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Impact of Mid-Day Meals Programme on Enrolment and Retention at the Primary Stage

(Abridged Report)

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FOREWORD

THE GOAL of Universalisation of Elementary Education is not yet achieved in spite of concerted efforts being made to enrol all children of the school-going age and eliminate the huge wastage in education at the elementary stage. Among the several programmes implemented to speed up the process of achieving the said goal, mid-day meals is one of the important programmes. This programme is being considered as an effective input for increasing enrolment and reducing the wastage in education at the primary stage. To assess the impact of this programme on enrolment and retention, the NCERT undertook this study at the national level at the instance of the USAID. The present report (Abridged Version) discusses the main findings relating to the impact of MDM programme on enrolment and retention at the primary stage, whereas the main report resolves issues related to research methodology along with detailed findings.

I am thankful to the USAID for funding this Project and also showing keen interest at all the stages of the study. I also thank the project staff of the Survey and Data Processing Unit, especially Dr. R.R. Saxena and Shri S.C. Mittal for preparation of the report in the present form. I also thank Dr. A.B.L. Srivastava and Dr. P.N. Dave for their able guidance as Consultants.

I hope the findings of the report will be of some value in the monitoring of the programme and will also provide a useful basis for such studies in future.

P.L. MALHOTRA
Director

National Council of Educational
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New Delhi
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LIST OF ABBREVIATIONS USED

Abbreviation	
b	— Partial Regression Coefficient
CARE	— Cooperative of American Relief Everywhere
CERG	— Change in Girls Enrolment Rates
CERT	— Change in Total Enrolment Rates
CPB	— Change in Percentage of Beneficiaries under Mid-Day Meal Programme
CRS	— Catholic Relief Service
c.v.	— Coefficient of Variation
dv/dvs	— Dependent Variables
ERG	— Girls Enrolment Rate
ERT	— Total Enrolment Rate
ev/evs	— Explanatory Variable(s)
FAO	— Food and Agriculture Organisation
MDM	— Mid-Day Meals
PB	— Percentage of Beneficiaries under MDM Programme
PL 480	— Public Law 480 of U.S. Government
r	— Coefficient of Correlation
RRG	— Girls Retention Rate
RRS	— Retention Rates of S.C. and S.T. Children
RRT	— Total Retention Rates
S.C.	— Scheduled Castes
S.T.	— Scheduled Tribes
UNICEF	— United Nations International Children's Emergency Fund
USAID	— United States Agency for International Development
WHO	— World Health Organisation.

CHAPTER 1

RETROSPECT

1.1.0 HISTORICAL PERSPECTIVE

The Mid-day Meals (MDM) programme was introduced in India for the first time in 1925 when a scheme to feed pupils of Madras city was launched. Subsequently other state governments also initiated the programme, either using their own resources or with the assistance of international agencies, such as UNICEF, WHO, FAO, etc. These agencies extended their assistance to the programme especially after the Independence of the Country. Another international agency, namely Cooperative of America: Relief Everywhere (CARE) rendered its support in the form of supply of food commodities under PL 480 Title II Programme which was initially made available during 1961-62 to seven states (Andhra Pradesh, Kerala, Karnataka, Maharashtra, erstwhile Punjab, Rajasthan and Tamil Nadu). CARE extended its support to MDM programme during 1965-66 to other five states (Gujarat, Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal). Thus CARE's support to MDM programme enabled all the major states of the Country to cover a large segment of pupils studying at the primary stage of education.

The MDM programme, besides helping children to overcome nutritional deficiency, tend to influence the decision of economically disadvantaged people to admit children to schools and retain them till they complete elementary educational cycle. It has also a potential to act as an incentive for pupils to attend school regularly. The MDM programme is thus considered as an important input in achieving universalisation of elementary education which is a priority programme during the Sixth Five Year Plan. The programme has now attained special significance for its being linked with the Eradication of Poverty Programme of the Government of India.

1.1.1 Background of the Study

As the MDM programme has been in existence for over two decades, a need was felt to assess its impact on school enrolment and retention at the national level, notwithstanding the fact that a few studies have been undertaken to investigate the same since its inception. The Director, USAID, made a proposal to field a study for the assessment of the CARE and Catholic Relief Service (CRS) supported MDM programme with reference to its stated educational objectives. The Government of India agreed with the suggestion. A Working Group¹ was constituted to advise the Government of India and the USAID about the steps and modalities to be

followed in undertaking the study. It recommended in its meeting convened on 11 August 1981, to undertake the study by using time series data which are periodically collected by various government agencies and to delimit the study to the following two hypotheses from among many other suggested by Shortlidge (1981).

(a) MDM programme increases significantly the school enrolment or participation rate of children.

(b) MDM programme reduces significantly dropout and repetition rates of children in educational cycle or MDM programme increases the retention of children in the educational cycle.

The proposed study, as recommended by the Working Group, was entrusted to National Council of Educational Research and Training (NCERT) and consequently a contract between the USAID and the NCERT (No. 386-0000-C-00-1Q14-00) was signed on 30 September 1981.

The Project Advisory Committee² in the meeting on 1 December 1981, recommended to cover all the thirteen³ states which were implementing the CARE-supported MDM programme. It was proposed to choose administrative districts as units of measurement and also to cover all the districts of the thirteen states.

Apprehending that a district may be too big a unit to reflect the impact of MDM programme, the Committee recommended to extend the study to two states, viz. Haryana and Karnataka, wherein the educational and community development blocks respectively were adopted as units of measurement. The former state had only the CARE-supported MDM programme whereas the latter had its own MDM programme in addition to the CARE supported one. In Haryana, being smaller in size than Karnataka, it was possible to collect data from all the educational blocks of that state. Thus the study in Haryana was based on complete enumeration, whereas in Karnataka, a sample of 10 districts was selected by using

¹ A Working Group consisting of the representatives from National Council of Educational Research and Training, Chairman, Ministry of Social Welfare, USAID, Education Division of Planning Commission, Ministry of Health, CARE and Ministry of Education and Culture was constituted on 30 July 1981, to advise to the Ministry of Education and Culture, Government of India and the USAID on the various aspects of the proposal of conducting the study especially feasibility of various designs of the study suggested in the report "Assessment of Educational and Health Impact of MDM Programme" by Richard L. Shortlidge of the USAID, Washington

² Project Advisory Committee consisting of Joint Director, NCERT as Chairman and representatives from CARE, Catholic Relief Service, USAID, Ministry of Education & Culture, Social Scientist from Jawaharlal Nehru University, Statistician from National Institute of Educational Planning and Administration, Educationists from NCERT and Head, Survey & Data Processing Unit, NCERT was constituted to advise NCERT at the various stages of the implementation of the Study

³ The states implementing CARE-supported MDM Programme in 1978 were Andhra Pradesh, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

simple random sampling without replacement technique. All the community development blocks from the selected districts were covered in the study.

1.2.0 RESEARCH METHODOLOGY

The effectiveness of the MDM programme is, undoubtedly, related to socio-economic and educational background of districts/blocks which vary widely. These variations might dissipate the impact of MDM programme on enrolment and retention. Further, every state in the Country, formulated its own policy on MDM programme. The different policies might also cause considerable variation in the impact. Apart from these variations, MDM beneficiaries constitute a small proportion of the total enrolment when district is the unit of measurement because of which impact of the MDM programme on enrolment and retention might not show very markedly. With these in view it became imperative to control the heterogeneity by forming different sets of data. This is discussed in section (1.2.1). It was apprehended that the formation of different data sets might not be able to control the heterogeneity to the desired extent. Adjustments of the influence of socio-economic and educational factors were also considered necessary in addition to forming data sets. This called for selection of explanatory variables (evs) which are discussed in section (1.2.3). Suitable techniques for statistical treatment of data were adopted by keeping in view the aforesaid considerations and the objective of the study. Discussion on this aspect is presented in section (1.2.4)

1.2.1 Data Arrangement for Controlling Heterogeneity

The following sets were formed by taking into consideration the policy on MDM programme, decreasing trend in Enrolment Rates, etc.

(a) All States

All the observations were taken into account for the analysis of data.

(b) Clustering of States by Policy on MDM Programme

Six of the thirteen states viz., Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, Uttar Pradesh and West Bengal, introduced their own MDM programme (indigenous) alongwith that supported by CARE. The remaining seven states, viz., Haryana, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab and Rajasthan, continued to have only the CARE supported MDM programme. In the former category of states, the beneficiaries under the CARE supported MDM programme constituted a part of the total MDM beneficiaries whereas in the latter case it was not like that (Table 1). The pooled analysis, therefore, was suspected to vitiate the contribution of MDM programme to the enrolment and retention. Hence, analysis was undertaken by grouping the states into two clusters. Cluster I consisted of the states with indigenous and as well as the CARE supported MDM programme (Mixed MDM) and the Cluster II comprised the remaining states having only the CARE supported MDM programme (CARE MDM)

(c) Clustering by Data Considerations

Decreasing trend in enrolment rates, especially in the case of Uttar Pradesh, was suspected to introduce heterogeneity to the extent that contribution of PB got shadowed substantially. Further, CARE's support to MDM programme in the state of Maharashtra was discontinued more than once (refer to Appendix V). The disturbance in the implementation of MDM programme in Maharashtra might also result in vitiating the contribution of MDM programme. The data from one district after scrutiny was considered fallable which might have also affected the contribution of MDM programme. These considerations provided basis for formation of Cluster III which excluded observations from the states of Maharashtra and Uttar Pradesh and the data of the district which were considered to be vitiated.

