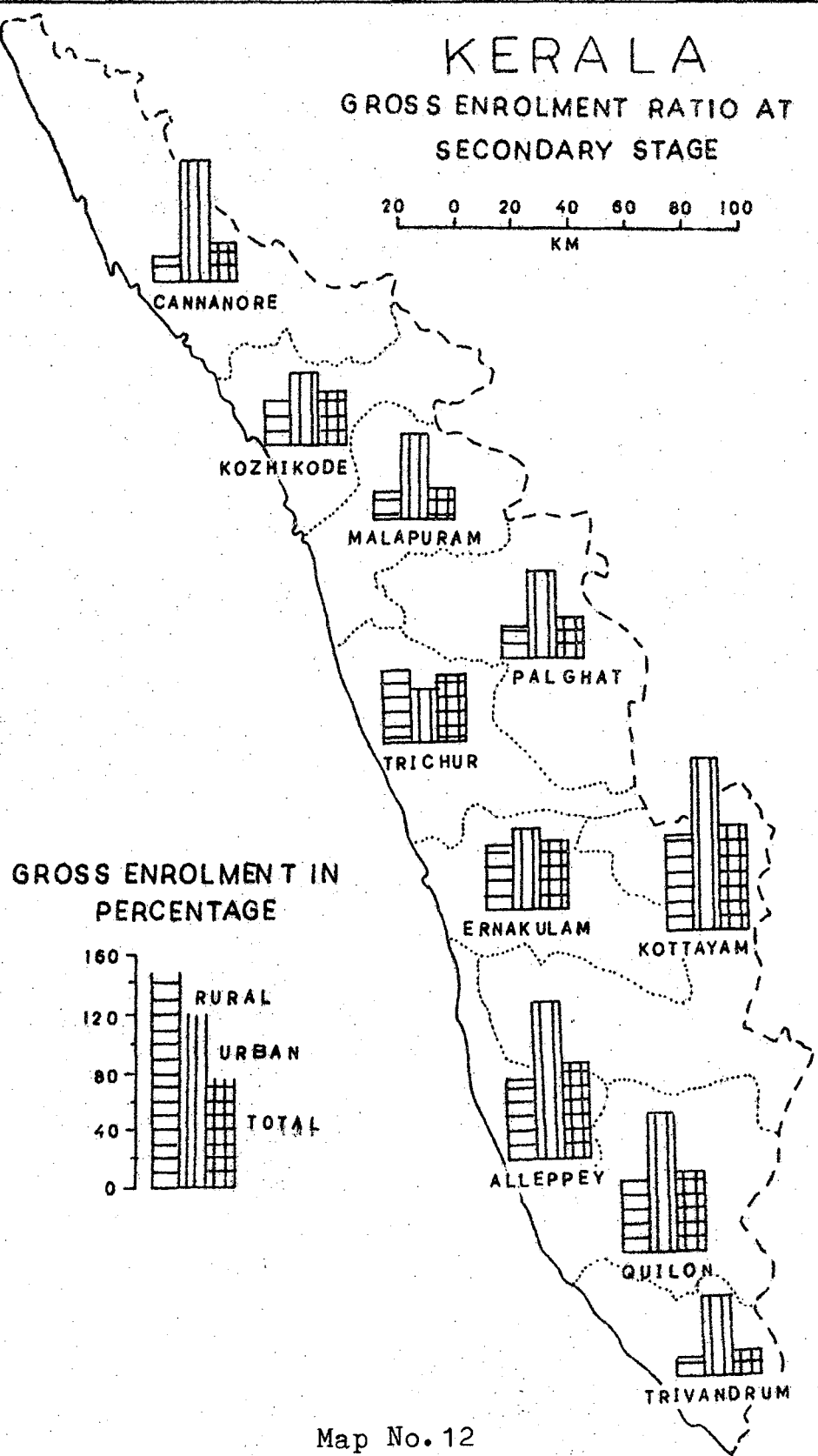
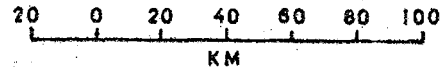
per cent. Cannanore, Calicut and Palghat range in the medium high. Malappuram is the only district which exhibits medium low concentration as compared to other districts.

In the urban areas sixty per cent of the districts reveals a very high concentration more than 100 per cent. Among them Trichur (295.37) reaches its peak followed by Kottayam (161.94) and Alleppy (131.78). Cannanore, Malappuram and Trivandrum show a high concentration whereas Calicut falls in the category of medium high. The later four districts are below the average state level of 116.8 per cent of GER. The total distribution including rural and urban follows the pattern of rural areas.

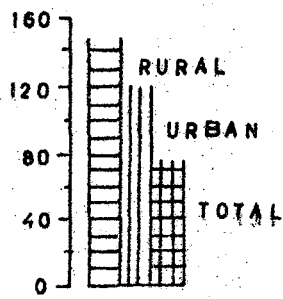
(11) GER at Secondary Stage At the secondary and higher secondary stage, the GER in each district is higher in urban areas than the rural areas. It follows the trend of state level distribution. The mean distribution in rural areas is 36.71 per cent while in the urban areas it is 71.93 per cent and their total mean comes as 41.13 per cent. The coefficient of variation in rural areas (50.34) is higher than that of urban (36.61) and total areas (45.34).

KERALA

GROSS ENROLMENT RATIO AT SECONDARY STAGE



GROSS ENROLMENT IN PERCENTAGE



Map No. 12

Apparently it indicates a significant contribution of urban enrolment to the total but the factual analysis of average attainment of 31.35 per cent of GER in rural areas to the 36.99 per cent in the total discloses a 4.64 per cent contribution of urban areas.

The distribution of GER in rural areas in comparison to the state level distribution reveals a very high concentration in most of the districts of Kerala. Only the three districts Cannanore, Malappuram and Trivandrum show a lower attainment below 20 per cent.

In the urban areas, the trend is more or less the same to that of the middle stage. Kottayam and Alleppy show very high concentration more than 100 per cent. Cannanore and Quilon range in 80 to 100 per cent of high concentration. Palghat lies in the category of medium high, while the other four districts represent the medium low concentration. Trichur is only exception displaying lower concentration below 40 per cent of GER.

(a) Total Areas The pattern of GER at all stages of general education both in the districts and states of India, follows the pattern of rural areas. In most of the cases, the effect of high concentration in urban areas neutralizes with the lesser attainment of rural.

It means the process of urbanization is still too low to bring a significant change.

4. Distribution of Socio-economic Factors

The distribution of each of the variables of educational, social and economic factors in rural, urban and total areas are given in the Appendix Tables 13(a) (ex X_{22} to X_{56}).

(i) Schooling Facilities. The number of primary schools per thousands of students, is highly concentrated in the northern districts of Kerala such as Cannanore and Calicut and in the southern districts of Trivandrum and Kottayam. In urban areas, the highest concentration is only in the districts of Malappuram and Trichur. The number of middle schools per thousands of students is highly concentrated in the northern districts of Kerala in Cannanore and Calicut. On the contrary, in urban areas, the districts of southern Kerala like Alleppy, Quilon and Trivandrum show a lowest concentration of middle schools. In the case of secondary schooling facilities the southern Kerala dominates in the concentration over northern Kerala. (See Appendix Table 13(b) and Map No. 13, 14 and 15).

(ii) Rural Habitation with/without Primary and Middle Schools

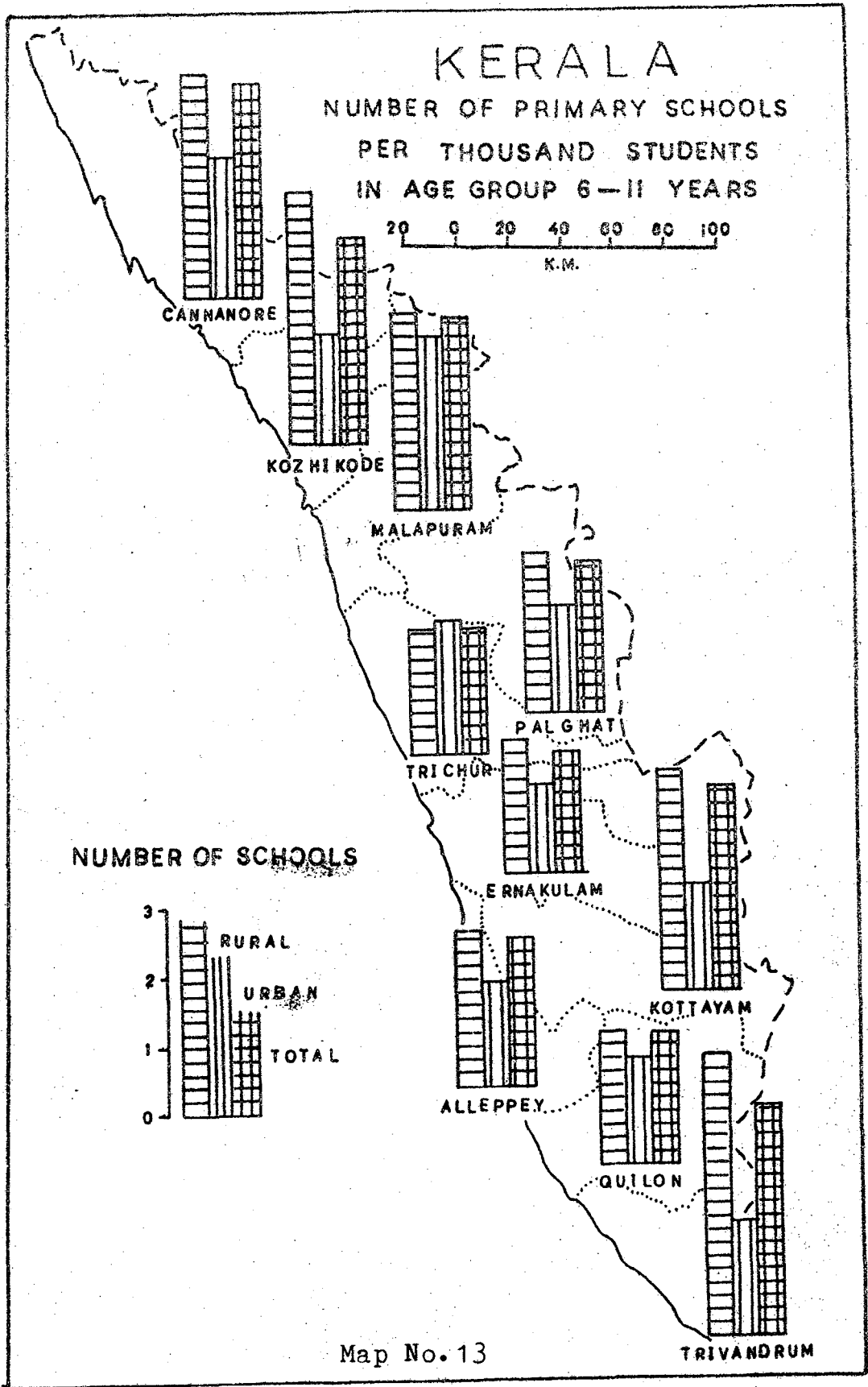
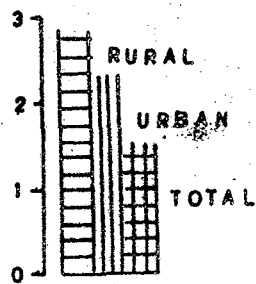
The rural habitations served with primary schools exhibit high concentration in the northern parts of

KERALA

NUMBER OF PRIMARY SCHOOLS
PER THOUSAND STUDENTS
IN AGE GROUP 6-11 YEARS



NUMBER OF SCHOOLS



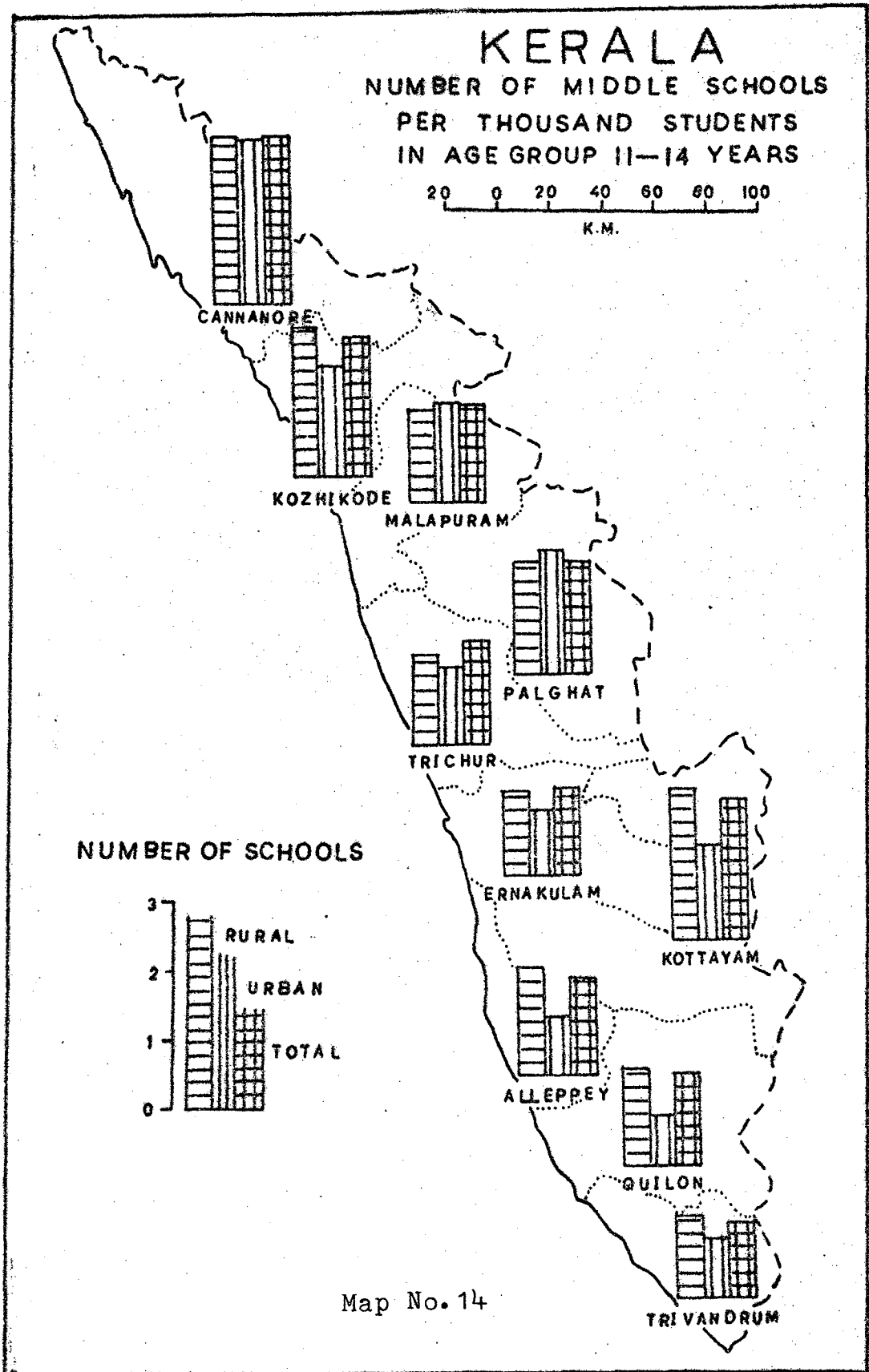
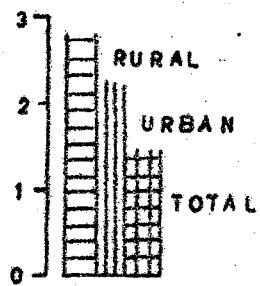
Map No. 13