(d) Clustering to Control Disparity Between States

Disparity in socio-economic and educational development of different states might be too large to be controlled by socio-economic indicators used in the study which would interact with the MDM programme to the extent that its impact is lost in the analysis. This assumption made us undertake analysis of data from only one state. Thus Cluster IV was formed by including 54 districts of Uttar Pradesh. Another consideration that led to the formation of this cluster was the fact that the state government was able to provide classwise enrolment data for the period prior to 1970. This made possible to study the change in Retention vis-a-vis MDM programme, whereas, it was not possible to do so in the case of other states.

In the block level study of Haryana, only two data sets were formed. The first comprised all blocks and the other consisted of MDM blocks. In the case of Karnataka, such classification of blocks was not possible because almost all the blocks of the selected districts had MDM programme. Thus analysis of data in the case of Karnataka state was based on only one data set i.e. all blocks.

1.2.2 Selection of Dependent Variables

Not only more girls than boys of the age-group 6+ to 10+ are out of schools at the primary stage but reasons for not sending girls to schools may be different from those for boys. Further, parents belonging to weaker sections of the society such as Scheduled Castes (SC) and Scheduled Tribes (ST) may also have different reasons for not sending children to schools. It was thus considered worthwhile to study separately the impact of MDM programme on enrolment and retention of boys and girls taken together (Total), Girls only and SC/ST. As child population of SC/ST in the specified age group was not available, the study of impact of MDM programme on enrolment was restricted to total and girls' enrolment whereas impact on retention was studied separately for the aforesaid three categories. Gross enrolment rates and retention rates used as dependent variables (dvs) are defined as follows.

(a) Enrolment Rates

- (i) Enrolment Rate for both Boys and Girls (ERT) at the t-th year = $TE_t(I-V) \times 100 / ETP_t$
- (ii) Enrolment Rate for Girls (ERG) at the t-th year = $GE_t(I-V) \times 100 / EFP_t$

(b) Change in Enrolment Rates

- (i) Change in Enrolment Rate for Total (CERT) from t_1 to t_2 points of time = $ERT \text{ at } t_2 - ERT \text{ at } t_1$
- (ii) Change in Enrolment Rate for Girls (CERG) from t_1 to t_2 points of time = $ERG \text{ at } t_2 - ERG \text{ at } t_1$

(c) Retention Rates

- (i) Retention Rates for both Boys and Girls (RRT) during years (t-4) and t = $TE(V) \times 100 / TE(I)$
(t) (t-4)
- (ii) Retention Rates for Girls (RRG) during the years (t-4) and t = $GE(V) \times 100 / GE(I)$
(t) (t-4)
- (iii) Retention Rates for SC/ST (RRS) during the years (t-4) and t = $SE(V) \times 100 / SE(I)$
(t) (t-4)

1.2.3 Selection of Explanatory Variables

The relationship of enrolment and retention rates with socio-economic and related educational variables is not well defined. The selection of explanatory variables (evs) was, thus, made in the meeting of the Project

$TE_t(I-V)$	Total Enrolment in classes I to V during t-th year
ETP_t	Estimated total population in the age group 6 to below 11 years during t-th year
$GE_t(I-V)$	Girls' enrolment in classes I to V during t-th year
EFP_t	Estimated female population in the age group 6 to below 11 years during t-th year

$TE(n)$ (t)	Total enrolment in the n-th class during t-th year
$GE(n)$ (t)	Girls' enrolment in the n-th class during t-th year
$SE(n)$ (t)	Enrolment of SC/ST in the n-th class during t-th year

Advisory Committee by screening a large number of variables on which information is annually collected by the state governments. The variables were broadly classified into the following three categories:

(a) Educational or Related Variables

These variables are expected to be closely related to the dependent variables which were further classified into the following two sub-categories:

(i) Quantitative Related Variables

The variables are indicators for the availability of educational facilities.

(ii) Qualitative Related Variables

The variables are indicators of the availability of trained teachers, pupil-teacher ratio, etc.

(b) Programme Variables

The variables represent various economic incentives to attract children to schools such as free textbooks, MDM programme, etc.

(c) Developmental Variables

The variables in this category indicate the socio-economic level of development of districts.

While selecting the evs from the above mentioned groups, care was taken that the evs belonging to the same category are not strongly inter-related. Thus selection for the district level study retained 22 evs for the study on enrolment and retention rates at two points of time. The list of these evs, alongwith their sources, is attached at Appendix I. In the case of study of change in enrolment rates, 30 evs were developed out of the 15 (from the list of 22 evs) on which information was available at both points of time. The list of these evs is enclosed at Appendix II. Analysis with such a large number of evs would have not only become cumbersome but also provided less stable estimates. Thus, further selection of evs was made while analysing data which envisaged sequentially exclusion of the evs at a time. The deleted ev had the least contribution to the variance of dv. The process terminated when all the evs retained in the analysis contributed significantly to the variance of the dv. The evs pertaining to Mid-day Meals programme was/were not subjected to sequentially exclusion from the analysis.

Generally, official statistics are compiled and printed at the district level. The evs, thus, available for the block level study were limited in number. For the study of Haryana 8 evs and for Karnataka 9 evs (Appendix III) were finally selected. As the number of observations in the study were smaller than the district level study, the procedure of retaining a smaller number of variables was the same as it was in the case of the district level study. In the study of change in enrolment rates, 8 evs in the case of Haryana and 10 evs in the case of Karnataka were developed from the aforesaid lists of evs for which information was available at both points of time. The list of these variables is available at Appendix IV.

1.2.4 Statistical Analysis of Data

In order to know the extent of contribution of MDM programme on dv,

step down multiple regression analysis was used. This technique not only helped in retaining a smaller number of evs but also provided contribution of MDM variables to the dv after eliminating the effect of socio-economic and other educational evs. In the district level analysis, the all states data set was subjected to the following combinations.

(a) All Districts and All evs

Multiple regression analysis was undertaken using all the 22/30 evs for all the districts.

(b) All Districts but Excluding the Dominant evs from the Set of evs

It was apprehended that the contribution of percentage of beneficiaries under MDM (PB) might be taken away by the ev Literacy Rate which accounted for substantially large proportion of the variance of dvs. The regression analysis of dvs, other than CERT and CERG, was undertaken by taking into account the remaining 21 evs.

(c) All evs but Excluding Non-MDM Districts

Presence of non-MDM districts might shadow the contribution of PB to the variance of dvs. Hence, regression analysis of districts with MDM programme only was expected to provide purer contribution of PB to the variance of dvs.

For the regression analysis of enrolment and retention rates at two points of time, in Clusters I and II 21 evs were used. The ev, percentage of CARE MDM beneficiaries to total beneficiaries, was excluded from the analysis.

In the multiple regression analysis a part of the contribution of PB might be taken away by the other evs which were strongly related to the dvs. Analysis of variance and covariance was attempted for dvs, other than CERT and CERG, by making two groups of observations. The first group consisted of districts/blocks with MDM programme and the second without MDM programme. But in the block level study of Karnataka this grouping was not possible. In this case, blocks were distributed into three groups on the basis of percentile values of PB. Group I blocks had PB values upto 33.3 percentile value, group II between 33.3 and 66.6 and group III above 66.6 percentile values.

1.3.0 DELIMITATION OF THE STUDY

Shortlidge suggested that the study should be conducted by taking 1960 and 1980 as two points of time. The suggested points of time could not be adhered to because of non-availability of desired data. Accordingly, the revised points of time for the district level study of ERT and ERG were 1973 and 1978. In the case of Retention Rates, these were 1973 through 1977 (1973-77) and 1974 through 1978 (1974-78) for all the data sets except in the case of Cluster III and IV (Table 3). As indicated in the preceding section, Cluster III was formed to sharpen the results of All States data set. The data of retention rates was analysed for one point of time (1974-78) to avoid extra cost of analysis when the results pertaining to the all states set at 1973-77 and 1974-78 did not differ. In the case

of Cluster IV, the two points of time were 1967-71 and 1974-78 for the analysis of retention rates. As gap between the two points of time was sufficiently large in the case of Cluster IV, the study of change in Retention Rates was also attempted. In the block level study of Haryana, 1976 and 1981 were the two points of study for ERT and ERG and for retention rates, these were 1975-79 and 1977-81. Karnataka state provided data for 1973 and 1979 to study ERT and ERG. As the primary stage consisted of 4 classes, the retention rates in this study were studied for 1974-77 and 1976-79.

1.3.1 Data Availability

The domain of the study was thirteen states which were getting food commodities from CARE for the MDM programme. Kerala state was excluded at the stage of analysis of data. Two hundred seventy seven administrative districts in 1971 of twelve states served as the units of observations at two points of time. But Maharashtra state did not supply information for 1978. Analysis of data on enrolment rates for 1978 was restricted to 257 districts. The analysis of RRT and RRG was based on information from 197 districts for 1973-77 and 206 districts for 1974-78, as can be seen from Table 2. In the block level study of Karnataka, classwise enrolment in the case of girls and SC/ST enrolment was not available from 7 and 12 blocks respectively. But in the case of Haryana, such situation did not arise.

1.3.2 Presentation of Results

As relationship of retention and enrolment rates with the evs was not well defined, several data sets were formed to get purer impact of MDM programme. Some of the data sets did not improve the results considerably. For example, analysis of retention rates at two points of time did not improve the results much. Regression analysis of only MDM districts/blocks also did not provide much different results than were obtained for all districts/blocks. Similarly, regression analysis of enrolment and retention rates at two points of time undertaken by excluding the dominant ev did not succeed in overcoming shadowing of the impact. Analysis of Cluster IV was not effective for insufficient number of observations. Discussions on the analysis of the above data sets are not included in the present report for the sake of brevity and simplicity in presentation. The main report, however, contained discussions on the analysis of all the data sets.

CHAPTER 2

IMPACT OF CARE SUPPORTED MID-DAY MEALS PROGRAMME ON ENROLMENT**2.1.0 INTRODUCTION**

The impact of MDM programme on enrolment is studied separately for (boys and girls) and girls. In the analysis of data, total enrolment rate (ERT) and girls' enrolment rate (ERG) were used as dependent variables to study the impact at two points of time which were 1973 and 1978 for the district level study. Further, in the case of block level study of Haryana and Karnataka these were 1976 and 1981, and 1973 and 1979 respectively (Table 2).

Out of 13 states with the CARE supported MDM programme, 12 states with 277 districts for 1973 and 11 states with 251 districts for 1978 made available data for the district level study. Kerala was excluded from analysis at both the points of time and Maharashtra for the year 1978 because data were not available for the respective years. In the block level study of Haryana and Karnataka, data were available from all the 107 and 90 blocks respectively. Of the 277 districts in 1973, 223 (80.51%) had MDM programme, whereas in the year 1978 out of 251 districts 188 (74.90%) were covered (Table 4). The coverage of the programme was thus reduced by about 6% in 1978 than that in 1973. The decline in percentage of districts covered under MDM programme at two points of time was observed in all the clusters; it was the highest in the case of Cluster II (75.00% in 1973 to 66.04% in 1978) as is evident from Table 4. Withdrawal of MDM programme from some of the districts might have been a consequence of the policy of CARE which envisaged to intensify the MDM programme in some districts rather than covering new districts. The block level study in Haryana did not indicate such a trend whereas in Karnataka all the 90 blocks were covered in 1973 and only 81 in 1979.

2.1.1 Distribution of Percentage of Beneficiaries under MDM Programme

Analysis of means of percentage beneficiaries under MDM programme (PB) indicated that they declined from 22.27 in 1973 to 19.16 in 1978 for the MDM districts of all states. Comparing the decline in mean PB at two points of time in Cluster I (22.09 in 1973 to 18.54 in 1978) and Cluster II (22.51 in 1973 to 20.18 in 1978), it is observed that the stated decline was higher in the former cluster. This trend might not be entirely attributed to the withdrawal of the scheme from some schools/blocks

especially in the case of Cluster I because states might have extended the facility of their own (indigenous) MDM programme. Exclusion of Uttar Pradesh and Maharashtra from the analysis (i.e., Cluster III) did, however, indicate increase in mean PB at two points of time (25.93 in 1973 and 20.51 in 1978). Not only that, the mean PB at both the points of time were higher than the respective values in the all states set (22.27 in 1973 and 19.16 in 1978). Further, grouping of states into two clusters, i.e., Cluster I and Cluster II, reduced the heterogeneity in PB as is evident from the values of c.v. presented in Table 4. Cluster III, however, indicated a lower degree of heterogeneity at both points of time (74.89% in 1973 and 63.24% in 1978) than that of all states (83.32% in 1973 and 65.11% in 1978). Unlike the district level study, block level study of Haryana indicated lower PB mean in 1976 (32.74) than that in 1981 (50.27), whereas the study of Karnataka provided a different picture (30.95 in 1973 and 25.57 in 1978). Probably the coverage under MDM programme, i.e., number of beneficiaries, did not increase with the same pace as the rate of increase in enrolment. Between blocks, variation in PB at two points of time (65.53% in 1973 and 64.18% in 1979) in Karnataka and Haryana (45.16% in 1976 and 47.88% in 1981) remained almost the same indicating thereby that policy on MDM programme did not change during this period. However, the former state indicated a higher degree of heterogeneity than that in the latter.

2.2.0 IMPACT OF MDM PROGRAMME ON TOTAL ENROLMENT (BOYS AND GIRLS)

Total enrolment rate (ERT) in the case of all states in the district level study indicated that ERT means declined from 80.04 in 1973 to 76.86 in 1978 (Table 5). This decrease in means of ERT at both points of time was caused mainly due to inclusion of Maharashtra and Uttar Pradesh, as is indicated by means of ERT (74.64 in 1973 and 79.36 in 1978) in Cluster III when both the states were excluded from the analysis. The decreasing trend in ERT means, at both points of time in Cluster I, was due to inclusion of Uttar Pradesh. In Cluster II, the gap between ERT means at both points of time (69.03 in 1973 and 71.04 in 1978) was, however, smaller than that in Cluster I. Further, ERT means in Cluster II at both points of time were less than those for all states. Three educationally backward states (Madhya Pradesh, Orissa and Rajasthan) with low ERT might be responsible for the difference.

ERT means had fairly stabilised having reached a plateau at about 80 in most districts. Further, coefficient of variations (below 29%) in all the clusters and at both points of time were considerably lower than those for PB (above 80%) which thereby indicating that variations in PB though large can possibly influence district level ERT only marginally.

The block level study in Haryana indicated that mean ERT (70.69) in 1976 increased to 74.05 in 1981 (Table 5). Karnataka also provided a similar evidence in which case mean ERT increased from 71.84 in 1973 to 79.31 in 1979.

2.2.1 Total Enrolment in MDM and Non-MDM Districts/Blocks

The all states data set of the district level study at both the points of time indicated (Table 5) that ERT means for MDM districts (81.67 in 1973 and 78.90 in 1978) were higher than those of districts without MDM programme (73.32 in 1973 and 70.78 in 1978). This difference became sharper when data from Maharashtra and Uttar Pradesh were excluded from the analysis (Cluster III). The ERT means for MDM districts in the said Cluster were 77.99 in 1973 and 81.56 in 1978 as against 56.81 in 1973 and 71.98 in 1978 for non-MDM districts. Cluster I on the other hand failed to support the same observation at both points of time which might be due to the presence of the state of Uttar Pradesh. Cluster II, however, indicated that the ERT mean of MDM districts (72.45) in 1973 was different from that of non-MDM districts (58.80). The adjustment in ERT means for the influence of other factors narrowed down the difference between the means of MDM and non-MDM districts to the extent that none of them remained different at 5% level (Table 6) of significance. Possibly, the earlier indications for the difference in ERT means of MDM and non-MDM districts were due to influence of socio-economic and other educational factors.

The block level study in Haryana did not provide at both points of time sufficient evidence for higher ERT means of MDM blocks (71.36 in 1976 and 76.05 in 1981) than those of non-MDM (69.12 in 1976 and 69.36 in 1981). Even after allowing adjustment for the influence of other variables, ERT means of MDM (70.22 in 1976 and 74.63 in 1981) and non-MDM blocks (71.79 in 1976 and 72.68 in 1981) did not provide clear indication that the former ones were higher than the latter. Comparison of MDM and non-MDM blocks was not possible in Karnataka because all the 90 blocks of the selected districts had MDM programme in 1973. In spite of this, comparison of ERT means was attempted for the three groups of blocks formed on the basis of percentile values of PB. Group I consisted of blocks with percentile value of PB upto 33.3, group II more than 33.3 but less than or equal to 66.6 and group III more than 66.6. The comparison shown in Statement 2.1 indicates that ERT means were higher for blocks with low intensity of beneficiaries under MDM programme. Probably the trend in the ERT means might be reflecting the State government's policy on the implementation of MDM programme which envisages selection of educational blocks on the basis of the socio-economic condition of the inhabitants.

2.2.2 Relationship Between ERT and PB

In the preceding section, analysis of data of the district level study failed to provide evidence for the difference between ERT means of MDM and non-MDM districts. This called for further probe into dependence of ERT on PB with the help of correlation coefficients of ERT with PB and partial regression coefficients (b) of PB, which are presented in Table 7. The values of correlation coefficient of ERT with PB were significant at 5% only in the case of Cluster I (.23) for 1978, Cluster II (-.22) for 1978 and

STATEMENT 2.1
ERT Means of Three Groups of Blocks at Two Points of Time in the
Block Level Study of Karnataka

Group	Percentile Value of PB	ERT Means	
		1973	1979
1	2	3	4
I	Upto 33.3	82.97 ^a	86.45 ^a
II	Between 33.3 to 66.6	75.03 ^a	78.91 ^a
III	Above 66.6	57.54 ^a	72.58 ^a

(^a Significant at 5% level)

Cluster III (.18) for 1973. Probably influence of other related factors had substantially masked the relationship between the two because more clear indication for the dependence of ERT on PB was provided by the values of *b* for PB which were significant at 5% level at both the points of time in all the sets of data arrangement except that in Cluster II. In each case PB was not only able to explain variation in ERT but also indicated that for a unit increase in the value of PB, the ERT decreased by varying quantity which was the highest ($b = -.25$ in 1973 and $-.30$ in 1978) for Cluster I. The stated evidence of dependence of ERT on PB supported the policy of state government on MDM programme under which educationally and/or socio-economically backward areas were given preference. Further, ERT itself is used as an indicator for backwardness of area in primary education and therefore, the dependence of ERT on PB emerged strongly. In three of the five states of Cluster II (Madhya Pradesh, Orissa and Rajasthan), the MDM programme was restricted to tribal blocks whereas in the remaining two states (Haryana and Punjab) the programme was implemented in socio-economically backward blocks. The criterion of selection of blocks in the states of the Cluster was not as strongly related to educational development in the blocks as was in the case of Cluster I. The evidence of dependence of ERT on PB was thus not sufficiently strong in Cluster II.