KERALA

NUMBER OF MIDDLE SCHOOLS
PER THOUSAND STUDENTS
IN AGE GROUP 11-14 YEARS



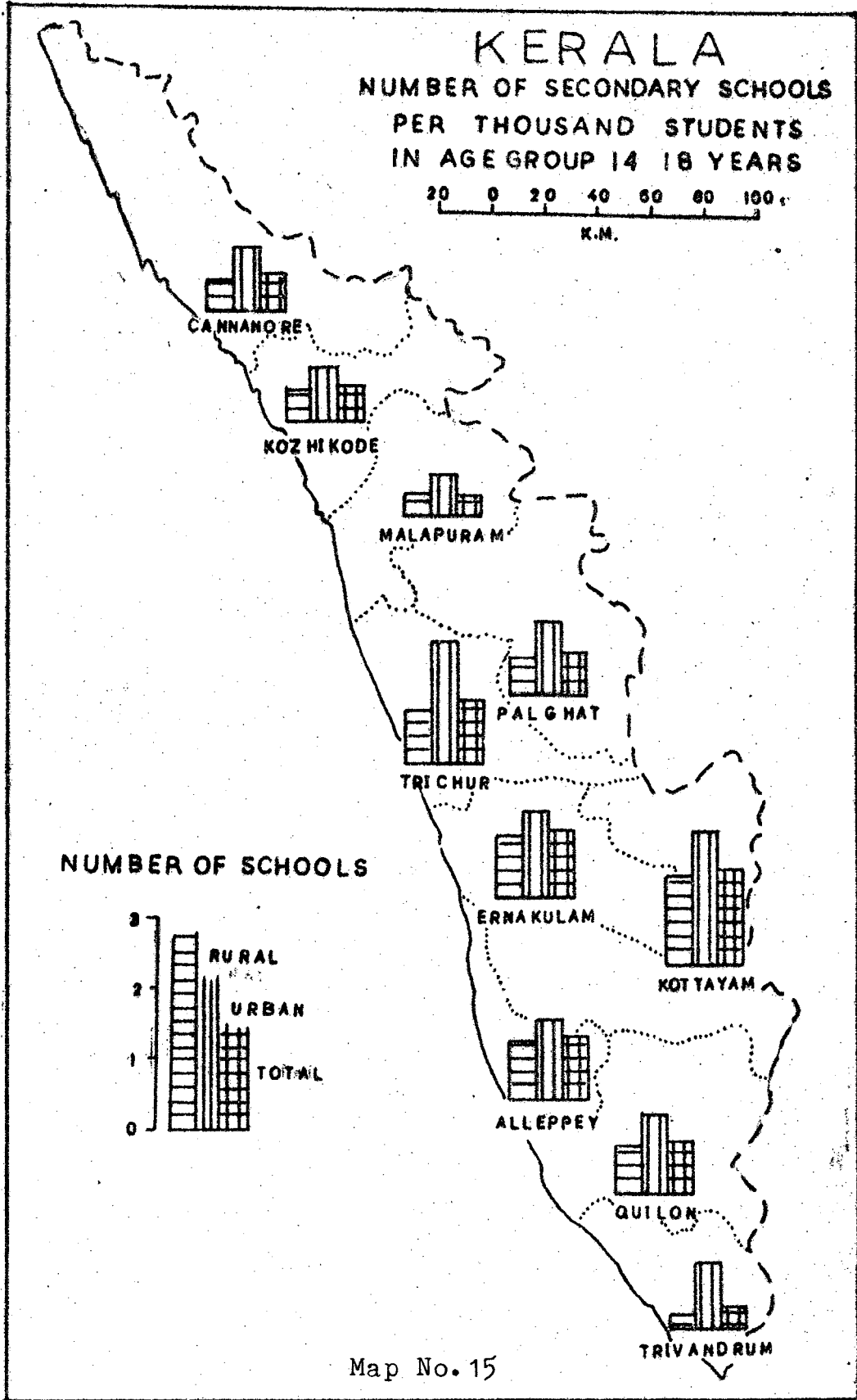
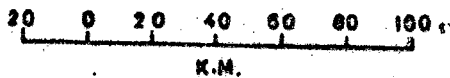
NUMBER OF SCHOOLS



Map No. 14

KERALA

NUMBER OF SECONDARY SCHOOLS
PER THOUSAND STUDENTS
IN AGE GROUP 14-18 YEARS



Map No. 15

Kerala such as Cannanore, Palghat and Trichur, where more than 70 per cent of the pupils are served within the habitation. On the other hand in the distribution of middle schools, the districts of northern Kerala show a lower concentration than the southern districts. In most of the districts more than 36 per cent of the pupils walk a distance of 2 kilometers or more than 2 kilometres to attend the middle schools in rural habitations.

(iii) Urban Population: The urban population is highly concentrated in the southern Kerala in the districts of Ernakulam and Trivandrum followed by the northern districts of Calicut and Cannanore. The lowest rate of urbanisation is found in the district of Malappuram of northern Kerala where urban population constitutes 7.2 per cent of the total population.

(iv) Scheduled Castes and Scheduled Tribes: The distribution of scheduled castes and scheduled tribes reveals an uniform distribution all over the states except in Palghat where the concentration is highest amongst the districts. Cannanore and Calicut show the least concentration (Appendix Table 13 (d)).

(v) Sex Ratio: Sex ratio is lower only in the districts of Ernakulam, Kottayam and Calicut. Other districts reveal a higher sex ratio more than 1000 among them Trichur and Malappuram rank first and second, with 1081 and 1056 sex ratios.

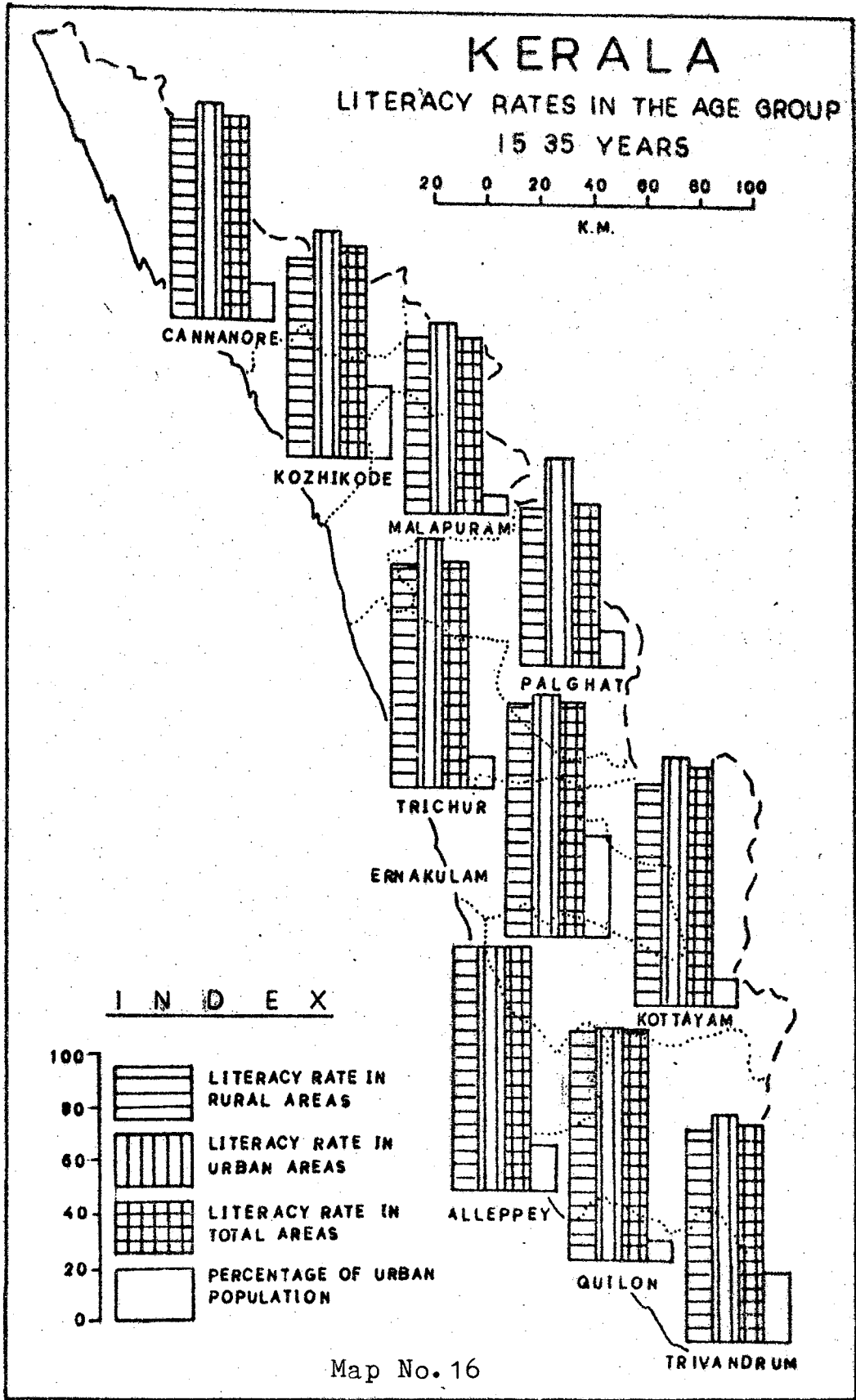
(vi) Literacy Rates: The literacy rates which have been worked out for the age group 15-35 years, exhibit a highest concentration everywhere in the districts of Kerala, other than Palghat and Malappuram which are even lower than the state level of 79.3 per cent in rural areas. The average literacy rate in the urban areas is 86 per cent and that of the total areas is 80.5 per cent.

(vii) Child Workforce: Palghat is the only district where the child work force is relatively higher than the average i.e. 2.64 per cent in the age group 0-14 and 38.53 per cent in the age group 15-19. On the other hand Alleppy exhibits a very lower rate of workforce in the age group 0-14 and relatively lower in the age group 15-19, i.e. 0.79 and 17.35 per cents respectively

(viii) General Workforce: The northern districts of Kerala show a higher rate of participation in the primary sectors than the secondary. On the other hand, the southern districts of Kerala have higher participation in secondary sectors in comparison to northern districts. In most of the districts, the participation in the tertiary sector is higher than the secondary. The percentages of non-workers are very high in the districts of southern Kerala than those of northern Kerala.

KERALA

LITERACY RATES IN THE AGE GROUP
15 35 YEARS



Map No. 16

5. The Exercise

A 56 by 56 correlation matrix is worked out and correlation coefficient is tabulated for each of the variables in rural, urban and total areas as shown in correlation matrix tables 18, 19 and 20.

(i) Correlation Analysis:

(a) Correlation with Educational Variables: From the correlation of Gross Enrolment Ratios and educational variables, following results are obtained.

The GER at primary stage in each class is positively correlated with the number of primary schools per thousand of students in rural areas. The correlation coefficients are 0.7508, 0.7232, 0.7901, 0.6705 and 0.7661 in class I, II, III, IV and primary which are significant at the level of 0.01. Similarly a high positive correlation is found with the number of middle and secondary schools. The significant correlation coefficients are 0.6982 and 0.9307 respectively at the level of 0.02 and 0.01.

In the case of urban areas, the correlation exhibit a negative coefficient with primary and middle schools as -0.139 and -0.2082 and a positive correlation with secondary schools as 0.3369. The correlation coefficients are insignificant. The negative correlation

can be explained from the nature of distribution of enrolment and schooling facilities. Such as Palghat and Quilon rank first and second in the attainment of GER at primary stage while they acquire seventh position in the availability of primary schools. Similarly in the attainment of GER at middle stage, Trichur, Kottayam and Alleppy rank I, II and III, but their position come down to 6th, 5th and 9th in the number of middle schools per thousand of students. Probably this type of inverse distribution is responsible for negative correlation in urban areas.

Like rural areas, the total areas exhibit a positive correlation with a coefficient of 0.5942 and 0.9237 at primary and secondary stages which are significant at the level of 0.05 and 0.01. The correlation coefficient at middle stage is negative (-0.301) which is not significant.

The attainment of GER is negatively correlated with the availability of primary schools within the rural habitation and positively correlated outside the habitation. The correlation coefficients of within the habitations are -0.5225, -0.5606, -0.4012, -0.4893 and -0.5129 in class I, II, III, IV and primary respectively. True are the coefficients with positive signs with outside habitations. They are significant at the level of 0.1. Unlike the state level study,

the district study of Kerala shows an inverse correlation of GER with the availability of primary schools within the rural habitation. This is due to the inequality in the distribution of GER and primary schools within the habitation. Examples can be seen in some of the observations such as Trivandrum which ranks first in the attainment of GER in rural areas but has got tenth position in the availability of primary schools within the rural habitation. Similarly Cannanore ranks 8th in the attainment of GER but acquires first position in the availability of primary schools within the rural habitations.

(b) Correlation with Social Factors The correlation of GER and the variables of the social factors X_{37} to X_{42} give the following results.

The GER at primary stage is positively correlated with the percentage of urban population. The correlation coefficients are 0.2701, 0.3146, 0.4411, 0.3277, 0.3503 in class I to IV and primary respectively. The test of significance range upto 0.1. On the other hand negative correlation coefficient is found as -0.0027 and -0.0822 at middle and secondary stages.

Correlation with the scheduled castes and scheduled tribes population is negative at primary stage but does not reveal any significance.

Correlation with sex ratio is negative and significant in the case of class III at the level of 0.1 ($r = -0.4828$).

A positive correlation establishes with the literacy rates both in rural, urban and total areas. The correlation coefficient is very high at the middle and secondary stages as 0.7331 and 0.7685 which are significant at the level of 0.01. The coefficient lowers down to 0.5535 and 0.3989 in class III and IV which are significant at the level of 0.05 and 0.1. In the case of rural and urban areas the correlation coefficient does not prove significant other than middle and secondary stages in rural areas and middle stages in urban areas.

(c) Correlation with Economic Factors which include the variables X_{43} to X_{56} , give the following results.

A negative correlation is found with the child work force in both the age groups of 0-14 and 15-19 years. The correlation coefficient is only significant at the stage of secondary education and middle education in the age group 15-19 ($r = -0.4398$).

A negative correlation also exists with the workers in primary sectors in both rural, urban and total areas.

The positive correlation with secondary sectors is at the stage of middle and secondary enrolment. The significant correlation coefficient is found in class III with the workers in secondary sectors i.e. -0.7146 , significant at the level of 0.01 in total areas. Other correlation coefficient though not significant, are negative in the classes of primary education. On the contrary, to urban and total areas, the correlation is positive in rural areas as 0.4556 in class III and 0.5412 in class IV with the work force in secondary sectors, which are significant at the level of 0.1 and 0.05.

A positive correlation is found with the work-force in tertiary sectors, but the correlation coefficient is too low to be proved significant, other than class III which is significant at the level of 0.1.

The correlation of GER and the percentage of non-workers population to the total population is positive both in rural and total areas but none of the correlation coefficient prove significant. The significant positive correlation (0.5332) is found at middle stage in urban areas.

(ii) Multiple Correlation and Regression Analysis: As it is stated that the number of observation in Kerala is only 10 and the analysis of multiple correlation

with more than two independent variables will not be worthwhile. An attempt is made to find out a combined effect of two independent variables on the enrolment ratios. Only those independent variables have been selected which are highly correlated with the enrolment but their correlation is merely significant. Thus, from the whole correlation matrix, only two variables namely the number of schools per thousand of students and the literacy rates are found to be significant. The computation is carried on as deviations from their respective means, so the intercept 'a' in regression analysis is zero. The mathematical representation is given as follows.

$$X_1 = b_{12.3} X_2 + b_{13.2} X_3$$

The R value and computed² F is given below the equation line.

Thus, the regression equation of enrolment X_{15} on the number of primary schools per thousand students X_{24} and the literacy rate X_{42} is given below.³

2. F-test is calculated on the formula $\frac{R}{1-R^2} \frac{n-p-1}{p}$

The degree of freedom is numerator is 7 and that of denominator is 2.

3. $X_{15} = 17.41 x 24 + 0.388 x 42$
 $R = 0.6537; R^2 = 0.4273; F = 3.995.$

Though, the R value is insignificant, yet both the independent variables explain 42.7 per cent of the enrolment at primary stage. From the regression coefficient, the contribution of schooling facilities is obvious.

At middle stage, the regression equation of X_{18} on X_{27} and X_{42} is worked out.⁴

The combined effect of middle schools and literacy rate on the enrolment at middle stage is 56.8 per cent.

At secondary and higher secondary stages the regression of X_{21} on X_{30} and X_{42} gives a combined effect of X_{30} and X_{42} as 90.35 per cent where R-value is also significant.⁵

(iii) Regression Equation with Individual Variables:

Some of the important regression equation of enrolment at primary, middle and secondary stages in rural, urban and total areas is given with individual independent variable in the respective areas. The regression equation is given as

$$X_1 = a + b X_2$$

4. $X_{18} = -23. X_{27} + 1.69 X_{42}$
 $R = 0.736; R^2 = 0.5679; F = 6.145.$

5. $X_{21} = 40.6 X_{30} + 0.5587 X_{42}$
 $R = 0.9505; R^2 = 0.9035; F = 34.47.$

where 'a' is the intercept and 'b' regression coefficient. The regression coefficient is computed in respect of means and standard deviations of the variables.⁶

The regression of stage-wise enrolment and schooling facilities in rural and urban areas and for state are given below.^{7,8,9}

From these regression equations, it is clear that the contribution of schooling facilities is more significant in the attainment of enrolment, particularly in rural areas.

6. Regression coefficient is computed on the following equation.
 X_1 denotes dependent variable and X_2 independent. $(X_1 - \bar{X}_1) = r \frac{X_1}{X_2} (X_2 - \bar{X}_2)$ where

7. Primary Stage

Rural	-X ₁₃	=	32.194	+	27.515	X ₂₂
Urban	-X ₁₄	=	86.6	-	5.159	X ₂₃
Total	-X ₁₅	=	48.88	+	22.075	X ₂₄

8. Middle Stage

Rural	-X ₁₆	=	30.039	+	33.431	X ₂₅
Urban	-X ₁₇	=	94.26	-	25.13	X ₂₆
Total	-X ₁₈	=	64.09	-	15.735	X ₂₇

9. Secondary/Higher Secondary

Rural	-X ₁₉	=	1.1	+	53.94	X ₂₈
Urban	-X ₂₀	=	33.7	+	21.48	X ₂₉
Total	-X ₂₁	=	3.54	+	51.13	X ₃₀

The regression equation with literacy rate is given only for total areas and with those dependent variables where correlation coefficient is significant.¹⁰

As the intercept 'a' at middle and secondary stages becomes negative, it is needed to examine the reversal regression of X_{42} on X_{18} and X_{21} .¹¹ So that one can determine the contribution of middle and secondary education in the achievement of literacy rates.

Thus, the contribution of middle schools is 82 per cent and that of secondary schools is 100 per cent in the achievement of literacy rates in Kerala.

6. Conclusion

(1) Spatial Pattern The distribution of enrolment ratio at primary, middle and secondary stages in the district of Kerala forms some distinctive regions of concentration. For example at primary stage, there is a region of medium concentration (95 to 120 GER)

$$\begin{aligned} 10. \quad X_9 &= 4.73 + 0.34 X_{42} \\ X_{15} &= 66.06 + 0.51 X_{42} \\ X_{18} &= 1.77 X_{42} - 50.58 \\ X_{21} &= 1.46 X_{42} - 75.22 \end{aligned}$$

$$\begin{aligned} 11. \quad X_{42} &= 52.25 + 0.304 X_{18} && \text{at middle stage} \\ X_{42} &= 63.1 + 0.408 X_{21} && \text{at secondary} \end{aligned}$$

extending from north to south in the districts of Calicut, Malappuram, Trichur and Ernakulam. This is followed by a region of low concentration of below 95 per cent of enrolment on both sides as Cannanore in the north and Alleppy and Quilon in south. Kottayam of central Kerala and Trivandrum of south exhibit a region of high concentration with more than 120 GER. At middle stage, high concentration is found in the coastal districts, Alleppy and Kottayam which have a GER of more than 100. The southern districts Quilon and Trivandrum and the central districts Trichur and Ernakulam form two distinct regions of medium concentration of enrolment in the range of 80 to 100 per cent. The northern districts Cannanore, Calicut, Malappuram, and Palghat form a region of low concentration below 80 per cent. The distribution map of GER at secondary stage shows a region of high concentration in southern Kerala comprising the districts of Kottayam, Alleppy and Quilon where GER is more than 50. The adjoining districts of this region Trichur and Ernakulam constitute a region of medium concentration (GER 30 to 50) and the adjacent districts of this region Malappuram and Palghat constitute a region of low concentration below 30 per cent of GER.

The distribution of enrolment in rural areas is similar to that of total areas at middle and secondary stages and with a minor change of districts at primary stage. The change is observed in Calicut in northern Kerala which has high concentration of enrolment in rural areas.

The urban enrolment shows two regions of high concentration at primary stage (GER more than 100). One region is formed in southern Kerala in the districts of Quilon and Trivandrum. Another in central Kerala constitutes the districts of Palghat and Trichur. Ernakulam and Kottayam form a region of medium concentration (GER 90 to 100) in central Kerala which gradually decreases towards north to medium in district of Malappuram and to low in the districts of Cannanore and Calicut. At middle stage, a region of high concentration with more than 100 per cent of enrolment emerges in Alleppy, Kottayam and Trichur of central Kerala, followed by a region of medium concentration (GER 100 to 120) in the adjoining districts of Palghat and Ernakulam. Cannanore, Calicut and Malappuram form a region of low concentration (below 100 GER). The distribution at secondary stage forms a region of high concentration (more than 80 GER) in the district of Kottayam, Alleppy and Quilon in southern Kerala, followed by a region of low

concentration (below 60 GER) on either side in north and south of the region e.g., Trichur and Ernakulam in north and Trivandrum in south. Calicut and Malappuram show another region of low concentration. The region of medium concentration is scattered in northern and central Kerala such as in the districts of Cannanore and Palghat.

(ii) Test of Hypotheses: The correlation and regression analysis of enrolment with the educational and socio-economic correlates in Kerala gives the following results.

The relationship between enrolment and number of schools per thousand students, availability of educational facilities, within the rural habitation, literacy rates, percentage of urban population and workforce in tertiary sector is positive and significant at all stages of education in rural, urban and total areas (other than number of middle schools in urban areas), which prove that the hypotheses related to the determining factors are accepted.

A significant negative correlation of enrolment with the child workforce proves 'higher percentage of child workforce, lower will be the enrolment.'

There is no significant relationship between enrolment and the workforce in primary or secondary sectors, therefore, their related hypothesis is not accepted. Only at secondary stage the correlation coefficient is significant but positive in the case of primary workers and in the case of secondary workers it is negative which is reverse to the postulated hypotheses.

There is no significant relationship of enrolment and percentage of scheduled castes or scheduled tribes population as well as non-workers hence the related hypothesis is nullified. But the negative direction of relation in the case of scheduled castes/scheduled tribes and positive direction in the case of non-workers which is significant in grade III, indicate the validity of hypothesis.

The multiple correlation and regression analysis identifies the number of schools per thousand students, schooling facilities within rural habitation, and literacy rates as the common determinants of enrolment at all stages of education in the region and in both rural and urban areas.

The contribution of enrolment to the literacy rates is significantly high at middle and secondary stages which indicates that the attainment of literacy is the function of middle and secondary schooling.

(111) Variation Between State Level and Intra-State Levels

(a) Similar Results

The correlation and regression analysis of enrolment to the number of schools per thousand students, literacy rates and percentage of child-workforce at all stages of education in both rural, urban and total areas show similar results in both the state and intra-state level studies of India and Kerala.

The correlation analysis of enrolment to the workforce in tertiary sectors reveals positive and significant at all stages of education in the region at both the levels.

There exists no correlation between enrolment and sex ratio at both state and intra-state levels. But, there is a slight deviation in Kerala in class III where hypothesis is likely to be accepted.

(b) Deviation: The correlation of enrolment with the availability of schooling facilities within the rural habitation is positive but insignificant in the case of state level while negative and significant in the case of intra-state levels. In both the cases, the hypothesis is not accepted.

The enrolment is positively correlated with the percentage of urban population but only significant at middle and secondary stages in the states and primary and its grades in the districts of Kerala. In both the cases hypothesis is accepted.

The negative correlation exists between enrolment and percentage of scheduled castes and scheduled tribes population at middle and secondary stages of education at both the state and intra-state levels. Yet the deviation is found in the test of hypothesis. For example, in the case of state level study of India it proves the hypothesis whereas in the case of Kerala it does not prove.

The hypothesis 'higher the percentage of workforce in primary sectors, lower will be the enrolment,' is accepted in the case of state level study but not in the case of district level study of Kerala.

A significant positive correlation of enrolment with the workforce in secondary sectors is obtained from the state level study where related hypothesis is accepted, but in case of district level study, the correlation coefficient is not significant at all stages other than grades III and IV of primary where hypothesis is likely to be accepted.

CHAPTER-VI

CHILD EDUCATION - A COMPENDIUM

The child is entitled to receive education, which shall be free and compulsory at least in the elementary stages. He shall be given an education which will promote his general culture and enable him on a basis of equal opportunity to develop his abilities, his individual judgement and his sense of moral social responsibility and to become a useful member of society.

— United Nations¹

In the post war period, there has been a considerable effort to improve the status of child education both on national and international levels. On 20th November 1959, the General Assembly of the United Nations unanimously adopted the Declaration of the Rights of the Child. The spirit of the document was reflected in the Preamble which said: "Man-kind owes the child the best it has to give."² On 21st December 1976, the General Assembly adopted a resolution declaring 1979 the International Year of the Child. This declaration brought a general awareness of the countries to revive their existing condition of education and welfare services. India

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1. United Nations, Declaration of the Rights of the Child, Principle 7.
 2. United Nations, Declaration of the Rights of the Child, Preamble.

is no more behind to review her educational structure and format. The intellectual world produced and reproduced innumerable literature, covering various dimensions of child education. Some of their main findings are illustrated in Chapter II, Part A. As a result, the past decade of seventies experienced a multifarious development in the perspective of child education regarding the matters of performance, planning, suggestions and recommendations etc.

The present work 'Child Education in India - A Geographical Analysis,' is an addition to the field of geography particularly from the view point of regional development and planning. A brief summary of the findings, prospects and areas for further research work are discussed below.

(i) Educational Structure: The educational system of a nation has its own impact upon the educational progress. The most important differences depend upon the duration of compulsory schooling and upon the method of dividing up the period between the ages of five or six or eighteen or nineteen years into grades of courses. The countries having a system of compulsory schooling for a period between eight, nine or ten years are less prone to educational wastage. A clear example is presented by the enrolment pyramid of Japan. The countries, where there is a compulsory schooling

for a period of five to six years are more prone to educational wastage in the completion of their first level of education. The enrolment pyramid of developing countries like India, Indonesia, Brazil, Columbia and Rhodesia present a good example of this system, as it is shown in the map of enrolment pyramid of India and the world.

There exists no common pattern of educational system in the states and Union Territories of India (refer Appendix Table 2). The enrolment pyramids of all the states exhibit a high rate of wastage in class I and class II. Among them, the north-eastern hilly states like Manipur, Meghal^aya and Nagal^hand exhibit a very high rate of wastage, as compared to the other states and Union Territories. Their bases are broader but shrink sharply in class II (refer map No.2).

(ii) Regional Equity and Equalisation of Educational Opportunity:

The distribution pattern of both GER and NER in rural and urban areas along with the high rates of drop-out pose certain problems of regional equity. Similarly regional imbalances in the available educational facilities, presence of socially and economically backward communities like scheduled castes and scheduled tribes or agrarian population, the rate of urbanisation, industrialisation and tertiarisation and available physical facilities at schools create

another problem for the equalisation of educational opportunities. For example, the enrolment distribution reveals a low attainment in most of the states of northern and central India, at all stages of primary, middle and secondary education. Among them Bihar, Rajasthan, Jammu and Kashmir and the Union Territory of Arunachal Pradesh exhibit very low attainment in rural areas as well as in the states as a whole. The performance in urban areas is slightly better than the rural areas.

The same region (north and northeastern India) which is deficient in the attainment of enrolment, shows a high rate of drop-outs in class I and II which is nearly 40 per cent and above. For example, Manipur, Meghal^a_{ya}, Mizoram and Arunachal Pradesh in the north-eastern India and Uttar Pradesh, Bihar, West Bengal, Jammu and Kashmir in the northern India.

The cumulative rate of drop-out in primary education is also high in this region comprising the states of Andhra Pradesh, Orissa, Bihar, Uttar Pradesh and in Union Territory of Arunachal Pradesh.

Similarly, the north-eastern region comprising the states of Meghalaya and Nagaland exhibit a high rate of drop-out in middle stage.

Whereas, the region is no more deficient in the availability of primary schools in rural areas.

The states of Assam, Manipur, Meghalaya, Nagaland, Mizoram and Orissa have higher ratio of schooling facilities per thousand of students in corresponding age group of primary.

In the states of northern, central and north-eastern India, there is a definite impact of socio-economic factors in bringing down the ratios of enrolment and uplifting the rates of drop-outs. The region is deficient in the literacy rates, urbanisation and participation of workforce in the secondary sectors. The index of available physical facilities at primary stage is lower than the states of southern region while the pupil-teacher ratio is very high. These prevailing factors are the main causes for inequalities in the available educational opportunities.

In the districts of Kerala, the regional imbalances are less as compared to the states in all aspects of enrolment achievement and socio-economic variables. Yet a line of demarcation can be drawn between the north and south districts. Both the rural enrolment and rural literacy rates are higher in the districts of southern Kerala than northern Kerala.

(iii) Educational and Environment: The foregoing discussion of socio-economic correlates, educational factors and the availability of physical facilities

within the schools indicate that the education of the pupils living in a region is determined by the surrounding environment both at school and outside the school. Even in the case of Kerala, Mencher³ speaks: "There is no question that in Kerala government has done a great deal to help the poor in terms of health measures and education but as long as they work within the present social relation of production...."

Similar is the case with other states and regions. If the social and economic environment is favourable the education is high. The higher or lower ratio of enrolment or the rates of drop-out are nothing but an indicator of educational achievement.

The statistically proved hypotheses bring out definite impact of educational, social, demographic and economic factors upon both the achievement of enrolment and drop-out rates such as:

higher the value of educational facilities,
i.e. number of schools per thousand of
students higher is the enrolment and lower
is the drop-out rates;

higher is the value of literacy rates, higher
is the enrolment and lower drop-outs;

3. Joan P. Mencher, "The Lessons and Non-lessons of of Kerala Agricultural Labourers and Poverty" Economic and Political Weekly, Vol. XV, Nos. 41, 42 & 43. Special number 1980, p. 1799.

higher is the percentage of scheduled castes and scheduled tribes population, lower is the enrolment (at middle and secondary stages) and higher is the drop-out rate;

higher is the child work-force, lower is the enrolment and higher is the drop-out rates;

higher is the percentage of workforce in the age group 15-19 years, higher is the drop-out rates at middle and secondary stages;

higher is the workforce in primary sector, higher is the drop-out rate and lower is the enrolment;

higher is the workforce in secondary and tertiary sectors, higher is the enrolment and lower the drop-outs.

The most effective factor in the attainment of enrolment is the number of schools per thousand students both in rural and urban areas. Another important factor is the literacy rates whose contribution is no less than the available schools.

The most effective factor in the drop-out rates is the child work-force followed by sex ratio, percentage of scheduled castes and scheduled tribes and the availability of primary or middle schools outside the habitation. A similar result is obtained in the studies made by D. R. Gadgil, V. M. Dandekar (see Chapter

II, Part A) D.V. Chickermane and P. Choudhary as well.

Though there exists no significant correlation of enrolment with the index of physical facilities within the school or with the pupil-teacher ratio yet the direction of relationship indicates their contribution in the attainment of enrolment and vice-versa in the case of drop-outs.

The study also confirms one of the hypotheses made by M.K. Jain and R. Prasad⁴ on literacy level and selected population characteristics which was not confirmed in their own testing. The hypothesis is higher the percentage of non agricultural workers, higher is the literacy level.⁵

The simple regression exercise in the case of Kerala brings a positive impact of enrolment towards the achievement of functional literacy which is 70 per cent at the completion of middle stage and 100 per cent at the completion of secondary stage of education.

4. M.K. Jain and R. Prasad, A Note on the Pattern of Relationship Between Literacy Level and Selected Population Characteristics. Population Dynamics and Rural Development (Delhi, 1979) pp. 82-83.

5. The correlation coefficient of literacy rates with the secondary workers comes as 0.4766, 0.3911 and 0.5436 in rural, urban and total areas which are significant at 0.01, 0.02 and 0.01 level of significance. Similarly the correlation coefficients of literacy rates and percentage of workers in tertiary sectors are 0.4383, 0.6806 and 0.6027 for rural, urban and total areas respectively and all are significant at 0.01 level.

(iv) The Task Ahead To reduce the regional imbalances in educational development what is needed is a balancing factor, as it is recommended by Kothari Commission,⁶ to assist the less advanced areas to come upto at least certain minimum levels so that the gap between backward and advanced areas would be reduced to the minimum. This is the policy of 'equalisation' under which each area is assisted, subject to the condition that it makes a given effort to come upto certain minimum levels. Our grants-in-aid in education will have to be broad based on this principle of equalisation.

But the equalisation of educational opportunity is meaningless without the equalisation of social and economic opportunities. Therefore, there should be equal efforts to minimise the gap between upper and lower strata of the society as well as the differences in income, earning and standard of living.

There is a need for district level analysis of educational development and its associated factors. Specially the impact of adult-education programme in changing the attitude of parents towards the value of education, income-standard of the family and the number

6. N.C.E.R.T., Education and National Development, Report of Education Commission 1964-66 (New Delhi, 1970), p.238.

of birthorder in the family and school-going children, child work-force and the programmes of informal education outside the schools, land holdings and the educational attainment of the family members, are some of neglected areas which need a comprehensive study down to the tehsil and village level.

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Statistical Equations

1. The test of significance for zero order correlation coefficient and regression coefficient is calculated according to the formula

$$t = \frac{r}{\sqrt{1-r^2}} \sqrt{N-2} \dots\dots (1)$$

where 'r' represents the correlation coefficient and 'N' is the number of observations.

2. F-test formula is adopted to measure the multiple correlation coefficient as follows:

$$F = \frac{R^2}{1-R^2} \cdot \frac{N-p-1}{p} \dots\dots (2)$$

where 'R' represents the multiple correlation coefficients, 'N' denotes the number of observations and 'p' stands for the number of variables used in the measurement of multiple correlations.

3. As the value of 'R' increases with any additional indicator and may lead to the wrong results in the analysis of regression coefficient. Therefore, the value of 'R' is converted into 'R̄' which stands for average multiple correlation coefficients adjusted for the degree of freedom in the estimation of regression coefficient on the following formula.

$$\bar{R} = 1 - (1-R) \frac{N-1}{d.f.} \quad \text{or} \quad R^{-2} = 1 - (1-R^2) \frac{N-1}{d.f.} \dots\dots (3)$$

d.f. represents the degree of freedom.

4. The multiple regression equation is given as

$$Y_1 = a + b_2 X_2 + b_3 X_3 - - - - - + b_n X_n \dots (4)$$

where 'a' is the intercept and 'b' represents the regression coefficient of the individual variables.