The block level study of Haryana did not provide evidence for existence of relationship between ERT and PB during 1976 (Table 8); the value of correlation coefficient ($-.08$) was not significant at 5% level. However, the value of *b* ($-.29$) for PB was significant at 5% level indicating thereby that 100 units increase in PB would have resulted in a decrease in 29 units of ERT. Further, the PB was able to account for 15.76% of the variance of ERT. In 1981, there was an increase in total enrolment; PB seemed to be related to ERT because the correlation coefficient (.28) between the two was significant at 5% level. The value of *b* for PB though positive, was not significant at 5% level. The change in the direction of *b* for PB from nega-

tive in 1976 to non-negative in 1981 might be attributed to the impact of MDM programme. In Karnataka state, the relationship at both points of time (values of $r = -.49$ and $-.32$ in 1973 and 1979 respectively) was stronger than what was in the case of Haryana. Regression analysis also substantiated a similar relationship between ERT and PB after the effect of the other factors was eliminated. The PB in 1973 explained 35.47% of the variation in ERT and an increase of 100 units in PB was responsible for a decrease in 43 units of ERT. In the year 1979 the relationship between PB and ERT was not as strong as it was in 1973. The correlation ($-.32$) and the value of b for PB ($-.32$) were significant at 5% level. In this case the PB explained 24.12% variance of ERT and 100 units increase in PB caused 32 unit decline in ERT. Negative values of b for PB indicated the aforesaid MDM policy of state government. But a sharp decline in the contribution of PB to the variance of ERT from 35.47% in 1973 to 24.12% in 1979 provided evidence in the favour of the impact of MDM programme.

2.2.3 Relationship Between Change in Total Enrolment Rate and PB

Change in total enrolment rate (CERT) over the period between 1973 and 1978 in district level study did not indicate a relationship with PB in 1973 in the case of all states (Table 9). After eliminating the effect of socio-economic and other educational factors, a relationship between the two emerged because the value of b for PB (.17) was significant at 5% level thereby indicating that a increase of 100 units in PB was responsible for 17 unit increase in CERT. Further, the PB explained 4.03% of the variance of CERT. This observation provided evidence that districts with high intensity of PB in 1973 recorded a higher change in ERT. Cluster I, though indicated positive relationship between CERT and PB ($r = .28$), failed to indicate the dependence of CERT on PB when the influence of the socio-economic and other educational factors were taken into account. In Cluster II such a relationship was not observed, the correlation coefficients ($-.18$) between the two and also b ($-.01$) for PB were not significant at 5% level. In this Cluster, most of the states are economically better off (Table I). They could, therefore, not provide as sharper an impact as it was observed in the case of all states. Change in PB from 1973 to 1978 (CPB) did not indicate any relationship with CERT in all the sets of data arrangement which thereby suggest that variation in CPB failed to explain variation in CERT.

The block level study of Haryana was able to provide more concrete evidence of the impact of MDM programme on CERT. The correlation coefficient (.34) and b for PB (.27) were significant at 5% level which indicated that CERT was higher in these blocks where PB in 1976 was high (Table 10). More precisely, 100 units increase in PB was responsible for 27 units increase in CERT. The PB explained 54.06% of the variance of CERT which was considerably high as compared to the district level study. Karnataka state also provided similar evidence, thus indicating a stronger relationship between PB in 1973 and CERT than what was observed in the

case of Haryana. The correlation coefficient (.43) was significant at 5% level which supported the above observation. The value of b for PB (.31) indicated that 61.78% of the variance of CERT was accounted for by PB. The explanatory variable CPB did not seem to be contributing to the variance of CERT in both the states as is evident from Table 10.

2.3.0 IMPACT OF MDM PROGRAMME ON GIRLS' ENROLMENT

In the district level study, the distribution of ERG unlike ERT where in ERT means declined during 1973-78 for all the sets of data arrangements, did not provide indication for decline in ERG means for the same period except in the cases of data for all states and Cluster I (Table 5). In all states data set ERG mean decreased from 60.39 in 1973 to 58.46 in 1978. The magnitude by which the ERG means at two points of time (71.41 in 1973 and 65.57 in 1978) declined was higher than that observed in the case of all states. In Cluster II, as a result, the ERG means remained almost the same at both the points of time (48.28 in 1973 and 48.74 in 1978). In Cluster III, ERG mean (56.25) in 1973 was lower than that (60.82) in 1978. This trend thus indicated that the data from Uttar Pradesh were mainly responsible for the decline in ERG means in the cases of all states and Cluster I. Further, clustering of states by the type of MDM programme was effective in controlling the heterogeneity in the distribution of ERG as is evident from the values of c.v. in Table 5. For example, in Cluster I the c.v. (31.33% in 1973 and 47.58% in 1978) were lower than those in all states (40.86% in 1973 and 48.68% in 1978). Cluster II on the other hand not only provided the same ERG means but also approximately the same values of c.v. at the two points of time (43.98% in 1973 and 42.48% in 1978) indicating thereby that the distribution of ERG did not change over the said period. Comparing the ERG means of Cluster I and II, it is observed that the former had higher means at both points of time than the latter. The difference could be attributed to the backwardness of the states in girls' education at elementary stage because four of the six states (Haryana, Madhya Pradesh, Orissa and Rajasthan) in Cluster II were backward in girls' education at elementary stage of education whereas there were only two such states (Andhra Pradesh and Uttar Pradesh) in Cluster I. The block level study in Haryana and Karnataka provided similar indication. Haryana, being backward in girls' education at the elementary stage, had lower ERG means (52.31 in 1976 and 58.33 in 1981) than those in Karnataka (65.25 in 1973 and 73.24 in 1979). Block to block variations in ERG at both the points of time on the other hand were higher (47.05% in 1976 and 41.92% in 1981) in Haryana than those in Karnataka (39.00% in 1973 and 27.66% in 1979) which might also be attributed to the backwardness of the state in girls' education at the elementary stage.

2.3.1 Girls' Enrolment in MDM and Non-MDM Districts/Blocks

As discussed in the preceding section, distribution of ERG indicated that means of ERG were lower than those of ERT but it had indicated a higher degree of variation than ERT in all data sets of district and block level

study in both the states. Because of these characteristics of ERG the difference between the ERG means of MDM and Non-MDM districts, presented in Table 5, emerged more clearly in all but one data set in the district level study. The data set which failed to provide significant difference in the ERG means was Cluster I at 1973 point of time. In the all states set, the gap between ERG means in MDM and Non-MDM districts was higher in 1973 (64.03 for MDM and 45.34 for Non-MDM) than that (62.91 for MDM and 45.17 for Non-MDM) in 1978. Cluster II provided similar indications as ERG means of MDM and non-MDM districts in 1973 were 54.01 and 31.11 respectively as against respective ERG means (53.52 and 39.44) in 1978. The said gap got further widened in the case of Cluster III in which case the corresponding ERG means were 61.01 and 30.91 in 1973 as against 65.11 and 46.43 in 1978. The difference in ERG means of MDM and non-MDM districts (Table 11) continued to exist unlike ERT, even after those were adjusted for the influence of socio-economic and other educational variables. The only data set which failed to register the difference was Cluster I in 1973 whereas the stated difference in the adjusted ERG means of MDM (68.20) and non-MDM (54.04) districts was sufficiently high in 1978 for the Cluster.

The block level study in Haryana, however, failed to support the above conclusion. The ERG means of MDM blocks (53.69 in 1976 and 59.87 in 1981) were higher than those of non-MDM blocks which were although not statistically significant at 5% level (Table 5). The difference in the adjusted ERG means for MDM blocks (52.85 in 1976 and 58.41 in 1981) and non-MDM blocks (51.05 in 1976 and 58.41 in 1981) was also not statistically significant at 5% level (Table 11). Blocks of Karnataka state were distributed in three groups on the basis of intensity of MDM programme because all the 90 blocks of the state had MDM programme in 1973. The ERG means between the groups at both the points of time were significantly different at 5% as is evident from Statement 2.2.

STATEMENT 2.2
ERG Means of Three Groups of Blocks at Two Points of Time in the
Block Level Study of Karnataka

Group	Percentile Value of PB	ERG Means in	
		1973	1979
1	2	3	4
I	Upto 33.3	79.21	81.93
II	Between 33.3 and 66.6	65.63	73.56
III	Above 66.6	50.92	64.23

(*Significant at 5% level)

Unlike the district level study, the ERG means were higher for blocks with lower values of PB. This trend in ERG means clearly supported the government's policy on MDM programme under which only those schools were exposed to the MDM programme which had higher SC, ST and other socially backward classes enrolment.