Appendix - B1

Definition of the Terms Used in the Text

Enrolment Pyramid

This can be defined as the hierarchical distribution of enrolment at the various stages or the level of schooling including university or college enrolment.

UNESCO* has given definitions of education at the first, second and third levels as:

(a) First Level:

"Education at the first level of which the main function is to provide basic instruction in the tools of learning e.g. elementary schools, primary schools."

(b) Second Level:

"Education at the second level is based upon at least four years' previous instruction at first level and providing general or specialised instructions or both e.g. Middle School, Secondary School, High School, Teacher-Training School at this level, School of vocational or technical nature."

(c) Third Level:

"Education at the third level requires a minimum condition of admission, the successful completion of education at the second level or evidence of the attainment of an equivalent level of knowledge e.g. university, Teacher's College, higher professional schools."

*UNESCO, Statistical Year Book 1975, (Paris, 1976), p.53.

Appendix Table-II (a)
Enrolment Pyramid - 1971-1972

S.No.	State/Union Territories	I		II		III		IV	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	INDIA	5.35	3.40	3.28	2.00	2.64	1.57	2.17	2.17
1.	Andhra Pradesh	4.54	2.98	2.77	1.87	2.14	1.43	1.71	1.11
2.	Assam	5.38	3.69	2.44	1.61	2.04	1.36	1.81	1.14
3.	Bihar	5.46	2.03	2.73	0.95	2.08	0.72	1.53	0.46
4.	Gujrat	6.23	4.00	3.27	1.98	2.53	1.50	2.23	1.28
5.	Haryana	4.13	1.78	2.83	1.19	2.49	1.04	2.26	0.89
6.	Himachal Pradesh	4.15	2.76	3.24	2.09	2.96	1.84	2.76	1.62
7.	Jammu & Kashmir	4.04	2.11	2.94	1.24	2.19	0.97	1.87	0.85
8.	Karnataka	5.27	4.07	3.59	2.70	2.75	1.95	2.28	1.52
9.	Kerala	4.39	3.58	3.94	3.55	3.61	3.17	3.14	2.85
10.	Madhya Pradesh	5.57	2.45	2.65	1.08	2.18	0.87	1.81	0.68
11.	Maharashtra	5.29	4.06	3.60	2.49	2.98	1.90	2.55	1.50
12.	Manipur	12.58	9.01	3.70	2.43	2.55	1.36	2.20	1.16
13.	Meghalaya	7.12	6.70	3.93	3.71	2.91	2.68	2.41	2.16
14.	Mizoram	8.31	6.32	5.70	4.11	4.32	2.85	3.36	2.18
15.	Orissa	5.10	2.91	2.91	1.61	2.25	1.28	1.66	0.80

S.No.	State/Union Territories	V		VI		VII		VIII	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	INDIA	1.80	0.94	1.54	0.67	1.32	0.55	1.14	0.45
1.	Andhra Pradesh	1.42	0.88	1.00	0.46	0.99	0.42	0.61	0.24
2.	Assam	1.50	0.91	1.41	0.81	1.26	0.71	1.12	0.60
3.	Bihar	1.33	0.35	1.23	0.27	1.04	0.22	0.81	0.11
4.	Gujrat	1.93	1.06	1.53	0.81	1.30	0.66	1.15	0.57
5.	Haryana	1.85	0.72	2.00	0.61	1.82	0.51	1.72	0.45
6.	Himachal Pradesh	2.41	1.35	2.26	0.81	2.01	0.64	1.91	0.57
7.	Jammu & Kashmir	1.69	0.75	1.58	0.63	1.41	0.54	1.19	0.42
8.	Karnataka	1.54	0.87	1.28	0.69	1.25	0.62	0.92	0.40
9.	Kerala	2.71	2.24	2.28	1.90	1.88	1.57	1.61	1.47
10.	Madhya Pradesh	1.49	0.53	1.22	0.42	1.01	0.32	0.91	0.26
11.	Maharashtra	2.09	1.13	1.72	0.89	1.44	0.68	1.45	0.57
12.	Manipur	2.00	1.05	1.59	0.86	1.50	0.78	1.61	0.82
13.	Meghalaya	1.56	1.32	1.06	0.82	0.94	0.72	0.89	0.64
14.	Nagaland	2.50	1.67	2.04	1.33	1.74	1.13	1.49	0.93
15.	Orissa	1.28	0.58	0.98	0.36	0.85	0.28	0.69	0.18

S.No.	State/Union Territories	IX		X		XI		University	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	INDIA	0.93	0.36	0.79	0.27	0.33	0.12	0.41	0.06
1.	Andhra Pradesh	0.65	0.23	0.56	0.20	0.00	0.00	0.37	0.04
2.	Assam	0.81	0.40	0.69	0.33	0.60	0.26	0.18	0.01
3.	Bihar	0.70	0.08	0.65	0.07	0.60	0.05	0.25	0.02
4.	Gujrat	0.96	0.48	0.80	0.40	0.62	0.31	0.65	0.07
5.	Haryana	1.50	0.41	1.15	0.33	0.12	0.04	0.29	0.07
6.	Himachal Pradesh	1.41	0.36	1.18	0.33	0.22	0.08	0.22	0.06
7.	Jammu & Kashmir	1.10	0.34	0.91	0.28	0.18	0.02	0.21	0.05
8.	Karnataka	0.81	0.36	0.68	0.28	-	-	0.52	0.09
9.	Kerala	1.35	1.21	0.83	0.74	0.00	0.00	0.24	0.07
10.	Madhya Pradesh	0.67	0.19	0.60	0.15	0.38	0.11	0.34	0.03
11.	Maharashtra	1.19	0.46	1.07	0.39	0.58	0.24	0.76	0.14
12.	Manipur	0.83	0.40	0.75	0.36	0.14	0.07	0.27	0.02
13.	Meghalaya	0.67	0.42	0.60	0.39	0.51	0.29	0.26	0.04
14.	Nagaland	1.08	0.64	0.79	0.48	0.62	0.33	-	-
15.	Orissa	0.60	0.14	0.54	0.11	0.44	0.08	0.17	0.01

(iv)

S.No.	State/Union Territories	I		II		III		IV	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
16.	Punjab	3.84	2.61	2.83	2.04	2.43	1.72	2.21	1.55
17.	Rajasthan	3.88	1.25	2.52	0.67	1.98	0.55	1.63	0.45
18.	Tamil Nadu	4.63	3.76	3.79	2.97	3.27	2.56	2.85	1.97
19.	Tripura	5.53	3.78	2.86	1.88	2.60	1.72	2.00	1.32
20.	Uttar Pradesh	6.71	4.65	4.19	2.52	3.21	1.73	2.53	1.27
21.	West Bengal	5.72	3.75	3.19	1.86	2.53	1.60	1.97	1.11
22.	Andaman & Nicobar Islands	4.19	3.71	3.24	2.54	3.09	2.30	2.74	2.07
23.	Arunachal Pradesh	5.59	1.00	4.03	0.86	1.10	0.25	0.62	0.19
24.	Chandigarh	2.85	2.32	2.00	1.77	1.92	1.76	1.86	1.50
25.	Dadra & Nagar Haveli	7.42	3.79	3.12	1.66	2.73	0.94	1.77	0.61
26.	Delhi	3.12	2.76	2.68	2.34	2.68	2.22	2.49	2.01
27.	Goa, Daman & Diu	6.46	5.51	3.86	2.89	3.37	2.36	2.54	1.87
28.	Lakshwadeep	5.39	4.65	4.27	3.26	3.90	2.53	3.74	1.84
29.	Mizoram	-	-	-	-	-	-	-	-
30.	Pondicherry	4.48	3.52	3.75	2.94	3.45	2.54	3.14	2.09

(v)

S.No.	State/Union Territories	V		VI		VII		VIII	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
16.	Punjab	1.91	1.28	1.72	0.95	1.55	0.80	1.45	0.72
17.	Rajasthan	1.50	0.37	1.33	0.26	1.03	0.20	0.83	0.17
18.	Tamil Nadu	2.42	1.58	1.96	1.11	1.56	0.83	1.22	0.63
19.	Tripura	1.64	1.08	1.46	0.97	1.13	0.72	0.96	0.61
20.	Uttar Pradesh	2.07	0.94	1.85	0.45	1.60	0.37	1.47	0.33
21.	West Bengal	1.67	0.92	1.45	0.72	1.20	0.66	1.05	0.61
22.	Andaman & Nicobar Isls.	2.19	1.41	1.75	1.13	1.27	0.93	1.18	0.63
23.	Arunachal Pradesh	0.52	0.17	0.36	0.04	0.24	0.05	0.11	0.01
24.	Chandigarh	1.76	1.44	1.68	1.38	1.65	1.25	1.62	1.45
25.	Dadra & Nagar Haveli	1.12	0.45	0.71	0.33	0.66	0.28	0.58	0.26
26.	Delhi	2.62	1.91	2.45	1.87	2.23	1.69	2.19	1.56
27.	Goa, Daman & Diu	2.53	1.67	2.52	1.66	2.15	1.44	1.78	1.23
28.	Lakshwadeep	3.63	1.79	1.95	0.86	1.81	0.65	1.39	0.60
29.	Mizoram								
30.	Pondicherry	2.53	1.65	2.16	1.30	1.80	1.00	1.47	0.82

S. No.	State/Union Territories	IX		X		XI		University	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
16.	Punjab	1.02	0.48	0.82	0.42	0.17	0.10	0.30	0.08
17.	Rajasthan	0.78	0.13	0.58	0.12	0.31	0.06	0.31	0.03
18.	Tamil Nadu	1.08	0.54	0.92	0.43	0.70	0.33	0.33	0.07
19.	Tripura	0.82	0.52	0.60	0.37	0.50	0.28	0.26	0.04
20.	Uttar Pradesh	1.06	0.22	0.97	0.17	-	-	0.30	0.04
21.	West Bengal	0.93	0.45	0.66	0.15	0.36	0.14	0.75	0.08
22.	Andaman & Nicobar Isls.	0.93	0.61	0.85	0.51	0.64	0.26	0.08	0.04
23.	Arunachal Pradesh	0.04	0.01	0.03	0.00	0.03	0.01	0.04	0.01
24.	Chandigarh	1.28	0.95	1.22	0.93	0.34	0.31	3.91	1.00
25.	Dadra & Nagar Haveli	0.50	0.21	0.35	0.19	0.22	0.10	-	-
26.	Delhi	1.80	1.34	1.68	1.24	1.51	1.05	1.34	0.32
27.	Goa, Daman & Diu	1.44	0.94	1.20	0.76	0.85	0.66	0.40	0.09
28.	Lakshwadeep	1.15	0.46	0.65	0.18	0.08	0.02	-	-
29.	Mizoram								
30.	Pondicherry	0.93	0.36	0.79	0.27	0.33	0.12	0.41	0.06

Appendix Table 1(b)
Enrolment Pyramid 1971-72

S.No.	State/Union Territories	I - V		VI-VIII		IX-XII		<u>University General Class</u>	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1.	INDIA	15.24	9.13	3.99	4.67	2.07	0.75	0.83	0.28
1.	Andhra Pradesh	12.57	8.29	2.59	1.12	1.21	0.43	0.79	0.19
2.	Assam	13.18	8.72	3.79	2.13	2.57	1.18	0.64	0.20
3.	Bihar	13.13	4.51	3.08	0.61	2.00	0.22	0.82	0.08
4.	Gujrat	16.19	9.82	3.99	2.04	2.39	1.18	0.43	0.28
5.	Haryana	13.56	5.63	5.54	1.57	2.77	0.79	1.02	0.28
6.	Himachal Pradesh	15.52	9.66	6.17	2.02	2.81	0.77	0.69	0.17
7.	Jammu & Kashmir	12.73	5.92	4.18	1.60	2.19	0.65	0.80	0.32
8.	Karnataka	15.43	11.12	3.45	1.72	1.49	0.65	0.89	0.28
9.	Kerala	17.80	15.79	5.76	4.95	2.18	1.95	0.87	0.66
10.	Madhya Pradesh	13.69	5.63	3.14	1.00	1.65	0.45	0.40	0.14
11.	Maharashtra	16.50	11.08	4.61	2.14	2.84	1.10	0.70	0.31
12.	Manipur	23.04	15.01	4.70	2.47	1.73	0.83	1.37	0.47
13.	Meghalaya	17.93	16.56	2.80	2.18	2.21	1.35	1.05	0.56
14.	Nagaland	24.19	17.14	5.28	3.39	2.96	1.70	0.47	0.10
15.	Orissa	13.21	7.17	2.51	0.83	1.58	0.33	0.43	0.07

(viii)

S.No.	State/Union Territories	I-V		VI-VIII		IX-XII		University general ed. class	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
16.	Punjab	13.22	9.20	4.71	2.47	2.01	0.99	1.13	0.50
17.	Rajasthan	11.52	3.28	3.18	0.63	1.67	0.31	0.37	0.10
18.	Tamil Nadu	16.96	12.84	4.74	2.57	2.70	1.31	0.72	0.27
19.	Tripura	14.63	9.77	3.54	2.30	1.92	1.16	0.58	0.27
20.	Uttar Pradesh	18.71	11.12	4.92	1.16	2.02	0.39	1.40	0.34
21.	West Bengal	15.09	9.24	3.71	1.98	1.95	0.85	0.82	0.42
22.	Andaman & Nicobar Isls.	15.47	12.03	4.20	2.69	2.44	1.38	0.13	0.12
23.	Arunachal Pradesh	11.86	2.47	0.72	0.09	0.10	0.01	0.06	0.01
24.	Chandigarh	10.40	8.79	4.95	4.10	2.85	2.19	9.17	4.30
25.	Dadra & Nagar Haveli	16.96	7.45	1.95	0.87	1.08	0.50	-	-
26.	Delhi	13.60	11.23	6.87	5.13	5.00	3.62	1.71	1.66
27.	Goa, Daman & Diu	18.77	14.30	6.46	4.34	3.49	2.34	0.82	0.46
28.	Lakshwadeep	20.93	14.08	5.15	2.11	1.88	0.67		
29.	Mizoram								
30.	Pondicherry	17.36	12.73	5.44	3.12	3.21	1.42	1.06	0.38

THIRD ALL-INDIA EDUCATIONAL SURVEY

APPENDIX 2

Pattern of Classes at School Stage

<i>Sl. No.</i>	<i>State/Union Territory</i>	<i>Primary</i>	<i>Middle</i>	<i>Secondary</i>	<i>Higher Secondary/ Jr. College</i>
1.	Andhra Pradesh	I-V	VI-VII	VIII-X	XI-XII
2.	Assam	I-IV	V-VII	VIII-X	XI-XII
3.	Bihar	I-V	VI-VII	VIII-XI	—
4.	Gujarat	I-IV	V-VII	VIII-XI	—
5.	Haryana	I-V	VI-VIII	IX-X	IX-XI
6.	Himachal Pradesh	I-V	VI-VIII	IX-X	IX-XI
7.	Jammu & Kashmir	I-V	VI-VIII	IX-X	IX-XI
8.	Karnataka	I-IV	V-VII	VIII-X	XI-XII
9.	Kerala	I-IV	V-VII	VIII-X	XI-XII
10.	Madhya Pradesh	I-V	VI-VIII	—	IX-XI
11.	Maharashtra	I-IV	V-VII	VIII-X	XI-XII
12.	Manipur	I-V	VI-VIII	IX-X	XI-XII
13.	Meghalaya	A, B, I-III	IV-VI	VII-X	XI
14.	Nagaland	A, B, I-II	III-VI	VII-X	XI-PUC
15.	Orissa	I-V	VI-VIII	IX-XI	XII-XIII PUC
16.	Punjab	I-V	VI-VIII	IX-X	IX-XI
17.	Rajasthan	I-V	VI-VIII	IX-X	IX-XI
18.	Tamil Nadu	I-V	VI-VIII	IX-XI	XII Pre-University
19.	Tripura	I-V	VI-VIII	IX-X	IX-XI
20.	Uttar Pradesh	I-V	VI-VIII	IX-X	XI-XII Intermediate
21.	West Bengal	I-IV	V-VIII	IX-X	XI-XII
22.	A. & N. Islands	I-V	VI-VIII	—	IX-XI
23.	Arunachal Pradesh	I-V	VI-VIII	—	IX-XI
24.	Chandigarh	I-V	VI-VIII	IX-X	IX-XI
25.	Dadra & Nagar Haveli	I-IV	V-VII	VIII-XI	—
26.	Delhi	I-V	VI-VIII	—	IX-XI
27.	Goa, Daman & Diu	I-IV	V-VII	VIII-X	XI-XIII
28.	Lakshadweep	I-IV	V-VII	VIII-X	XI-XII Pre-Degree
29.	Mizoram	A, B, I-III	IV-VI	VII-X	—
30.	Pondicherry	I-V	VI-VIII	IX-XI	XII Pre-University

Appendix Table-3Class-wise Distribution of Gross Enrolment Ratio (GER)
1973

S.No.	State/Union Territories	Class I		Total
		Rural	Urban	
	INDIA	28.70	25.38	28.02
1.	Andhra Pradesh	24.08	24.17	24.10
2.	Assam	45.87	25.31	44.00
3.	Bihar	21.32	20.28	21.46
4.	Gujrat	31.77	28.09	30.73
5.	Haryana	20.83	15.53	19.68
6.	Himachal Pradesh	25.25	31.57	25.64
7.	Jammu & Kashmir	17.45	23.92	18.66
8.	Karnataka	30.54	24.53	28.94
9.	Kerala	22.38	21.43	22.23
10.	Madhya Pradesh	28.09	26.05	27.76
11.	Maharashtra	30.69	28.67	30.11
12.	Manipur	72.49	56.64	70.45
13.	Meghalaya	64.91	33.12	60.99
14.	Nagaland	50.03	26.82	47.80
15.	Orissa	30.33	22.33	29.67
16.	Punjab	27.84	25.46	27.30
17.	Rajasthan	15.07	18.44	15.66
18.	Tamil Nadu	28.93	29.55	29.16
19.	Tripura	36.02	17.19	34.05
20.	Uttar Pradesh	29.99	22.96	28.89
21.	West Bengal	43.32	28.60	39.68
22.	Andaman & Nicobar	22.71	35.01	25.17
23.	Arunachal Pradesh	28.37	61.78	29.03
24.	Chandigarh	40.09	23.03	24.36
25.	Dadra & Nagar Haveli	48.76	-	48.76
26.	Delhi	-	20.13	20.13
27.	Goa, Daman & Diu	41.60	31.83	39.23
28.	Lakshadweep	37.47	-	37.47
29.	Mizoram	-	-	-
30.	Pondicherry	26.51	29.34	27.70

S.No.	State/Union Territories	Class II		Total
		Rural	Urban	
	INDIA	17.89	19.31	18.19
1.	Andhra Pradesh	14.51	19.31	11.73
2.	Assam	19.88	20.87	19.97
3.	Bihar	10.88	13.09	11.09
4.	Gujrat	18.00	19.17	18.33
5.	Haryana	17.22	13.00	16.30
6.	Himachal Pradesh	19.71	24.30	19.99
7.	Jammu & Kashmir	11.97	15.47	12.63
8.	Karnataka	19.71	19.93	19.77
9.	Kerala	24.81	24.13	24.70
10.	Madhya Pradesh	20.54	24.76	21.23
11.	Maharashtra	19.15	22.55	20.14
12.	Manipur	25.83	25.51	25.79
13.	Meghalaya	26.46	21.98	25.91
14.	Nagaland	26.37	22.88	26.03
15.	Orissa	17.15	19.54	17.35
16.	Punjab	22.54	17.80	21.46
17.	Rajasthan	16.97	23.43	18.10
18.	Tamil Nadu	23.50	23.13	23.37
19.	Tripura	16.17	16.92	16.25
20.	Uttar Pradesh	17.98	15.57	17.60
21.	West Bengal	18.31	13.99	17.24
22.	Andaman & Nicobar	17.29	22.87	19.01
23.	Arunachal Pradesh	12.38	82.91	12.98
24.	Chandigarh	29.19	17.82	18.71
25.	Dadra & Nager Haveli	19.86	-	19.86
26.	Delhi	-	17.24	17.24
27.	Goa, Daman & Diu	21.67	19.73	21.20
28.	Lakshadweep	27.52	-	27.52
29.	Mizoram	-	-	-
30.	Pondicherry	23.18	26.04	24.38

S.No.	State/Union Territories	Class III		
		Rural	Urban	Total
	INDIA	13.57	17.04	14.29
1.	Andhra Pradesh	11.73	17.25	12.75
2.	Assam	16.72	22.03	17.20
3.	Bihar	8.49	11.65	8.80
4.	Gujrat	12.75	17.14	13.98
5.	Haryana	13.71	11.70	13.28
6.	Himachal Pradesh	17.06	22.55	17.41
7.	Jammu & Kashmir	9.14	15.61	10.35
8.	Karnataka	14.41	17.09	15.12
9.	Kerala	30.11	25.87	29.43
10.	Madhya Pradesh	13.34	22.53	14.84
11.	Maharashtra	14.32	19.67	15.87
12.	Manipur	13.68	22.39	14.80
13.	Meghalya	19.24	22.06	19.59
14.	Nagaland	22.82	22.65	22.80
15.	Orissa	12.12	17.06	12.53
16.	Punjab	15.52	15.45	15.51
17.	Rajasthan	8.47	15.41	9.67
18.	Tamil Nadu	19.87	20.95	20.27
19.	Tripura	12.77	17.22	13.23
20.	Uttar Pradesh	13.34	13.85	13.42
21.	West Bengal	12.10	11.14	11.86
22.	Andaman & Nicobar	13.74	26.53	16.30
23.	Arunachal Pradesh	6.97	27.49	7.37
24.	Chandigarh	21.20	16.56	16.92
25.	Dadra & Nagar Haveli	15.26	-	13.26
26.	Delhi	-	15.21	15.21
27.	Goa, Daman & Diu	17.57	17.18	17.48
28.	Lakshadweep	24.00	-	24.00
29.	Mizoram	105.80	84.56	102.43
30.	Pondicherry	20.02	24.77	22.03

S.No.	State/Union Territories	Class IV		
		Rural	Urban	Total
	INDIA	10.05	14.72	11.01
1.	Andhra Pradesh	8.88	15.56	10.11
2.	Assam	13.71	19.38	14.23
3.	Bihar	6.06	10.76	6.52
4.	Gujrat	10.19	15.81	11.77
5.	Haryana	11.32	11.09	11.27
6.	Himachal Pradesh	15.52	22.47	15.95
7.	Jammu & Kashmir	8.08	14.64	9.31
8.	Karnataka	10.79	14.50	11.78
9.	Kerala	22.28	21.79	22.20
10.	Madhya Pradesh	7.05	16.83	8.65
11.	Maharashtra	11.05	17.56	12.94
12.	Manipur	12.19	21.61	13.40
13.	Meghalya	13.83	21.73	14.80
14.	Nagaland	16.92	19.14	17.13
15.	Orissa	7.91	15.17	8.50
16.	Punjab	13.36	14.41	13.60
17.	Rajasthan	6.25	13.02	7.04
18.	Tamil Nadu	16.58	18.05	17.12
19.	Tripura	9.56	15.68	10.20
20.	Uttar Pradesh	10.16	11.83	10.42
21.	West Bengal	8.48	9.05	8.62
22.	Andaman & Nicobar	12.47	22.15	11.46
23.	Arunachal Pradesh	4.17	17.91	4.44
24.	Chandigarh	17.69	14.62	14.86
25.	Dadra & Nager Haveli	8.81	-	8.81
26.	Delhi	-	13.92	13.92
27.	Goa, Daman & Diu	13.91	14.42	14.03
28.	Lakshadweep	20.95	-	20.95
29.	Mizoram	25.66	17.74	24.40
30.	Pondicherry	17.32	21.77	19.21

S.No.	State/Union Territories	Class V		Total
		Rural	Urban	
	INDIA	5.88	9.49	6.63
1.	Andhara Pradesh	6.76	13.24	7.96
2.	Assam	11.26	16.42	11.73
3.	Bihar	5.14	9.73	5.60
4.	Gujrat	7.99	14.24	9.75
5.	Haryana	9.99	10.56	10.12
6.	Himachal Pradesh	13.28	20.74	13.74
7.	Jammu & Kashmir	7.42	13.84	8.62
8.	Karnataka	-	-	-
9.	Kerala	-	-	-
10.	Madhya Pradesh	5.19	14.01	6.63
11.	Maharashtra	-	-	-
12.	Manipur	8.18	20.32	9.74
13.	Meghalya	10.19	20.62	11.48
14.	Nagaland	11.72	15.89	12.12
15.	Orissa	6.02	24.95	7.58
16.	Punjab	10.82	13.54	11.44
17.	Rajasthan	5.06	12.08	6.28
18.	Tamil Nadu	13.25	15.81	14.20
19.	Tripura	7.45	13.92	8.13
20.	Uttar Pradesh	6.99	9.82	7.44
21.	West Bengal	5.90	8.46	6.53
22.	Andaman & Nicobar	11.46	17.95	12.76
23.	Arunachal Pradesh	2.56	14.94	2.80
24.	Chandigarh	14.47	13.47	13.54
25.	Dader & Nager Haveli	6.51	-	6.51
26.	Delhi	-	12.41	12.41
27.	Goa, Daman & Diu	13.63	20.35	15.27
28.	Lekshadweep	19.87	-	19.87
29.	Mizoram	19.48	17.07	19.10
30.	Pondicherry	14.43	19.50	16.57

Appendix Table 4Net Enrolment Ratios in Age Group 6-11

S.No.	State/Union Territories	Class I		Total
		Rural	Urban	
	INDIA	20.23	16.33	19.42
1.	Andhra Pradesh	15.16	11.65	14.51
2.	Assam	21.97	9.58	20.84
3.	Bihar	12.60	0.92	12.27
4.	Gujrat	26.32	20.76	25.76
5.	Haryana	18.59	11.04	16.96
6.	Himachal Pradesh	20.75	16.27	20.47
7.	JJammu & Kashmir	17.05	22.23	18.03
8.	Karnataka	28.07	19.77	25.86
9.	Kerala	4.30	4.34	4.34
10.	Madhya Pradesh	19.27	16.02	18.74
11.	Maharashtra	26.01	21.51	24.70
12.	Manipur	28.86	14.69	27.04
13.	Meghalya	23.08	8.32	21.27
14.	Nagaland	15.47	4.24	14.39
15.	Orissa	13.46	9.22	12.98
16.	Punjab	25.97	18.85	24.34
17.	Rajasthan	12.56	14.68	12.92
18.	Tamil Nadu	17.71	15.56	16.92
19.	Tripura	35.51	17.09	33.58
20.	Uttar Pradesh	20.50	14.04	19.49
21.	West Bengal	37.78	22.69	34.05
22.	Andaman & Nicobar	14.60	15.52	14.78
23.	Arunachal Pradesh	19.29	43.48	32.63
24.	Chandigarh	30.17	11.36	12.83
25.	Daera & Nager Haveli	41.44	-	41.44
26.	Delhi	-	10.44	10.44
27.	Goa, Daman & Diu	33.27	24.36	31.10
28.	Lakshadweep	26.18	-	26.17
29.	Mizoram	-	-	-
30.	Pondicherry	18.96	19.38	19.14

S.No.	State/Union Territories	Class II		
		Rural	Urban	Total
	INDIA	16.75	18.11	16.89
1.	Andhra Pradesh	13.90	18.96	14.83
2.	Assam	18.46	17.96	18.41
3.	Bihar	9.97	1.10	10.07
4.	Gujrat	15.46	17.40	13.54
5.	Haryana	16.86	12.40	15.89
6.	Himachal Pradesh	19.34	23.64	19.61
7.	Jammu & Kashmir	11.69	15.29	12.36
8.	Karnataka	15.90	19.18	18.76
9.	Kerala	24.61	23.92	24.50
10.	MMadhya Pradesh	18.39	22.29	19.01
11.	Maharashtra	16.73	20.84	17.92
12.	Manipur	21.89	22.78	22.00
13.	Meghalya	19.73	11.79	18.75
14.	Nagaland	16.97	10.47	16.34
15.	Orissa	15.68	17.90	16.01
16.	Punjab	22.18	17.18	21.04
17.	Rajasthan	16.27	19.71	16.87
18.	Tamil Nadu	23.09	22.89	23.02
19.	Tripura	15.64	16.70	15.75
20.	Uttar Pradesh	16.80	14.28	16.40
21.	West Bengal	18.04	13.63	16.95
22.	Andaman & Nicobar	16.24	23.44	17.68
23.	Arunachal Pradesh	11.06	39.56	19.18
24.	Chandigarh	28.62	17.26	18.15
25.	Dadra & Nager Haveli	14.18	-	14.18
26.	Delhi	-	16.61	16.60
27.	Goa, Daman & Diu	19.001	18.39	18.85
28.	Lakshadweep	26.27	-	26.27
29.	Mizoram	-	-	-
30.	Pondicherry	22.88	25.63	24.04

S.No.	State/Union Territories	Class III		Total
		Rural	Urban	
	INDIA	12.07	15.59	12.79
1.	Andhra Pradesh	10.73	16.54	11.80
2.	Assam	16.18	21.76	16.68
3.	Bihar	7.92	10.46	8.17
4.	Gujrat	9.39	14.12	10.72
5.	Haryana	12.81	10.66	12.34
6.	Himachal Pradesh	15.90	21.75	16.26
7.	Jammu & Kashmir	8.47	14.70	9.68
8.	Karnataka	12.43	15.51	13.25
9.	Kerala	29.27	25.87	28.75
10.	Madhya Pradesh	10.86	19.67	12.30
11.	Maharashtra	10.82	16.81	12.56
12.	Manipur	12.02	19.82	13.02
13.	Meghalya	12.48	17.52	13.10
14.	Nagaland	13.78	17.84	14.17
15.	Orissa	11.27	16.42	14.69
16.	Punjab	14.76	14.62	14.73
17.	Rajasthan	7.18	13.61	8.30
18.	Tamil Nadu	19.06	20.54	19.61
19.	Tripura	11.51	16.80	12.07
20.	Uttar Pradesh	12.88	12.91	12.04
21.	West Bengal	11.58	10.66	11.35
22.	Andaman & Nicobar	12.72	24.64	15.10
23.	Arunachal Pradesh	4.95	21.45	5.28
24.	Chandigarh	18.42	15.75	15.96
25.	Dadra & Nager Haveli	7.80	-	7.80
26.	Delhi	-	14.17	14.17
27.	Goa, Daman & Diu	12.48	14.05	12.86
28.	Lakshadweep	18.75	-	18.75
29.	Mizoram	65.73	47.37	62.82
30.	Pondicherry	19.08	23.41	20.91

S.No.	State/Union Territories	Class IV		Total
		Rural	Urban	
	INDIA	7.65	12.13	8.58
1.	Andhra Pradesh	6.78	14.00	8.11
2.	Assam	13.14	18.98	13.67
3.	Bihar	5.10	9.42	5.53
4.	Gujrat	5.47	10.86	6.98
5.	Haryana	8.74	8.96	8.78
6.	Himachal Pradesh	11.76	19.56	12.24
7.	Jammu & Kashmir	6.31	13.65	7.48
8.	Karnataka	7.81	11.46	8.79
9.	Kerala	19.34	19.23	19.32
10.	Madhya Pradesh	4.30	12.27	5.59
11.	Maharashtra	6.20	12.42	8.01
12.	Manipur	8.67	19.54	10.07
13.	Meghalya	6.53	18.17	7.96
14.	Nagaland	6.63	13.23	7.26
15.	Orissa	7.14	14.25	7.72
16.	Punjab	10.96	12.33	11.27
17.	Rajasthan	3.77	9.67	4.80
18.	Tamil Nadu	14.48	16.70	15.30
19.	Tripura	7.33	14.61	8.09
20.	Uttar Pradesh	7.84	10.32	8.23
21.	West Bengal	7.26	8.27	7.51
22.	Andaman & Nicobar	11.78	20.56	13.53
23.	Arunachal Pradesh	1.41	13.03	1.64
24.	Chandigarh	9.46	13.09	12.84
25.	Dadra & Nager Haveli	2.88	-	2.88
26.	Delhi	-	11.86	11.86
27.	Goa, Daman & Diu	7.17	9.90	7.83
28.	Lakshadweep	10.19	-	10.19
29.	Mizoram	19.69	16.58	19.20
30.	Pondicherry	14.63	18.61	16.31

S.No.	State/Union Territories	Class V		
		Rural	Urban	Total
	INDIA	3.41	6.53	4.06
1.	Andhra Pradesh	3.69	9.99	4.85
2.	Assam	10.10	15.80	10.61
3.	Bihar	3.81	7.85	4.21
4.	Gujrat	2.25	6.51	3.45
5.	Haryana	4.62	5.92	4.90
6.	Himachal Pradesh	5.95	14.86	6.50
7.	Jammu & Kashmir	3.56	9.71	4.71
8.	Karnataka	-	-	-
9.	Kerala	-	-	-
10.	Madhya Pradesh	1.93	7.49	2.84
11.	Maharashtra	-	-	-
12.	Manipur	5.02	15.93	6.42
13.	Meghalaya	2.96	13.86	4.30
14.	Nagaland	4.34	7.15	4.61
15.	Orissa	4.63	9.99	5.07
16.	Punjab	6.23	9.15	6.90
17.	Rajasthan	1.66	5.68	2.35
18.	Tamil Nadu	9.34	12.61	10.55
19.	Tripura	3.61	10.84	4.36
20.	Uttar Pradesh	4.09	4.92	4.22
21.	West Bengal	3.73	6.09	4.32
22.	Andaman & Nicobar	9.78	16.78	11.18
23.	Arunachal Pradesh	0.41	4.69	0.49
24.	Chandigarh	5.08	9.45	9.11
25.	Dadra & Nager Haveli	1.89	-	1.89
26.	Delhi	-	8.90	8.90
27.	Goa, Daman & Diu	3.21	7.14	4.16
28.	Lakshadweep	4.52	-	4.52
29.	Mizoram	10.55	13.95	11.09
30.	Pondicherry	9.55	13.26	11.12

Source: Third All India Educational Survey 1973.