2.3.2 Relationship Between ERG and PB

The district level study in the preceding section indicated that ERG means of MDM districts for all data sets were higher than those of non-MDM districts whereas block level study in Karnataka provided evidence contrary to it. The analysis of data discussed in this section will throw light on the dependence of ERG on PB when individual values are taken into consideration. The discussions in this section are based on the values of correlation coefficients (r) of ERG with PB and partial regression coefficients (b) of PB which are presented in Table 12 for district level study and Table 8 for block level study. In the district level study, out of different data sets only two Clusters viz., Cluster I in 1978 ($r = .21$) and Cluster III ($r = .18$) in 1973 provided some evidence of a relationship of ERG with PB. Further analysis for dependence of ERG on PB did not get reflected even in case of the above Cluster; values of b for PB in Cluster I (.09) in 1978 and Cluster III (— .07) in 1973 were not significant at 5% level (Table 12). Possibly ERG might have been related to PB not too strongly to become statistically significant as was observed in the case of ERT. Block level study in Haryana provided similar indications. ERG was related to PB only in 1981 ($r = .24$). The dependence of ERG on PB got further corroborated because values of b (— .07 in 1976 and .02 in 1981) for PB were not significant at 5% level. Block level study in Karnataka, nevertheless, provided strong evidence of relationship between the two. Not only correlation coefficients between the two at both points of time (— .51 in 1973 and — .33 in 1979) were significant at 5% level but values of b for PB (— .53 in 1973 and — .38 in 1979) were also significant at 5% level. PB thus explained 35.47% in 1973 and 24.12% in 1979 of the variance of ERG. The decrease in contribution might be attributed to the impact of MDM programme. Existence of relationship between ERG and PB in Karnataka state was reflecting stated government's policy. In Haryana state, the policy was to select socio-economically backward blocks and therefore did not provide as strong a bond between ERG and PB as was observed in the case of Karnataka.

2.3.3 Relationship Between Change in Girls' Enrolment Rate and PB

PB in 1973 provided evidence in terms of correlation coefficients that it was related with CERG in the cases of all states (.14) and Cluster I (.18). Whereas PB failed to register such a relationship in Clusters II and III. Further, contribution of PB to CERG was negligible in all states data set because value of b (.14) of PB was not significant at 5% level. But Cluster I indicated a stronger relationship between the two in which case PB explained 20.53% variance of CERG. Further, for increase of 100 units in the value of PB, the CERG increased to 37 units when values of all the other variables were kept constant. Cluster I comprised those states which had more than 39% population below the poverty line (Table 1). States in Cluster II, though backward in girls' education, are more affluent because three (Haryana, Punjab and Rajasthan) of the five states have less than 34% population below the poverty line. Possibly, the relationship

of PB or CPB with CERG was suppressed by the cultural and attitudinal factors especially in affluent states whereas influence of these factors was not so strong in less affluent areas. It implied that the MDM programme definitely helped in increasing girls' enrolment at the primary stage where poor people formed a substantial proportion of the population. Though all five states of Cluster II, except Punjab, are backward in girls' education at the elementary stage the incentive did not work as effectively as it did in the case of Cluster I. The reason being that the affluence of the state was overcome by the indifferent attitude of parents towards girls' education. The block level study more clearly substantiated this observation. Haryana, more affluent but backward in girls' education did not reflect the contribution of PB in 1976 to change in girls' enrolment (CERG). The correlation coefficient of CERG with PB (.18) and the value of b (.07) for PB were not significant at 5% level. The study in Karnataka state whereas provided a more definite indication regarding the contribution of MDM programme on change in girls' enrolment rate. Both correlation coefficient (.44) and value of b for PB (.35) were significant at 5% level. It implied that PB in the base year explained 54.45% of the total variance of CERG and for every increase of 100 units in PB, there was an increase of 35 units in CERG.

2.4.0 CONCLUSIONS

2.4.1 The policy on coverage of MDM programme, though varied from one state to another had important bearing on the relationship between ERT/ERG and PB. The states like Andhra Pradesh, Orissa, Tamil Nadu and West Bengal covered all the tribal blocks, whereas in other states, the blocks were covered on the basis of socio-economic background. In some states like Andhra Pradesh and Karnataka schools for MDM programme were selected on the basis of the enrolment of SC, ST and other backward communities. The block level analysis of data in both the states (Haryana and Karnataka) on this aspect provided strong evidence to this effect. The district level study also provided similar indications through regression analysis of ERT wherein the percentage of beneficiaries at both the points of time in all states, Cluster I, and Cluster III data sets were low for high values of ERT. Cluster II did not support the finding because of heterogeneity in policy on MDM or most of the states in Cluster II were more affluent than those in Cluster I. The blocks level study in both the states further indicated that the relationship between ERT and PB, though inverse, was not as strong at the second point of time as it was observed at the first point of time which thereby indicated that the MDM programme helped in bringing more children to schools.

2.4.2 In the district level study, ERT means of MDM district at both points of time were higher than those of non-MDM districts in the case of all states, Cluster II and Cluster III respectively. These differences in ERT means vanished on further analysis. These differences might have been reflected due to the influence of socio-economic and other educational factors on ERT.

2.4.3 The district level study and as well the block level study in Haryana did provide sufficient indications for the dependence of ERG on PB. However, in Karnataka, this dependence was prominent. Higher ERG means were observed for low intensity of PB. In spite of the fact, contribution of PB to the variance of ERG in Karnataka state reduced substantially from 1973 to 1979 suggesting thereby that the MDM programme did increase ERG.

2.4.4 In the district level study, ERG means of MDM districts for all data sets at both the points of time remained higher than those even after eliminating the effect of other factors. The stated difference in ERG means might be attributed to the impact of MDM programme because girls' enrolment was not taken into consideration for selection of schools. This is why the relationship between ERG and PB was not indicated by the analysis of data as it was observed in case of ERT. In the state of Karnataka the selection of schools for MDM programme was strongly related to the enrolment of SC, ST and other backward classes. The ERG retained the same relationship as was observed in the case of ERT. The block level study in Haryana, however, did not provide evidence in support of the above observation.

2.4.5 The analysis of data of total enrolment indicated that change in ERT was high in those districts where percentage of beneficiaries in the base year were also high. The clustering of states, however, did not support this observation. May be the clustering of states could not split the data into two homogenous groups. The other factor responsible, for not indicating the relationship between CERT and PB, was a low degree of change in ERT over a period from 1973 to 1978. The block level study in both the states provided strong evidence in support of the above relationship. This clearly indicates that the high intensity of MDM programme continued over a period of time in the schools did work as an effective incentive.

2.4.6 The relationship between change in enrolment rate and PB in the base year was more prominent in the case of girls than that for total. Cluster II, however, failed to support this observation, may be due to the fact that the states in this Cluster are more affluent than those in Cluster I. It can be seen from Table I that the percentage of population below poverty line was less than 34 in three of the six states in Cluster II, whereas each of the six states of Cluster I had more than 39% population below poverty line. This might be one reason that Haryana state also with 24.84% population below poverty line did not indicate contribution of PB in 1976 to the change in ERG whereas the study in Karnataka with 48.34% population below poverty indicated strong relationship between the two which thereby implying that girls enrolment increased with higher rate in those blocks which had higher percentage of MDM beneficiaries in 1973. Further, Karnataka state is not as much affluent as Haryana is. This suggests that the MDM programme might have a stronger impact on enrolment in the areas populated by poor people. Further, the impact of

MDM programme was more definitely discernible in the case of girls as quite a good proportion of girls, unlike boys, were still out of schools. The study in Haryana on the other hand, failed to provide evidence in support of discernible impact of the incentive on girls' enrolment which might have been diluted by indifferent attitude of parents towards girls' education.

CHAPTER 3

IMPACT OF CARE SUPPORTED MDM PROGRAMME ON RETENTION OF PUPILS AT PRIMARY STAGE**3.1.0 INTRODUCTION**

Analysis of data in this Chapter attempted to study the impact of CARE supported MDM programme separately on retention of boys and girls combined (RRT), girls only (RRG) and Scheduled Castes/Scheduled Tribes (RRS) at one point of time. The district level study pertained to retention of pupils during 1974-78 and the block level study in Haryana and Karnataka for 1977-81 and 1976-79 respectively.

Out of the 13 states implementing CARE supported MDM programme, 10 states comprising 206 districts provided data for the district level study of RRT and RRG (Table 14). The three states excluded from the study were Kerala with 11 districts, Madhya Pradesh with 45 districts and Maharashtra with 26 districts. Besides these three states, Tamil Nadu state failed to provide data on classwise SC/ST enrolment due to which the study of RRS was restricted to 9 states comprising 191 districts. The block level study of RRT, RRG and RRS in Haryana was based on 107 blocks whereas 90, 83 and 78 blocks respectively were covered in the state of Karnataka.