Appendix Table 5
Drop Out Rates 1972-73 to 1972-73

S.No.	States/Union Territories	Class I to Class II	
		% of drop outs from Class I to Class II	Male-female ratio of drop-outs Boys Girls
1.	Andhra Pradesh	36.76	63.26 36.75
2.	Assam	-5.17	-48.48 -51.52
3.	Bihar	48.18	72.03 27.98
4.	Gujrat	45.65	59.76 40.25
5.	Haryana	29.03	72.79 27.22
6.	Himachal Pradesh	17.37	61.39 38.61
7.	Jammu & Kashmir	32.49	57.68 42.33
8.	Kerala	-6.10	-44.28 -55.73
9.	Madhya Pradesh	30.83	66.05 33.96
10.	Maharashtra	31.49	51.80 48.21
11.	Manipur	62.40	58.67 41.34
12.	Meghalaya	40.53	51.39 48.63
13.	Mysore	30.48	56.54 43.46
14.	Nagaland	36.86	53.65 46.35
15.	Orissa	38.33	62.79 37.22
16.	Punjab	16.75	68.88 34.13
17.	Rajasthan	29.32	72.78 27.22
18.	Tamil Nadu	20.03	57.89 42.12
19.	Tripura	51.55	58.41 41.60
20.	Uttar Pradesh	39.81	53.50 46.51
21.	West Bengal	44.87	56.57 43.44
22.	Andaman & Nicobar	17.40	46.41 53.60
23.	Arunachal Pradesh	47.21	94.77 5.24
24.	Chandigarh	19.75	54.13 45.88
25.	Dadra & Nagar Haveli	52.33	62.29 37.72
26.	Delhi	11.35	50.38 49.63
27.	Goa, Daman & Diu	45.23	52.12 47.89
28.	Lakshadweep	22.56	44.73 55.28
29.	Misoram	55.00	54.37 45.64
30.	Pondicherry	13.71	54.20 45.81
	INDIA	33.53	59.80 40.20

S. No.	Class II to Class III			Class III to Class IV		
	% of drop out from class III class III	Male-Female ratio of drop outs		% of drop out from class III- class IV	Male-female ratio of drop outs	
		Boys	Girls		Boys	Girls
		(4)	(5)		(6)	(7)
1.	19.65	58.43	41.57	17.65	56.23	43.77
2.	11.92	64.14	35.86	10.68	50.65	49.36
3.	20.88	71.77	28.24	24.02	65.91	34.10
4.	19.05	61.24	38.77	10.10	61.80	38.21
5.	7.76	55.86	44.15	5.65	40.66	59.34
6.	5.33	55.65	44.36	4.12	53.54	46.47
7.	23.01	77.19	22.82	10.39	78.77	21.24
8.	8.44	57.57	42.44	9.74	62.45	37.55
9.	1.07	27.96	72.05	13.66	67.76	32.24
10.	16.44	50.96	49.05	15.27	53.21	46.80
11.	21.52	50.17	49.84	0.43	101.17	-1.17
12.	25.48	47.96	52.05	16.32	44.87	55.14
13.	21.91	53.11	46.90	15.66	51.45	48.56
14.	24.55	53.87	46.13	21.01	60.92	39.09
15.	18.13	65.56	34.44	25.42	55.32	44.69
16.	5.39	57.01	43.00	2.76	53.91	46.10
17.	14.03	84.17	15.84	17.46	82.44	17.57
18.	12.44	50.88	49.13	14.16	43.55	56.46
19.	4.28	72.26	27.75	19.09	59.56	40.45
20.	23.71	57.32	42.68	15.11	55.88	44.13
21.	15.59	70.52	29.49	23.20	58.55	41.46
22.	3.27	67.40	32.61	8.46	43.25	56.76
23.	59.76	86.81	13.20	25.13	73.55	26.46
24.	-1.01	-25.46	125.46	1.46	-49.21	149.21
25.	29.56	65.35	34.66	33.47	75.70	24.31
26.	-1.36	-147.00	47.00	4.95	41.98	58.03
27.	13.42	66.87	33.14	19.08	66.63	33.38
28.	11.44	40.34	59.67	17.00	41.73	58.28
29.	7.86	46.04	53.97	12.93	38.39	61.62
30.	8.81	41.14	58.87	10.22	44.35	55.66
INDIA	16.54	59.56	40.45	15.43	57.36	42.65

S. NO.	Class IV to Class V			Class V to Class VI		
	% of drop outs from class IV- class V	Male-female ratio of drop outs		% of drop outs from class V- class VI	Male-female ratio of drop outs	
		Boys (10)	Girls (11)		Boys (14)	Girls (15)
1.	15.19	53.92	46.09	32.61	49.39	50.62
2.	14.57	58.47	41.53	5.35	39.25	60.76
3.	12.22	60.63	39.38	4.56	54.94	45.07
4.	12.63	59.91	40.10	18.45	63.43	36.58
5.	5.28	48.65	51.36	-8.76	-116.77	16.77
6.	8.69	48.66	51.35	16.84	23.14	76.87
7.	6.43	69.65	30.35	4.57	4.15	95.86
8.	11.47	43.00	57.00	10.85	63.48	36.52
9.	15.23	69.39	30.61	17.65	72.67	27.34
10.	14.57	54.75	45.26	15.42	60.69	39.32
11.	0.95	21.61	78.40	2.61	32.35	67.66
12.	32.46	52.43	47.58	28.20	44.87	55.14
13.	33.65	52.88	47.13	14.57	58.94	41.07
14.	25.48	67.28	32.73	18.36	59.54	40.47
15.	18.48	65.06	34.96	24.73	58.78	41.23
16.	7.33	54.56	45.45	9.21	21.31	78.70
17.	9.58	67.17	32.84	9.91	67.30	32.71
18.	14.59	54.05	45.96	22.47	51.31	48.69
19.	15.86	60.45	39.55	2.94	32.81	67.20
20.	17.08	59.90	40.11	17.29	15.80	84.21
21.	12.72	52.39	47.62	12.36	53.72	46.29
22.	16.67	48.98	51.03	6.84	39.17	60.84
23.	6.12	11.12	88.89	29.59	70.43	29.57
24.	2.60	90.30	9.71	-4.27	-55.90	-44.10
25.	26.56	83.83	16.18	29.44	79.87	20.14
26.	-4.49	-13.56	13.56	1.59	100.30	-0.30
27.	-7.16	-98.99	1.02	-1.34	62.02	37.91
28.	6.87	22.65	77.36	34.18	57.82	42.19
29.	9.21	23.34	76.67	-18.04	-65.90	-34.11
30.	15.02	51.46	48.55	8.03	43.33	56.68
INDIA	14.91	56.36	43.65	15.38	47.51	52.49

S.No.	Class VI to Class VII			Class VII to VIII		
	% of drop outs from class VI to VII (16)	Male Female ratio of drop outs		% of drop outs from class VII to VIII (19)	Male-female ratio of drop outs	
		Boys (17)	Girls (18)		Boys (20)	Girls (21)
1.	-2.65	-105.42	5.42	33.17	69.31	30.69
2.	4.18	58.81	41.20	6.83	58.15	41.86
3.	8.87	91.65	8.36	22.11	66.15	33.86
4.	14.48	60.35	39.66	6.59	60.18	39.83
5.	11.81	80.60	19.40	13.06	77.66	22.37
6.	14.14	67.69	32.32	7.46	69.09	30.91
7.	7.62	48.95	51.06	13.57	57.66	42.35
8.	13.42	57.81	42.20	5.20	80.37	19.63
9.	16.83	67.35	32.66	7.57	72.52	27.49
10.	17.02	61.55	38.45	11.19	52.78	47.23
11.	-2.22	-19.56	98.56	-13.77	-84.18	-15.83
12.	10.00	45.67	54.34	11.55	63.80	36.20
13.	1.05	-70.62	170.62	25.28	61.71	38.30
14.	13.48	70.48	29.52	13.92	70.78	29.23
15.	10.72	64.32	35.69	19.69	63.87	36.13
16.	10.18	57.10	42.91	11.93	64.44	35.57
17.	17.76	84.35	15.66	15.11	90.36	9.65
18.	19.00	61.19	38.82	18.57	63.88	36.13
19.	19.93	62.57	37.43	14.10	59.48	40.52
20.	11.56	87.08	12.93	5.10	96.17	3.84
21.	10.97	79.61	20.40	6.71	66.97	33.04
22.	13.59	56.32	33.69	11.32	55.38	44.63
23.	-8.04	8.48	-108.48	-20.38	-83.97	-16.04
24.	1.11	-12.50	112.50	2.41	-24.39	-24.39
25.	5.65	94.74	5.27	7.28	40.91	59.09
26.	6.33	49.35	50.66	1.08	-119.12	219.13
27.	11.26	66.01	34.00	15.64	63.41	31.60
28.	11.31	36.37	63.64	7.75	68.00	32.00
29.	19.59	60.97	39.04	24.12	64.58	35.43
30.	15.29	50.99	49.02	13.09	63.32	36.69
INDIA	11.86	68.77	31.23	12.46	67.70	32.31

Appendix Table-6Drop-out Rates in Different Classes at Completion
(1971-72 to 1972-73)

Zones	Class I			Class II		
	Boys	Girls	Total	Boys	Girls	Total
	(1)	(2)	(3)	(4)	(5)	(6)
North Zone	25.31	23.87	24.85	10.60	10.95	10.71
South Zone	24.25	20.25	22.52	14.74	15.70	15.16
West Zone	34.69	38.60	36.62	15.12	18.91	16.63
Central "	33.56	42.07	36.82	16.16	21.68	18.13
East Zone	37.55	38.96	38.04	17.13	15.03	16.43
INDIA	32.29	33.92	32.92	15.27	16.79	15.84

Zones	Class III			Class IV		
	Boys	Girls	Total	Boys	Girls	Total
	(7)	(8)	(9)	(10)	(11)	(12)
North Zone	9.18	7.04	8.51	6.23	9.48	7.24
South Zone	12.78	15.54	13.98	15.78	20.21	17.64
West Zone	11.64	15.17	13.00	11.86	15.92	13.35
Central Zone	12.30	17.25	13.95	14.51	18.83	15.89
East Zone	19.66	25.62	21.69	10.99	17.48	13.05
INDIA	13.55	16.86	14.78	12.61	17.39	14.32

Zones	Class V			Class VI		
	Boys	Girls	Total	Boys	Girls	Total
	(13)	(14)	(15)	(16)	(17)	(18)
North Zone	1.38	16.50	5.90	12.65	12.81	12.69
South Zone	17.99	23.70	20.29	9.0	11.96	10.12
West Zone	15.16	17.35	15.93	14.52	17.85	15.66
Central Zone	6.67	40.08	16.69	12.54	11.03	12.22
East Zone	7.78	15.33	10.08	9.85	6.07	8.80
INDIA	10.61	23.02	14.85	11.25	11.60	

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Zone	Class VII			Class VIII		
	Boys (19)	Girls (20)	Total (21)	Boys (22)	Girls (22)	Total (23)
North Zone	22.74	11.91	12.53	5.33	20.92	9.35
South Zone	19.85	17.43	18.97	10.75	12.64	11.44
West Zone	7.23	12.95	9.10	10.20	11.04	10.45
Central Zone	5.58	2.58	4.98	29.74	38.62	31.47
East Zone	11.86	15.92	13.06	2.97	10.12	4.92
INDIA	11.52	13.13	11.99	14.65	17.12	15.35

$$\text{Drop Out Rate} = \frac{EnX - M - EnX + 1}{EnX^e} \times 100$$

- EnX = Enrolment in Class X in the year 1971-72
 M = Mortality rate, i.e. total deaths
 $EnX+1$ = Enrolment in the forthcoming class in the session 1972-73
 EnX^e = $EnX - M$ or expected enrolment in class $EnX + 1$ in 1972-73.

Appendix Table-7

Schooling Facilities Per Thousand Children

S.No. States/Union Territories	Primary in age group 6-11			Middle in age group 11-14			Sec./Hr. Secondary in age group 14-18		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
1. Andhra Pradesh	7.38	2.83	6.54	1.10	1.24	1.13	0.73	1.22	0.83
2. Assam	14.33	5.73	13.55	3.10	2.55	3.05	0.99	3.22	1.17
3. Bihar	6.52	3.25	6.20	1.95	2.59	2.02	0.46	1.29	0.53
4. Gujarat	6.66	2.62	5.53	-	-	-	0.86	1.61	1.07
5. Haryana	4.24	1.18	3.58	1.02	0.25	0.87	0.89	1.41	0.99
6. Himachal Pradesh	9.03	2.95	8.65	3.68	1.16	3.49	1.40	4.36	2.01
7. Jammu & Kashmir	9.75	3.15	8.51	5.49	3.70	5.16	1.40	2.76	1.65
8. Karnataka	6.49	1.54	5.17	5.24	3.39	4.71	0.55	0.84	0.64
9. Kerala	2.60	1.71	2.46	1.64	1.32	1.59	0.56	1.12	0.64
10. Madhya Pradesh	9.16	3.29	8.20	2.94	2.59	2.91	0.33	1.33	0.49
11. Maharashtra	5.49	1.83	4.43	5.39	2.14	4.39	1.10	1.67	1.27
12. Manipur	19.90	8.27	18.40	5.35	4.52	5.24	1.76	4.53	2.14
13. Meghalaya	27.91	5.01	25.08	4.01	2.54	3.82	0.83	8.09	1.34
14. Nagaland	13.90	3.22	12.92	6.28	3.32	6.07	1.45	3.19	1.61
15. Orissa	10.93	5.36	10.47	2.94	1.68	2.83	0.96	2.13	1.06
16. Punjab	5.39	1.74	4.56	1.35	0.62	1.18	1.05	2.03	1.27
17. Rajasthan	5.80	3.11	5.33	2.56	2.42	2.53	0.43	1.52	0.62

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S.No.	States/Union Territories	Primary			Middle			Sec./Hr. Secondary		
		age group 6-11 yrs.			age group 11-14 yrs.			age group 14-18 yrs.		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
18.	Tamil Nadu	6.92	2.20	5.18	2.46	1.47	2.07	0.69	1.04	0.82
19.	Tripura	6.67	2.07	6.19	2.30	1.14	2.18	0.63	1.98	0.79
20.	Uttar Pradesh	5.47	3.33	5.14	1.50	1.49	1.50	0.20	0.44	0.24
21.	West Bengal	6.94	3.20	6.01	0.84	0.60	0.78	0.86	1.56	1.03
22.	Andaman & Nicobar	10.49	1.20	8.63	3.80	2.20	3.50	1.13	6.78	1.84
23.	Arunachal Pradesh	9.14	5.75	9.07	1.65	-	1.61	0.25	4.95	0.32
24.	Chandigarh	4.74	0.64	0.96	2.11	1.08	1.15	1.42	1.39	1.39
25.	Dadra & Nager Haveli	13.73	-	13.73	3.75	-	3.75	0.55	3.75	0.55
26.	Delhi	-	2.42	2.49	-	1.25	1.25	-	1.42	1.42
27.	Goa, Daman & Diu	8.47	2.11	6.92	2.94	1.29	2.52	2.74	2.94	2.80
28.	Lakshadweep	4.75	-	4.75	2.94	-	2.94	2.39	-	2.39
29.	Mizoram	10.51	9.46	10.35	6.81	5.59	6.59	2.46	3.69	2.61
30.	Pondicherry	6.56	3.02	5.06	2.44	2.16	2.33	1.32	2.07	1.64
	INDIA	6.84	2.64	5.97	2.29	1.67	2.15	0.63	1.31	0.77

Source: Third All India Educational Survey, 1973.

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Appendix Table-8

Percentage Distribution of Children According to
Distance Walked to Attend Primary and Middle
Schools in Rural Areas

S.No.	State/Union Territories	Availing Primary		Availing Middle		
		within habitation	Outside habitation	within habitation	upto a dist. of 3 km	More than 3 km
1.	Andhra Pr.	91.63	8.37	66.03	24.47	9.50
2.	Assam	74.59	25.42	35.72	52.03	11.65
3.	Bihar	70.67	29.33	41.45	50.59	7.95
4.	Gujarat	82.84	17.16	-	-	-
5.	Haryana	96.39	3.61	62.08	31.48	6.43
6.	Himachal Pr.	38.22	61.78	25.58	58.95	15.47
7.	Jammu & Kashmir	71.59	28.41	45.84	44.57	9.57
8.	Karnataka	88.08	11.92	69.96	24.35	5.69
9.	Kerala	67.75	32.25	52.52	40.13	7.38
10.	Madhya Pr.	83.46	16.54	57.43	30.06	12.59
11.	Maharashtra	85.54	14.46	70.40	23.69	5.93
12.	Manipur	88.34	11.66	47.21	33.93	15.90
13.	Meghalaya	89.54	10.46	57.80	24.13	18.07
14.	Nagaland	37.07	12.93	49.88	23.45	26.57
15.	Orissa	73.65	26.35	45.92	47.65	6.39
16.	Punjab	94.68	5.32	54.17	35.10	10.63
17.	Rajasthan	80.30	19.70	68.01	20.49	11.51
18.	Tamil Nadu	78.82	21.18	-	-	-
19.	Tripura	61.30	38.70	49.58	43.37	7.05
20.	Uttar Pradesh	57.99	42.01	34.83	49.77	15.40
21.	West Bengal	59.38	40.62	40.31	45.24	14.45
22.	A & N Islands	75.43	24.57	75.15	11.48	12.82
23.	Arunachal Pr.	58.63	41.37	69.14	29.23	1.63
24.	Chandigarh	99.23	0.77	93.53	6.47	-
25.	Dadra & N. Haveli	49.98	50.02	30.10	58.92	1.98
26.	Delhi	-	-	-	-	-
27.	Goa, Daman & Diu	99.99	-	27.84	58.95	13.20
28.	Lakshadweep	99.99	-	99.99	-	-
29.	Mizoram	99.99	-	79.45	-	20.55
30.	Pondicherry	65.46	34.34	58.19	40.42	0.58
	INDIA	74.67	25.33	51.19	38.50	10.08

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Appendix Table-9

Percentage Distribution of Social and Demographic
Variables

S.No.	States/Union Territories	Urban popula- tion	SB/ ST	Sex Ratio	Literacy Rates aged 15-35		
					Rural	Urban	Total
1.	Andhra Pr.	32.56	17.08	977	27.0	62.1	34.7
2.	Assam	16.84	17.27	895	38.4	74.1	42.3
3.	Bihar	18.40	22.86	954	25.2	58.9	29.0
4.	Gujarat	44.48	20.83	934	40.1	72.2	50.1
5.	Haryana	31.57	18.89	867	32.3	70.1	39.9
6.	Himachal Pr.	13.20	26.33	958	42.0	77.0	45.3
7.	Jammu & Kashmir	32.76	8.26	878	54.5	22.2	28.8
8.	Karnataka	39.46	13.93	957	45.2	29.2	66.9
9.	Kerala	27.09	9.56	1016	79.3	86.0	80.5
10.	Madhya Pr.	28.47	33.23	941	26.5	68.0	39.0
11.	Maharashtra	47.71	11.86	930	45.0	75.2	56.1
12.	Manipur	23.48	32.72	980	46.1	75.4	50.3
13.	Meghalaya	25.81	80.80	942	37.1	80.7	44.8
14.	Nagaland	18.67	88.61	871	41.5	71.1	46.4
15.	Orissa	15.50	38.20	988	39.2	65.0	37.3
16.	Punjab	40.11	24.71	865	39.8	70.1	47.7
17.	Rajasthan	30.90	27.95	911	20.2	60.1	27.8
18.	Tamil Nadu	46.58	18.52	978	41.9	71.4	51.5
19.	Tripura	19.35	41.34	943	45.0	83.8	49.4
20.	Uttar Pr.	25.74	21.22	879	26.5	59.2	31.6
21.	West Bengal	40.41	25.26	891	38.2	69.2	47.2
22.	A & N Islands	42.33	15.72	644	50.07	70.2	57.4
23.	Arunachal Pr.	75.58	79.09	861	17.6	61.6	20.0
24.	Chandigarh	95.94	11.30	749	43.4	79.4	76.5
25.	Dadra & N. Haveli	-	88.69	1007	22.4	-	22.4
26.	Delhi	95.07	15.64	801	51.3	73.2	71.9
27.	Goa, Daman & Diu	-	2.82	989	56.6	73.2	61.6
28.	Lakshadweep	-	92.86	978	66.4	-	66.4
29.	Mizoram	21.32	95.63	977	76.4	88.6	78.4
30.	Pondicherry	59.38	15.46	989	49.5	73.2	60.0
	INDIA	33.80	21.54	930	34.3	68.6	42.00

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Appendix Table-10

Percentage Distribution of Workforce in Various Sectors

S. No.	States/Union Territories	Child Workers		Workers in Primary Sector			Workers in Secondary Sector		
		aged 0-14	aged 15-19	Rural	Urban	Total	Rural	Urban	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	9.03	10.8	83.12	49.08	73.93	7.86	27.16	10.63
2.	Assam	5.64	9.4	84.22	9.05	77.04	3.48	20.44	5.10
3.	Bihar	6.05	9.1	90.30	28.84	84.70	3.79	24.01	5.63
4.	Gujarat	6.17	11.5	86.27	12.03	68.0	6.01	36.39	13.49
5.	Haryana	5.19	10.9	78.68	11.27	66.84	8.40	27.76	11.80
6.	Himachal Pradesh	5.71	9.8	82.34	9.17	77.61	6.80	28.04	8.18
7.	Jammu & Kashmir	5.13	9.2	83.03	14.11	71.63	5.80	25.36	9.04
8.	Karnataka	7.94	11.0	84.88	19.53	71.34	6.99	31.15	11.99
9.	Kerala	1.79	9.1	62.47	19.27	55.97	16.14	24.87	17.46
10.	Madhya Pradesh	7.27	9.8	90.98	16.84	81.74	4.40	29.02	7.47
12.	Maharashtra	5.37	8.8	87.49	11.06	66.73	5.93	37.57	14.53
12.	Manipur	4.41	9.1	77.05	20.28	71.30	10.11	31.05	12.23
13.	Meghalaya	6.81	10.9	90.81	6.54	81.84	1.81	15.82	3.30
14.	Nagaland	5.23	8.8	87.55	5.61	79.46	1.42	11.24	2.38
15.	Orissa	7.18	9.8	85.77	19.61	80.35	5.24	20.35	6.48

S.No.	State/Union Territories	Child Workers		Workers in Primary Sector			Workers in Secondary Sector		
		aged 0-14	aged 15-19	Rural	Urban	Total	Rural	Urban	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
16.	Punjab	5.94	11.6	79.53	10.72	63.63	8.22	30.11	13.28
17.	Rajasthan	7.29	11.0	87.88	14.88	77.23	4.71	26.41	7.87
18.	Tamil Nadu	4.83	8.9	81.31	16.70	64.79	8.72	33.16	14.97
19.	Tripura	4.04	8.8	83.23	10.22	76.58	3.44	12.34	4.25
20.	Uttar Pradesh	4.85	8.9	87.71	10.56	78.03	4.94	28.43	7.89
21.	West Bengal	4.15	8.8	82.99	5.52	62.30	6.83	37.56	15.07
22.	Andaman & Nicobar Islands	1.25	5.1	47.69	6.24	36.96	33.68	29.87	32.66
23.	Arunachal Pradesh	6.65	9.4	82.92	8.01	80.44	0.36	2.78	0.44
24.	Chandigarh	1.26	6.7	33.85	1.70	4.90	21.05	18.47	18.73
25.	Dadra & Nagar Haveli	8.86	12.0	90.83	-	90.83	3.96	-	3.96
26.	Delhi	1.39	6.4	38.57	1.60	4.95	24.55	29.49	29.04
27.	Goa, Daman & Diu	2.72	8.1	63.25	14.11	49.96	14.77	20.84	16.41
28.	Lakshadweep	1.16	6.8	26.77		26.77	43.34		43.34
29.	Mizoram			87.10	49.92	84.18	1.15	8.87	1.76
30.	Pondicherry	2.64	6.6	69.57	15.15	49.96	13.35	34.75	21.06
	INDIA	5.95	9.6	85.24	13.78	72.56	6.24	31.32	10.69

Source: Census of India, 1971, General Economic Tables.

S.No. States/Union Territories	Workers in Tertiary Sector			Non Workers		
	Rural	Urban	Total	Rural	Urban	Total
	(9)	(10)	(11)	(12)	(13)	(14)
1. Andhra Pradesh	9.02	53.76	15.44	56.10	69.3	58.6
2. Assam	12.28	70.51	17.85	71.90	69.8	71.7
3. Bihar	5.91	47.15	9.67	68.70	71.7	69.0
4. Gujarat	7.71	51.58	18.51	67.0	72.4	68.6
5. Haryana	12.92	60.97	21.36	73.50	73.7	73.6
6. Himachal Pradesh	10.85	62.79	14.21	62.80	65.8	63.0
7. Jammu & Kashmir	11.16	60.53	19.33	69.50	73.5	70.2
8. Karnataka	8.13	49.32	16.66	63.60	70.4	65.3
9. Kerala	21.36	55.86	26.57	70.50	73.0	70.9
10. Madhya Pradesh	4.61	54.74	10.79	61.60	71.9	63.3
11. Maharashtra	6.58	51.36	18.74	61.40	68.2	63.5
12. Manipur	12.84	48.67	16.47	64.20	73.4	65.4
13. Meghalaya	7.38	77.63	14.86	53.80	67.7	55.8
14. Nagaland	11.03	83.15	18.16	49.20	49.6	49.2
15. Orissa	8.99	60.04	13.17	68.70	69.6	68.8
16. Punjab	12.25	59.17	23.09	70.90	71.9	71.1
17. Rajasthan	7.41	58.71	14.90	67.60	74.2	68.6

S.No. States/Union Territories	Workers in Tertiary Sector			Non Workers		
	Rural (9)	Urban (10)	Total (11)	Rural (12)	Urban (13)	Total (14)
18. Tamil Nadu	9.97	50.14	20.24	61.80	69.8	64.2
19. Tripura	13.33	77.44	19.17	71.80	75.8	72.2
20. Uttar Pradesh	7.35	60.96	14.07	68.50	72.3	69.1
21. West Bengal	10.17	56.82	22.63	72.80	69.9	72.1
22. Andaman & Nicobar Islands	18.74	63.89	30.37	62.0	55.2	60.5
23. Arunachal Pradesh	16.72	89.21	19.12	42.10	48.4	42.3
24. Chandigarh	45.10	79.83	76.37	64.90	66.9	66.7
25. Dadra & Nagar Haveli	5.21		5.21	52.80		52.8
26. Delhi	36.88	68.91	66.01	73.40	69.4	69.8
27. Goa, Daman & Diu	21.98	65.05	33.63	68.60	67.6	68.3
28. Lakshadweep	29.89		29.89	73.90		73.9
29. Mizoram	11.75	41.21	14.06	54.40	52.6	68.4
30. Pondicherry	17.08	50.10	28.98	67.0	74.4	70.1
INDIA	8.52	54.90	16.75	66.20	70.70	67.10

Appendix Table 11Composite Index of Physical Facilities

S.No.	State/Union Territories	Primary	Middle	Secondary	Higher Secondary
1.	Andhra Pradesh	134.80	189.02	302.31	327.78
2.	Assam	147.90	129.79	309.01	389.99
3.	Bihar	109.21	212.21	351.52	247.61
4.	Gujarat	189.91	-	207.51	187.75
5.	Haryana	202.37	237.43	254.36	273.32
6.	Himachal Pradesh	127.79	166.44	226.51	272.66
7.	Jammu & Kashmir	89.02	129.44	243.65	286.21
8.	Karnataka	126.63	179.87	296.25	327.28
9.	Kerala	275.82	349.22	385.54	390.00
10.	Madhya Pradesh	130.49	221.47	-	321.68
11.	Maharashtra	138.22	195.52	335.85	283.75
12.	Manipur	172.58	223.99	266.50	318.52
13.	Meghalaya	71.79	227.21	320.15	250.00
14.	Nagaland	229.63	344.70	365.06	-
15.	Orissa	158.41	322.74	384.35	314.29
16.	Punjab	166.83	208.01	248.13	299.99
17.	Rajasthan	147.36	212.01	309.27	324.33
18.	Tamil Nadu	248.72	294.50	328.21	360.53
19.	Tripura	114.79	203.13	263.16	358.58
20.	Uttar Pradesh	166.82	163.25	332.21	248.31
21.	West Bengal	157.17	249.47	334.67	284.76
22.	A. & N. Islands	301.55	364.00	-	440.00
23.	Arunachal Pradesh	202.08	293.23	200.00	488.88
24.	Chandigarh	253.84	308.34	316.00	362.50
25.	D. & N. Haveli	103.66	290.19	425.00	-
26.	Delhi	228.11	217.36	-	272.87
27.	Goa, Daman & Diu	148.20	156.77	278.37	100.00
28.	Lakshadweep	183.41	200.01	366.67	400.00
29.	Mizoram	212.49	248.34	305.80	100.00
30.	Pondicherry	169.58	199.99	269.48	100.00
	INDIA	153.40	222.70	313.44	325.12

Source: Third All India Educational Survey 1973 & Ministry of Education, Education in India, 1972-73.

Appendix Table 12Pupil-Teacher Ratio

S. No.	State/Union Territories	Primary	Middle	Secondary/ Higher Secondary
1.	Andhra Pradesh	40	30	19
2.	Assam	32	24	24
3.	Bihar	37	33	28
4.	Gujarat	37	36	27
5.	Haryana	38	24	31
6.	Himachal Pradesh	27	22	24
7.	Jammu & Kashmir	26	21	20
8.	Karnataka	41	40	22
9.	Kerala	38	33	27
10.	Madhya Pradesh	42	27	22
11.	Maharashtra	34	33	25
12.	Manipur	20	19	20
13.	Meghalaya	44	17	29
14.	Nagaland	23	16	21
15.	Orissa	32	21	10
16.	Punjab	37	30	30
17.	Rajasthan	32	25	21
18.	Tamil Nadu	35	32	23
19.	Tripura	39	28	20
20.	Uttar Pradesh	52	27	27
21.	West Bengal	35	29	28
22.	A. & N. Islands	20	20	19
23.	Arunachal Pradesh	26	16	14
24.	Chandigarh	30	26	25
25.	D. & N. Haveli	36	28	16
26.	Delhi	32	20	21
27.	Goa, Daman & Diu	31	28	31
28.	Lakshadweep	30	15	14
29.	Mizoram	44	20	17
30.	Pondicherry	33	32	24
	INDIA	39	31	25

Source: Third All India Educational Survey 1973 & Ministry of Education, Education in India, 1972-73.

District-wise Distribution of Gross Enrolment Ratios in Kerala 1973

S.No.	District/ State	Class I			Class II			Class III			Class IV		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
	Variable Nos.	1	2	3	4	5	6	7	8	9	10	11	12
1.	Cannanore	21.31	17.86	20.85	23.88	19.71	23.32	27.79	22.72	27.12	20.86	17.27	20.38
2.	Calicut	26.00	19.44	24.07	28.16	23.17	26.69	46.34	18.62	38.19	25.66	17.65	23.31
3.	Malapparam	24.08	22.72	23.99	25.94	24.23	25.83	19.14	27.05	29.00	20.00	18.99	19.94
4.	Palghat	20.31	23.22	20.66	22.26	35.15	23.79	25.31	29.57	25.81	17.84	21.56	18.23
5.	Trichur	22.89	23.06	22.91	25.03	25.47	25.08	29.89	29.51	29.84	22.51	23.77	22.66
6.	Ernakulam	23.03	22.78	22.96	25.55	24.50	25.24	31.28	30.33	31.00	24.23	22.45	23.71
7.	Kottayam	30.58	21.76	29.38	31.28	22.58	30.10	38.59	26.21	36.91	32.00	22.85	30.76
8.	Alleppy	19.97	18.92	19.79	22.80	22.58	22.58	28.05	24.68	27.47	22.32	20.04	21.93
9.	Quilon	19.04	24.48	19.46	22.00	27.50	22.42	27.25	32.13	27.62	21.09	24.69	21.34
10.	Trivandrum	42.09	24.73	36.61	50.50	30.86	44.29	48.66	34.21	44.10	40.90	31.95	38.08
	KERALA	22.38	21.43	22.23	24.81	24.13	24.70	30.11	26.72	29.57	22.28	21.79	22.20

(xxxvii)

Appendix Table-13 (b)

Distribution of Schooling Facilities (per thousands of school-going children)

S.No. District/ State Variable No.	Primary Schools			Middle Schools			Sec./Hr. Sec. Schools		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
	22	23	24	25	26	27	28	29	30
1. Cannanore	3.40	2.15	3.24	2.54	2.51	2.54	0.46	0.92	0.52
2. Calicut	3.79	1.65	3.16	2.26	1.65	2.09	0.46	0.81	0.56
3. Malapuram	2.97	2.65	2.95	1.39	1.84	1.40	0.34	0.60	0.35
4. Palghat	2.42	1.60	2.32	1.68	1.86	1.70	0.55	1.03	0.61
5. Trichur	1.87	2.06	1.89	1.34	1.11	1.49	0.77	1.75	0.90
6. Ernakulam	2.06	1.34	1.85	1.27	1.04	1.21	0.87	1.25	0.99
7. Kottayam	3.35	1.62	3.11	2.28	1.44	2.17	1.30	2.06	1.40
8. Alleppy	2.35	1.58	2.22	1.61	0.86	1.48	0.90	1.19	0.95
9. Quilon	2.06	1.60	2.02	1.47	0.77	1.41	0.75	1.19	0.78
10. Trivandrum	4.24	1.75	3.45	1.27	0.93	1.48	0.20	0.98	0.29
KERALA	2.60	1.71	2.46	1.64	1.32	1.59	0.56	1.12	0.64

(xxxviii)

Appendix Table 13(c)