3.1.1 Distribution of Percentage of Beneficiaries under MDM Programme

Of the 206 districts covered under the district level study of RRT and RRG, 167 had MDM programme in them. The mean and coefficient of variation (cv) of percentage of beneficiaries (PB) for those districts in all states during 1978 were 19.62 and 62.69% respectively. Comparing the Clusters I and II, mean PB in Cluster I (18.54) of MDM districts was lower than that (22.22) in Cluster II. Cluster I, on the other hand, indicated higher degree of variation (66.17%) in PB as compared to that for Cluster II (54.54%). Cluster III provided higher PB mean (21.34) than that of all states. Variation in PB (60.26%) for this Cluster indicated that exclusion of Uttar Pradesh from the analysis not only increased the PB mean but reduced the heterogeneity to some extent. Exclusion of Tamil Nadu from the analysis of RRS in the district level study, indicated decrease in mean PB from 19.62 to 18.41 in all states, from 18.54 to 16.60 in Cluster I and from 21.34 to 19.95 in Cluster III. It caused increase in the heterogeneity of the distribution of PB. The block level study in Haryana and Karnataka indicated that mean PB (50.27) in Haryana was about two times than that (26 for RRT/RRG and 25.00 for

RRS) in Karnataka. Further, distribution of PB indicated lower degree (47.88%) of variation in Haryana state as compared to variation in PB (64% for RRT/RRG and 68.27% for RRS) in Karnataka.

3.2.0 IMPACT OF MDM PROGRAMME ON RETENTION RATE (TOTAL)

3.2.1 Distribution of RRT

Mean of RRT in 1974-78 for 206 districts (all states) was 38.78 with 45.98% as coefficient of variation (Table 15). The RRT mean (36.57) covering 145 districts in Cluster I was lower than that in all states. The decrease in the mean of RRT was mainly due to Uttar Pradesh which is not only one of the educationally backward states in respect of elementary education but also less affluent with 50% population below poverty line. Evidence in support of the stated observation was provided by the mean RRT (42.61) of Cluster III which was higher than that of all states. Further, Cluster II registered a higher value for mean of RRT (44.02) than that in Cluster I (36.57). The states in Cluster II are generally more affluent (Table 1) than those in Cluster I which might be responsible for the difference in the means of RRT. The variation in RRT remained almost the same in all the sets of data arrangement, which thereby indicating that clusters with higher RRT means also had higher variance. In the block level study, means of RRT were 69.09 during 1977-81 for Haryana and 46.47 during 1970-73 in Karnataka. The state of Haryana also recorded a low degree of variation in RRT (23.93%) than in Karnataka (44.52%). As Karnataka state had 48.34% population below poverty line as against 24.84% in Haryana, the former state indicated lower values of retention rates with a higher degree of variation in RRT.

3.2.2 Comparison of RRT Means for MDM and Non-MDM Districts/Blocks

In all the sets of data arrangement, means of RRT for MDM districts as is evident from Table 15 were not significantly different from those for non-MDM districts at 5% level. The low degree of variation in RRT might be responsible for not indicating the difference in the RRT means of MDM and non-MDM districts. The position with regard to difference in RRT means did not improve even after adjustments for the influence of related variables (Table 16) were made. In the block level study in Haryana, the mean of RRT for MDM blocks (71.28) was significantly higher than that for non-MDM (63.96) blocks at 5% level (Table 15). The relationship still existed even after eliminating the effect of related variables. These evidences has thus indicated that the MDM programme had a significant impact on retaining children in schools. Comparison of RRT means for MDM and non-MDM blocks in Karnataka was not possible because all the blocks of the selected districts were covered under MDM programme. In order to compare RRT means, 90 blocks were arranged in 3 groups on the basis of PB (Statement 3.1). The analysis did not indicate statistically significant difference in RRT means for these three groups of blocks. The block level analysis thus, indicated that the MDM programme influenced

the retention rates which was evident in the case of Haryana whereas the indication was not that strong in Karnataka.

STATEMENT 3.1

RRT Means of Three Groups of Blocks in the Block Level Study of Karnataka

<i>Group</i>	<i>Percentile Value of PB</i>	<i>RRT Mean</i>
1	2	3
I	Upto 33.3	44.06
II	Between 33.3 to 66.6	44.67
III	Above 66.6	50.69

3.2.3 Relationship Between RRT and PB

Relationship between RRT and PB in all states could not be reflected due to a low degree of variation in RRT (Table 19). Even exclusion of the state of Uttar Pradesh from the analysis did not improve the relationship. But partitioning of states according to the type MDM programme indicated that PB and RRT were linearly related as is evident from the values of correlation coefficient in Cluster I (.16) and in Cluster II (.26). This relationship did not exist when adjusted for the influence of other related socio-economic and educational factors. In the block level study of Haryana, PB was indicated to have a relationship (.22) with RRT (Table 22) whereas such indications were not available in Karnataka (.12). The influence of PB on RRT in both the states was not reflected in the analysis when effect of related variables was eliminated.

3.3.0 IMPACT OF MDM PROGRAMME ON GIRLS RETENTION RATES

3.3.1 Distribution of RRG

The district level study of RRG was based on 206 districts which did not include the districts of Madhya Pradesh and Maharashtra states (Table 14). Mean of RRG for these districts was 34.29 (Table 15). Comparing the means of RRG and RRT, it is observed that the former (34.29) was lower than the latter (38.78) which thereby indicated a higher extent of drop out in the case of girls. Further, RRG had also recorded a higher degree of variation (54.28%) than that (45.98%) for RRT. This trend was also observed in the case of Clusters I, II and III. Comparing the RRG means, 32.07 in Cluster I and 39.58 in Cluster II, the difference in RRG means in both the clusters could be attributed to the difference in the extent of poverty in states. Cluster III indicated higher RRG means (38.95) than all states because the state of Uttar Pradesh, excluded from the Cluster, had substantial population below the poverty line. The block level study in Haryana indicated higher RRG means (63.99) in 1977-81 than that for Karnataka (40.24) in 1976-79. As Haryana is more affluent than Karnataka, the difference in RRG means might be attributed to difference in the level of poverty in both the states. Karnataka state had also indicated a higher degree of variation in RRG (48.34%) than that of

Haryana (26.68%).

3.3.2 Comparison of RRG Means for MDM and Non-MDM Districts/Blocks

RRG mean for MDM districts (35.08) was significantly higher than that for non-MDM districts (30.90) in the case of all states (Table 15). Cluster I and Cluster III, however, failed to indicate the difference in RRG means for MDM and non-MDM districts whereas Cluster II indicated a statistically significant difference in RRG means (42.55 for MDM and 27.41 for non-MDM) at 5% level. It may be mentioned that four of the five states in Cluster II are backward in girls' education at elementary stage and hence the influence of MDM programme on RRG became discernible. This led to the conclusion that the MDM programme worked well in retaining girls in schools specially in the states which are backward in girls' education. However, this indication became non-discernible when the affect of other socio-economic factors was eliminated (Table 17). The block level study in Haryana did not indicate any difference between RRG means for MDM and non-MDM blocks which might be due to a low degree of variation (about 27 per cent) in RRG (Table 15). This difference in adjusted RRG means (64.58 for MDM blocks and 62.60 for non-MDM blocks) did not get reflected even after eliminating the affect of other related factors (Table 17). Comparison of RRG means for the three groups of blocks in the case of Karnataka, as is evident from the following Statement, also failed to provide a statistically significant difference. However, the trend in group means indicated higher values of RRG means for blocks with higher values of PB.

STATEMENT 3.2

RRG Means of Three Groups of Blocks in the Block Level Study of Karnataka

<i>Group</i>	<i>Percentile Value of PB</i>	<i>RRG Means</i>
1	2	3
I	Upto 33.3	36.44
II	Between 33.3 to 66.6	37.53
III	Above 66.6	47.02

3.3.3 Relationship of RRG with PB

The relationship between RRG and PB was not too strong to be statistically significant at 5% level in all the sets of data arrangement except in the Cluster I (Table 20) of district level study. Further analysis of relationship did not get emerged after eliminating the affect of other related variables because values of *b* for PB were not significant at 5% level in each case.

3.4.0 IMPACT OF MDM PROGRAMME ON RETENTION RATES OF SC/ST STUDENTS (RRS)

3.4.1 Distribution of RRS

The study of RRS was based on 191 districts which excluded all the districts of Madhya Pradesh, Maharashtra and Tamil Nadu as information on the variables under study was not available. Mean of RRS for 191 districts was 29.80, which was considerably low as compared to corresponding mean of RRT (38.78) in the district level study (Table 15). The same pattern was observed in the case of Clusters I, II and III. This trend in RRS means indicated that more SC/ST parents withdraw their children from the schools before they complete the educational cycle. Further, the distribution of RRS indicated a higher degree of variation (59.98%) as compared to RRT (45.98%) (Table 15). Comparing the means of RRS in Cluster I (28.71) and Cluster II (32.13), it is observed that the difference in means in the two Clusters was due to variation in poverty in both the Clusters. Cluster I consisted of all those states which had less affluent population than those in Cluster II. Cluster II, besides providing higher means, also indicated a higher degree of variation (63.65%) than that in Cluster I (57.48%). The block level study in Karnataka and Haryana indicated lower values of means of RRS, 65.39 and 44.49 respectively, than respective values of means of RRT (69.09 and 46.47), but these were higher than RRG (64.99 and 40.24). Comparing the RRS means in two states, the Haryana indicated a higher retention rate of SC/ST children (65.39) than that of Karnataka (44.49), which may be due to difference in the extent of poverty in both the states. The variation in RRS in both the states were higher than those of RRT and RRG.