Percentage Distribution of Pupils in Rural Areas According to Distance Walked to Attend Primary and Middle Schools

S.No. Districts/ State	Primary		Middle			
	Within habita- tion Variable No. 31	Outside habita- tion 32	Within habita- tion 33	upto 1.0 km. 34	2.0 km. 35	More than 2.0 km. 36
1. Cannanore	86.68	13.32	67.59	7.95	9.61	14.85
2. Calicut	70.06	29.94	46.76	16.84	18.21	18.19
3. Malapuram	54.13	45.87	39.43	19.25	20.88	20.44
4. Palghat	78.69	21.31	62.46	8.89	13.18	15.47
5. Trichur	72.39	27.61	51.00	12.15	18.78	18.07
6. Ernakulam	63.76	36.24	47.16	12.62	17.16	23.06
7. Kottayam	71.17	28.83	59.61	11.29	12.83	16.27
8. Alleppy	67.69	32.31	52.07	18.71	17.15	12.07
9. Quilon	61.09	38.91	49.17	15.94	20.80	14.09
10. Trivandrum	49.75	50.25	47.58	15.18	17.57	19.67
KERALA	67.75	32.25	52.50	13.86	16.70	16.94

Appendix Table 13(d)

Percentage Distribution of Demographic & Social Variables

S.No. Districts/ State	% of urban popu- lation Variable No. 37	% of SC/ST 38	Sex Ratio 39	Literacy Rates aged 15 to 35		
				Rural 40	Urban 41	Total 42
1. Cannanore	33.74	6.26	10.17	73.40	78.90	74.20
2. Calicut	26.66	7.66	9.91	73.60	84.70	78.10
3. Malappuram	7.21	8.06	10.41	66.60	70.70	66.70
4. Palghat	12.70	14.02	10.56	58.50	77.50	61.10
5. Trichur	11.73	10.60	10.81	82.20	90.20	83.20
6. Ernakulam	38.05	8.79	9.83	86.20	90.50	87.50
7. Kottayam	10.22	9.31	9.76	82.80	92.10	88.30
8. Alleppy	16.92	9.54	10.28	91.20	91.20	91.20
9. Quilon	7.87	11.78	10.01	85.80	86.50	85.90
10. Trivandrum	26.00	10.22	10.07	79.50	85.00	81.00
KERALA	19.39	9.54	10.16	79.30	86.00	80.50

(1951)

Appendix Table-13(c)

Percentage Distribution of Workforce in Various Sectors to the Total Workforce in Rural, Urban and Total Areas

S.No.	Districts/ States	Child	Child	Workers in Primary			Workers in Secondary		
		Workers aged 0-14	Workers aged 15-19	Rural	Urban	Total	Rural	Urban	Total
	Variable No.	43	44	45	46	47	48	49	50
1.	Cannanore	1.64	29.05	63.51	22.75	58.22	16.23	28.46	17.82
2.	Calicut	1.05	22.95	63.85	16.42	52.25	11.71	27.15	15.48
3.	Malappuram	1.21	28.33	66.83	29.25	64.45	10.83	12.22	11.30
4.	Palghat	2.64	28.53	72.86	27.01	68.03	11.80	20.04	12.67
5.	Trichur	1.13	23.82	55.69	22.93	52.16	20.05	23.33	20.40
6.	Ernakulam	1.09	22.06	55.58	8.79	43.26	21.32	22.44	23.20
7.	Kottayam	1.05	23.36	72.28	26.87	68.00	9.44	18.33	10.28
8.	Alleppey	0.79	17.35	57.72	23.17	52.30	17.47	26.30	18.85
9.	Quilon	1.06	20.76	57.20	15.12	53.98	21.98	36.64	23.10
10.	Trivandrum	1.63	21.48	59.26	21.33	49.75	19.01	18.22	18.81
	KERALA	1.79	24.19	62.47	19.27	55.97	16.14	24.87	17.46

(x1)

S.No. Districts/ State	Workers in Tertiary Sector			Non workers			
	Variable No.	Rural 51	Urban 52	Total 53	Rural 54	Urban 55	Total 56
1. Cannanore		20.25	48.78	23.95	69.52	71.49	69.78
2. Calicut		24.44	56.42	32.26	72.27	75.31	73.08
3. Malappuram		22.33	52.53	24.25	72.81	74.48	72.92
4. Palghat		15.83	52.95	19.30	63.22	70.21	64.11
5. Trichur		24.26	53.74	27.44	71.34	73.96	71.65
6. Ernakulum		23.09	62.76	33.54	70.64	72.44	5
7. Kottayam		18.27	54.79	21.71	70.02		70.28
8. Alleppy		24.81	50.52	28.84	7	73.91	71.85
9. Quilon		20.82	48.24	22.92	71.32	72.20	71.39
10. Trivandrum		21.73	60.45	31.44	71.06	72.44	71.42
KERALA		21.38	55.86	26.57	70.50	73.00	70.90

Appendix Table 13 (f)

List of Selected Variables in Kerala With Their
Mean, S.D. And C.V.

S. No.	KERALA			
		Mean	S. D.	C. V.
1.	Class I Rural	24.23	6.01	24.8
2.	Urban	21.90	2.37	10.82
3.	Total	24.07	5.26	21.85
4.	Class II Rural	27.74	8.49	30.60
5.	Urban	25.57	4.52	17.67
6.	Total	26.93	6.51	24.17
7.	Class III Rural	33.23	8.33	25.07
8.	Urban	27.50	4.64	16.87
9.	Total	31.70	6.00	18.93
10.	Class IV Rural	24.74	6.86	21.64
11.	Urban	22.12	4.27	19.30
12.	Total	24.03	5.97	24.84
13.	Primary Rural	110.64	29.39	26.56
14.	Urban	96.15	14.16	14.72
15.	Total	106.74	23.00	21.55
16.	Middle Rural	87.24	22.60	25.90
17.	Urban	128.48	65.12	50.68
18.	Total	90.34	23.67	26.20
19.	Secondary/ Rural	36.71	18.70	50.34
20.	Higher Urban	71.93	27.77	36.61
21.	Secondary Total	41.13	18.65	45.34
22.	Primary Rural	2.8510	0.8183	28.7022
23.	School per Urban	2.8000	0.3815	21.19444
24.	1000 pop. Total	2.6210	0.6191	23.62075
25.	Middle Rural	1.7110	0.4727	27.627118
26.	School per Urban	1.3610	0.5393	39.625275
27.	1000 pop. Total	1.6680	0.4528	27.146282
28.	Higher Rural	0.6600	00.3228	48.90909
29.	School per Urban	1.1780	0.4356	36.9779
30.	thousand Total	0.7350	0.33691	45.83809
31.	Primary within habitation	67.5409	10.9850	16.264219
32.	Primary Out side habitation	32.4290	10.9845	33.872459
33.	Middle within habitation	52.2829	9.4793	16.21811

(x111)

S.No.	KERALA		
	Mean	S.D.	C.V.
34. Upto 1 kkm.	13.8820	3.9188	28.229361
35. Upto 2 k.m.	16.6170	3.6458	21.94018
36. More than 2 km	17.2120	3.3005	19.175575
37. Urban Population	17.1100	9.9965	58.424897
38. SC/ST	9.6240	2.2036	22.8969
39. Sex Ratio	1018.0999	33.6188	3.30211
40. Literacy Rate Rural	27.9799	9.9781	35.66167
41. Literacy Rate Urban	84.7299	7.0376	8.3059227
42. Literacy Rate Total	79.7199	9.8165	12.313738
43. Child Work-force 0-14	1.3290	0.5308	39.9398
44. Child Work-force 15-19	24.7690	5.9239	23.16589
45. Workers Primary - Rural	62.4779	6.5009	10.405119
46. Workers Primary - Urban	21.3640	6.2676	29.337202
47. Workers Primary - Total	56.2399	8.2494	14.6682
48. Workers Secondary-Rural	15.9840	4.6850	29.31056
49. Workers Secondary-Urban	24.5130	6.0281	24.591441
50. Workers Secondary-Total	17.1910	4.6299	26.932115
51. Workers Tertiary -Rural	21.5330	3.0000	26.932105
52. Workers Tertiary -Urban	54.1179	4.7813	8.8349695
53. Workers Tertiary -Total	26.5650	4.8605	18.29663
54. Non-workers Rural	70.3659	2.6913	3.8247219
55. Non-workers Urban	72.9059	1.5177	2.0817245
56. Non-workers Total	70.7639	2.5502	3.6038149

Appendix Table-18Correlation Matrix Pertaining to Rural Areas of Kerala

X ₁	1.0000										
X ₄	0.9848	1.0000									
X ₇	0.8493	0.8177	1.0000								
X ₁₀	0.9562	0.9443	0.8509	1.0000							
X ₁₃	0.9839	0.9729	0.9183	0.9726	1.0000						
X ₁₆	0.2337	0.1730	0.1920	0.4551	0.2658	1.0000					
X ₁₉	-0.2761	-0.3372	-0.1603	-0.0416	-0.2173	0.8126	1.0000				
X ₂₂	0.7508	0.7232	0.7901	0.6705	0.7661	-0.1054	-0.5106	1.0000			
X ₂₅	-0.0964	-0.1770	0.1284	-0.0615	-0.0518	0.6982	0.0053	0.4513	1.0000		
X ₂₈	-0.2656	-0.3568	-0.2304	-0.0592	-0.2445	0.8275	0.9307	-0.4515	0.1589	1.0000	
X ₃₁	-0.5225	-0.5606	-0.4012	-0.4893	-0.5129	0.0172	0.1011	-0.1627	0.6960	0.2643	1.0000
X ₃₂	0.5225	0.5606	0.4012	0.4894	0.5130	-0.172	-0.1011	0.1628	-0.6960	-0.2643	
	-0.9999	1.0000									
X ₃₃	-0.1990	-0.2185	-0.2877	-0.1512	-0.2269	0.2288	0.0328	0.0370	0.6436	0.2574	
	0.8451	-0.8450	1.0000								
X ₃₄	0.0846	0.1136	0.2235	0.0917	0.1376	-0.1429	0.0864	0.0510	-0.4015	-0.1705	
	-0.7289	0.7290	-0.8385	1.0000							

(xlvi11)

X ₃₅	0.0069 -0.7622	0.0483 0.7623	0.0992 -0.9228	-0.0071 0.8098	0.0422 1.0000	-0.1434	0.1084	-0.2628	-0.7011	-0.1803
X ₃₆	0.4033 -0.4633	0.3731 0.4633	0.3642 -0.5537	0.2874 0.0725	0.3730 0.3047	-0.2373 1.0000	-0.3065	0.1349	-0.4023	-0.2598
X ₄₀	0.0468 -0.2351	0.072 0.2351	0.0965 -0.1895	0.3041 0.2901	0.1304 0.2447	0.6669 -0.1274	0.7156 1.0000	-0.2520	-0.1951	0.5530
X ₄₅	0.0690 0.3112	-0.0390 -0.3110	0.0156 0.4162	-0.0657 -0.3204	-0.0059 -0.4941	-0.0454 -0.1424	-0.2021 -0.7016	0.3550 1.0000	0.5134	0.0490
X ₄₈	-0.0958 -0.2161	0.0299 0.2161	-0.1681 -0.1753	0.0433 0.0348	-0.0515 0.3195	0.1159 0.0562	0.1645 0.6141	-0.4477 -0.9065	-0.5455 1.0000	-0.0148
X ₅₁	0.0005 -0.3371	0.0382 0.3372	0.2295 -0.6283	0.0753 0.6411	0.0939 0.5729	-0.0821 0.2203	0.1814 0.5625	-0.0699 -0.7518	-0.2611 0.4035	-0.0834 1.0000
X ₅₄	0.1944 -0.5253 1.0000	0.1915 0.5258	0.3467 -0.6783	0.2591 0.6982	0.2601 0.5974	0.0193 0.2153	0.1855 0.5567	0.1517 -0.5470	-0.1356 0.2310	-0.0301 0.8273

(xlix)

Appendix Table-19

Correlation Matrix Pertaining to Urban Areas of Kerala

X ₂	1.0000										
X ₅	0.7188	1.0000									
X ₈	0.8872	0.6511	1.0000								
X ₁₁	0.7685	0.5652	0.8398	1.0000							
X ₁₄	0.9032	0.8408	0.9006	0.8790	1.0000						
X ₁₇	0.2430	0.0156	0.3010	0.2251	0.2258	1.0000					
X ₂₀	0.2992	-0.3291	-0.1573	-0.1200	-0.2093	-0.1503	1.0000				
X ₂₃	-0.0851	-0.2403	-0.1457	-0.2709	-0.1390	0.0877	-0.2566	1.0000			
X ₂₆	-0.5626	-0.2068	-0.5672	-0.6056	-0.4805	-0.2082	-0.0266	0.3479	1.0000		
X ₂₉	0.1418	-0.1172	0.1846	0.2660	0.1175	0.0315	0.3369	-0.3577	-0.2588	1.0000	
X ₄₁	-0.0065 1.0000	-0.2075	0.0988	0.3191	0.0015	0.4363	0.2875	-0.6979	-0.5408	0.7533	
X ₄₆	-0.0833 -0.4589	0.1036 1.0000	-0.1082	-0.1250	0.0698	0.1890	0.1675	0.5973	0.3446	0.0353	
X ₄₉	-0.1743 0.2606	-0.2633 -0.7058	-0.0917 1.0000	-0.2083	-0.2464	-0.1259	0.2047	-0.3369	-0.1447	-0.0899	
X ₅₂	0.3341 0.2763	0.1996 -0.4560	0.2615 -0.3401	0.4325 1.0000	0.2230	-0.0898	-0.4840	-0.3622	-0.2730	0.0677	
X ₅₅	-0.2394 0.1222	-0.5011 -0.0524	-0.4556 -0.0271	-0.2463 0.1053	-0.4097 1.0000	0.5382	-0.2666	0.2889	-0.2053	-0.1038	

(D)

Appendix Table-20

Correlation Matrix Pertaining to Total Areas of Kerala

X ₃	1.0000										
X ₆	0.9739	1.0000									
X ₉	0.9068	0.8805	1.0000								
X ₁₂	0.9444	0.9317	0.8966	1.0000							
X ₁₅	0.9848	0.9760	0.9491	0.9719	1.0000						
X ₁₈	0.2295	0.1423	0.1959	0.4507	0.2609	1.0000					
X ₂₁	-0.2317	-0.3327	-0.0059	0.0112	-0.1712	0.8143	1.0000				
X ₂₄	0.6199	0.5866	0.4104	0.4931	0.5942	-0.2333	-0.4144	1.0000			
X ₂₇	-0.1717	-0.2595	-0.0701	-0.1905	-0.1800	-0.0301	0.0795	0.4839	1.0000		
X ₃₀	-0.1567	-0.2969	-0.1102	0.0306	-0.1400	0.8613	0.9237	-0.4212	0.1379	1.0000	
X ₃₇	0.2701 1.0000	0.3146	0.4411	0.3277	0.3503	-0.0027	-0.0822	-0.0260	-0.2563	-0.0372	
X ₃₈	-0.0767 -0.2344	0.0030 1.0000	-0.1925	-0.0493	-0.0796	0.2507	0.0831	-0.4862	-0.5386	0.1007	
X ₃₉	-0.3063 -0.4540	-0.2453 0.3707	-0.4828 1.0000	-0.4315	-0.3771	-0.3146	-0.3321	-0.3285	-0.1842	-0.2830	

(11)

X_{42}	0.1153 0.2846	0.0785 -0.1664	0.5533 -0.4630	-0.3989 1.0000	0.2178	0.7331	0.7685	-0.2663	-0.1760	0.6468
X_{43}	0.0347 -0.1060	0.1168 0.4929	-0.1549 0.3594	-0.1226 -0.7792	-0.0309 1.0000	-0.3137	-0.5970	0.1451	0.1244	-0.4209
X_{44}	-0.1973 -0.3010	-0.1932 0.3055	-0.3711 0.4317	-0.4270 -0.9055	-0.3066 0.8754	-0.4390 1.0000	-0.5407	0.1043	0.3034	-0.3223
X_{47}	-0.0505 -0.743	-0.1466 0.2134	-0.2385 0.2071	-0.2127 -0.5662	-0.1678 0.4471	-0.0170 0.6578	-0.0455 1.0000	0.5161	0.4581	0.0566
X_{50}	-0.2154 0.4212	-0.0920 0.0484	-0.1146 -0.0582	-0.0008 0.5291	-0.1058 -0.3028	0.0995 -0.5198	0.1274 -0.8621	-0.5559 1.0000	-0.4348	0.0260
X_{53}	0.2910 0.8451	0.3366 -0.4076	0.5021 0.2954	0.3618 0.4567	-0.3857 -0.4701	-0.0661 -0.6211	-0.0445 -0.8760	-0.0072 0.5110	-0.3643 1.0000	-0.1211
X_{56}	0.1849 0.1749	0.1442 -0.6233	0.3591 0.2707	0.2363 0.5183	0.2374 -0.8721	-0.0626 -0.7816	0.1453 -0.5084	0.1335 0.2629	-0.1929 0.6132	-0.0384 1.0000