3.4.2 Comparison of RRS Means for MDM and Non-MDM Districts/Blocks

Mean of RRS for MDM districts was lower than that for non-MDM districts only in Cluster I (27.27 and 34.23) as is evident from Table 15. This difference in the means of RRS ceased to exist after eliminating the effect of related variables. The contribution of the related variables to the variance of RRS was obviously too high due to which the difference in means was indicated. The block level study in Haryana did not indicate any significant difference in means of RRS for blocks with MDM programme (63.85) and Non-MDM programme (68.98). The position did not change even after adjustments were made for the influence of other related variables. Since all the blocks in Karnataka had the MDM programme, the analysis of variance was undertaken by forming three groups of blocks as given in the statement 3.3. Means of RRS in the three groups of blocks, though were not significantly different at 5% level, indicated a pattern that the means of RRS were higher for those blocks which had a higher percentage of beneficiaries.

3.4.3 Relationship of RRS with PB

The all states data set provided an indication that RRS was related with PB ($r = -0.16$) which implied that the retention rates were higher for the districts having low values of PB (Table 21). Cluster III also provided the similar indication ($r = -0.17$). When the whole population was bifurcated

STATEMENT 3.3

Means of RRS in the Three Groups of Blocks in 1976-79

<i>Group</i>	<i>Percentile Value of PB</i>	<i>RRS Means</i>
1	2	3
I	Upto 33.3	38.49
II	Between 33.3 to 66.6	45.99
III	Above 66.6	49.00

into two Clusters, the relationship between RRS and PB indicated above ceased to exist. The contribution of PB to the variance of RRS was not discernible after eliminating the effect of related variables. The blocks level study in Karnataka and Haryana did not provide any indication of relationship between RRS and PB because correlation coefficient and also values of *b* for PB were not significant at 5% level (Table 22). The impact of PB on retention rates of SC/ST children was not as strong as it was found in case of RRT.

3.5.0 CONCLUSIONS

3.5.1 Analysis of data on retention rates indicated that retention of girls at the primary stage was lower than total retention. Similarly retention of SC/ST children was also low as compared to total. The regression analysis for the district level study indicated that the retention rates in both the cases were more strongly related to socio-economic variables than educational variables.

3.5.2. The total retention rate having low degree of variability at the district level failed to record higher RRT values for the districts with MDM programmes than those for without MDM programmes. But there was an indication that RRT's were higher for the districts having higher values of PB when analysis was done after partitioning the data into two Clusters i.e., states with only CARE MDM programme and states with CARE as well as indigenous MDM programme.

3.5.3 The block level study in Haryana on the other hand provided stronger indications for the impact of MDM programme on RRT. The RRT mean of MDM blocks was higher than that of non-MDM blocks even after adjustments were made for the influence of related variables. The block level study in Haryana has also indicated that the percentage of beneficiary under MDM was also related to total retention rates. This relationship was not strong enough to sustain the adjustments carried out for the influence of related factors. The study in Karnataka failed to provide statistically significant results. However, the trend in RRT means for different intensity of PB in Karnataka indicated that MDM programme might have helped in retaining the children in schools. These indications were not as strong as obtained in the case of analysis of enrolment rates.

3.5.4 Unlike total retention rates, the indication of impact of MDM programme on girls' retention were strong. For example, the RRG means of MDM districts were higher than that for non-MDM districts in the case of all states and Cluster II. These differences though ceased to exist when adjusted for the influence of other factors.

3.5.5 The block level study, though provided higher RRG's for blocks with MDM programme in the case of Haryana, they were not statistically significant. The state of Karnataka also provided similar indications. Further, the relationship between RRG and PB was not indicated in all the sets of data arrangement except in the case of Cluster I which was also lost when the influence of other factors was taken into account.

3.5.6 The analysis of RRS in district and as well as in block level study did not provide evidence for the impact of MDM programme on the retention of SC/ST pupils except that RRS means in Karnataka indicated higher values for the higher intensity of MDM programme. This indication was very weak.

CHAPTER 4

REVIEW OF FINDINGS AND EFFICACY OF STATISTICAL ANALYSIS

4.1.0 STUDY OF ENROLMENT RATES

The present study analysed total (boys and girls) enrolment and enrolment of girls separately in order to study the extent of influence of the CARE supported MDM programme in enrolling more pupils at the primary stage. In order to fulfil the stated purpose, two dependent variables, viz., enrolment rates at two points of time and change in enrolment rates over the period, formed the basis of analysis. The district level study at two points of time (1973 and 1978) covered 12 states comprising 277 districts in 1973. Exclusion of Maharashtra state for non-availability of data reduced the number of observations to 251 in 1978. The block level study in Haryana at both the points of time (1976 and 1981) was based on the data from 107 educational blocks, whereas in Karnataka 90 community development blocks formed the basis of analysis for the year 1973 and 1979.

4.1.1 Summary of Findings (ERT)

The district level analysis of all the sets of data arrangement except for Cluster I indicated the influence of MDM programme on total enrolment in the form of higher ERT means for MDM districts than those for non-MDM districts. However, the stated indication seemed to disappear when ERT means were adjusted for the influence of socio-economic and other educational variables. The picture became clear, when ERT was found to be dependent on PB in all but one sets of data arrangement. This analysis highlighted the phenomena of higher ERT values for the districts with low percentage of beneficiaries under the MDM programme. The same phenomena appeared more sharply in the block level study, especially in the case of Karnataka. The analysis of ERT at two points of time thus indicated nothing but the policy on MDM programme followed by different states under which pockets with low ERT were covered under this programme in all the states with an exception of a few states. The analysis of change in ERT however provided definite indication for the influence of MDM programme on total enrolment. The districts with higher intensity of MDM programme during 1973 had indicated a higher increase in ERT over the period 1973-78. Particularly Cluster I provided a stronger relationship than the one in Cluster II, which thereby suggesting that the states with a higher proportion of poverty had more influence of percentage of beneficiaries in 1973 on change in total enrolment. The block level

study in both the states provided a more definite and concrete evidence in this regard. Among the two states, Karnataka indicated still a stronger relationship between change in ERT and percentage of beneficiaries in 1973.

4.1.2 Summary of Findings (ERG)

Distribution of ERG at both the points of time indicated higher degree of variations than for ERT due to which analysis of ERG was able to provide more clear indications about the impact of MDM programme. ERG means for MDM districts remained higher than those for non-MDM districts even after eliminating the effect of socio-economic and other educational factors. Again, the state of Karnataka indicated higher ERG means for the groups of blocks with low intensity of MDM beneficiaries. This difference, however, was not as wide as was indicated by the ERT. Analysis of change in ERG provided a clear-cut indication of the impact of MDM programme by way of indicating a higher change in ERG for the districts which had a high intensity of MDM beneficiaries during 1973. This relationship was clearly visible in the case of Cluster I in the district level study. Cluster II, however, failed to register such a relationship because most of the states in this Cluster had less than one-third population below the poverty line while, Cluster I had states with considerably a high percentage of population below the poverty line. Another factor which might be dominating the enrolment of girls was the indifferent attitude of parents towards the education of their daughters and this was specially reflected in the case of Haryana which is more affluent but recognised as backward in girls' education at the elementary stage. The study in Karnataka state, however, indicated a definite and strong evidence of the impact of MDM programme on girls' enrolment.

4.1.3 Efficacy of Analysis of Data of Enrolment Rates

Indices used in this study for estimation of enrolment rates were based on enrolment at the primary stage and child population in the age group 6+ to 10+. This index might contain positive bias because enrolment included children below six years and above eleven years. The study could have provided sharper results if the above mentioned bias was corrected by taking the enrolment of the corresponding age-group. The impact of MDM programme was observed to be clearer in the case of the block level study than in the district level study which thereby indicated that disaggregation from district to block was able to control the dilution of the impact of MDM programme on enrolment rates. Further disaggregation, i.e., school as unit of analysis, might not sharpen the results because a school is supposed to cater the population in its vicinity only. Estimation of child population for the catchment area of the school might not only be difficult but may also have several technical falacies. Further, the study also indicates that the analysis of enrolment rates at two points of time might not reflect as sharp an impact of MDM programme as in the case of change in enrolment rates. Although, clustering of states on the basis of MDM programme was effective, still purer results could have been obtained if

the Clusters were formed on the basis of poverty. The analysis of covariance used for studying the difference between MDM and non-MDM blocks/districts after adjusting the influence of other related factors might have resulted into over adjustment because of the strong relationship of other variables with the enrolment rates as compared to percentage of beneficiaries under MDM programme. Regression analysis using percentage of beneficiaries as dummy variable might have provided better results. The analysis could have been carried out fruitfully in the case of change in enrolment rates.

4.2.0 STUDY OF RETENTION RATES

Analysis of retention rates was undertaken separately for total (RRT), Girls (RRG) and SC and ST (RRS). The district level study analysing retention rates for the year 1974-78, was based on the data from 10 states comprising 206 districts. In the case of RRS the observations were reduced to 191 districts because the classwise enrolment of SC and ST was not available in the case of Tamil Nadu state consisting of 15 districts. The block level study in Haryana analysing retention rates for 1977-81 was based on the data from all the 107 educational blocks whereas in Karnataka the study of RRT, RRG and RRS at 1976-79 was based on 90, 83 and 78 community development blocks respectively.

4.2.1 Summary of Findings (RRT)

The district level study did not provide indications for the difference in RRT means for MDM and non-MDM districts, whereas the block level study in Haryana definitely indicated a higher RRT mean for MDM blocks than that for non-MDM blocks. This difference continued to exist even after applying the adjustments for the influence of related variables. Although the study of Karnataka, failed to provide statistically significant difference between RRT means for the three groups of blocks, these means indicated higher retention rates for the groups of blocks with higher percentage of beneficiaries under the MDM programme. Further, dependence of RRT on PB was not indicated in the analysis of the district level study although some evidences were available for the existence of relationship between the two when states were clustered by the type of MDM programme. In spite, the block level study in Haryana provided more definite indications of dependence of RRT on percentage of beneficiaries whereas the block level data from Karnataka failed to provide the same.

4.2.2 Summary of Findings (RRG)

The district level analysis indicated that RRG means were higher in MDM districts than those in non-MDM districts specially in the case of Cluster II. Four of the five states in this Cluster are backward in girls' education due to which the influence of MDM programme was clearly indicated by the analysis of data. Moreover, the data of the block level study in Haryana and Karnataka states did not provide concrete evidence for the influence of MDM programme on retention rates. Still, it was observed that the RRT for different groups of blocks indicated higher means for the blocks with higher intensity of MDM programme. All the

same, these differences were also not statistically significant. The position remained the same, while evaluating the dependence of RRG on percentage of beneficiaries under MDM programme.

4.2.3 Summary of Findings (RRS)

Only in Cluster I the analysis of RRS indicated that districts with MDM programme had lower RRS means than those without MDM programme. Adjustments for the influence of socio-economic factors however, did not indicate the difference between RRS means of MDM and Non-MDM districts. The block level study in both the states also did not provide higher RRS means for the blocks having higher percentage of beneficiaries. Further, RRS was also not found to be related to percentage of beneficiaries under MDM programme in the district and as well block level studies. It appears thus, the influence of MDM programme on RRS was not strong enough to be reflected in the analysis of data.

4.2.4 Efficacy of Statistical Analysis of Retention Rates

The analysis of retention rates did not provide strong evidence for the influence of MDM programme because of several reasons. One of the reasons could be that the indices used in this analysis were biased. The more suitable index could have been the one based on cohort method of estimation. The regression analysis adopted in the study of retention rates was also not found to be very effective for the reasons that the retention rates were strongly related to socio-economic variables due to which a part of the contribution of PB to the variation in retention rates might have been taken away by these variables. Sharper impact of MDM programme might be expected if Clustering of states or districts/blocks was attempted on the basis of some index of poverty. Disaggregation from district to block in the analysis of data was not sufficiently effective in providing unpolluted impact of MDM programme on retention rates. Further disaggregation i.e., school as unit of measurement, might be able to reflect purer impact of MDM programme on retention rates. Possibly the analysis of covariance technique, used for making adjustment in the contribution of socio-economic and other related variables, was also not effective because a portion of the contribution of the MDM programme might have been taken away by the variables strongly related to the retention rates. The regression analysis might reflect impact of MDM programme with lesser distortion if variable related to MDM programme was taken as dummy variable.

APPENDIX I

EXPLANATORY VARIABLES FOR DISTRICT LEVEL STUDY AT TWO POINTS OF TIME

<i>Explanatory Variables</i>	<i>Source</i>	<i>Notation</i>
1	2	3
<i>I. Educational or Related</i>		
(a) QUANTITATIVE		
i) No. of Primary Schools Per Thousand Children between age 6 to 11	Education Department of States	PPTC
ii) No. of Middle/Sec./Hr. Sec./ Schools Per Ten Thousand Population	Education Department of States	MSHSPTTP
iii) % of Population Served by Primary Sections within Habitations	Third & Fourth All-India Educational Surveys	% PPSH
iv) % of Primary Schools Functioning in Terits and Open Space	Third & Fourth All-India Educational Surveys	% PFTOS
(b) QUALITATIVE		
i) % of Female Teachers in primary schools	Education Department of States	% FT
ii) % of Trained Teachers in primary schools	Education Department of States	% TT
iii) Pupil Teacher Ratio in primary schools	Education Department of States	PTR
(c) PROGRAMME		
i) % of Primary Sections with Textbook Banks in the year 1973	Third All-India Educational Survey	% PSTB 73
ii) % of Pupils of classes I to V getting Scholarships in the year 1973	Third All-India Educational Survey	% PS 73

1	2	3
iii) % of Pupils of classes I to V getting Free Clothes in the year 1973	Third All-India Educational Survey	% PFC 73
iv) % of Pupils of classes I to V getting Free Textbooks in the year 1973	Third All-India Educational Survey	% PFT 73
v) % of Beneficiaries under CARE MDM programme to total enrolment	Education Department of States and CARE	PB
vi) % of CARE MDM Beneficiaries to Total MDM beneficiaries (State)	Ministry of Education and Culture and CRS	%CMBTM
<i>II. Developmental</i>		
i) % of Villages Electrified	Economics & Statistics Department of States	% VE
ii) Length of Metalled Roads Per Ten Thousand Population	Economics & Statistics Department of States	LMRPTTP
iii) % of Net Area under Cultivation to Total area	Economics & Statistics Department of States	% NAC
iv) % of Literates in the year 1971/1981	1971 and 1981 Census	% L 71/81
v) % of Workers to Total Population in the year 1971/81	1971 and 1981 Census	% WTP 71/81
vi) % of Female Workers to Total Workers in the year 1971/1981	1971 and 1981 Census	% FWTW 71/81
vii) % of SC/ST Population in year 1971	1971 Census	% SC/STP 71
viii) Infant Death Rate in the year 1971	1971 Census	IDR 71
ix) % of Habitations Predominantly Populated by SC	Third & Fourth All-India Educational Surveys	% HPP SC

APPENDIX II

EXPLANATORY VARIABLES FOR DISTRICT LEVEL STUDY (CERT AND CERG)

- i) No. of Primary Schools Per Thousand children between age 6 to 11 in the year 1973 (PPTC 73)
- ii) Change in (i)
- iii) No. of Middle/Sec./Hr. Sec. Schools Per Ten Thousand Population in the year 1973 (MSHSPTTP 73)
- iv) Change in (iii)
- v) % of Female Teachers in Primary Schools in the year 1973 (% FT 73)
- vi) Change in (v)
- vii) % of Trained Teachers in Primary Schools in the year 1973 (% TT 73)
- viii) Change in (vii)
- ix) Pupil-Teacher ratio in Primary Schools in the year 1973 (PTR 73)
- x) Change in (ix)
- xi) % of Beneficiaries under CARE MDM Programme to total enrolment in the year 1973 (PB 73)
- xii) Change in (xi) (CPB)
- xiii) % of Villages Electrified in the year 1973 (%VE 73)
- xiv) Change in (xiii)
- xv) Length of Metalled Roads Per Ten Thousand Population in the year 1973 (LMRPTTP 73)
- xvi) Change in (xv)
- xvii) % of Net Area under Cultivation to total area in the year 1973 (% NAC 73)
- xviii) Change in (xvii)
- xix) % of Literates in the year 1973 (% L 71)
- xx) Change in (xix)
- xxi) % of Workers to Total Population in the year 1971 (% WTP 71)
- xxii) Change in (xxi)
- xxiii) % of Female Workers to Total Workers in the year 1971 (% FWTW 71)
- xxiv) Change in (xxiii)
- xxv) % of Habitations Preominantly Populated by Scheduled Castes in the year 1973 (% HPPSC 73)
- xxvi) Change in (xxv)
- xxvii) % of Population Served by Primary Sections within the Habitations

- in the year 1973 (% PPSH 73)
- xxviii) Change in (xxvii)
- xxix) Percentage of Primary Schools Functioning in Tents and Open Space in the year 1973 (% PFTOS 73)
- xxx) Change in (xxix)

APPENDIX III

EXPLANATORY VARIABLES USED IN BLOCK LEVEL STUDY AT TWO POINTS OF TIME

A. HARYANA

- i) No. of Primary Schools Per Thousand Children in the age 6 to 11 (PPTC)
- ii) No. of Middle/Sec./Hr. Sec. Schools Per Ten Thousand Population (MSHSPTTP)
- iii) % of Female Teachers in Primary Schools (% FT)
- iv) % of Beneficiaries under CARE MDM Programme to total enrolment (PB)
- v) % of SC/ST Population in the year 1971 (% SC/STP 71)
- vi) % of Female Workers to Total Workers in the year 1971 (% FWTW 71)
- vii) Percentage of Workers to Total Population in the year 1971 (% WTP 71)
- viii) Percentage of Net Area under Cultivation in a District [% NAC(D)]

B. KARNATAKA

- i) No. of Primary Schools Per Thousand Children in the age 6 to 10 (PPTC)
- ii) No. of Middle/Sec./Hr. Sec. Schools Per Ten Thousand Population (MSHSPTTP)
- iii) % of Female Teachers in Primary Schools (% FT)
- iv) % of Female Trained Teachers in Primary Schools (% FTT)
- v) % of Beneficiaries under CARE MDM Programme to total enrolment (PB)
- vi) % of SC/ST Population in the year 1971 (% SC/STP 71)
- vii) % of Female Workers to Total Workers in the year 1971 (% FWTW 71)
- viii) % of Workers to Total Population in the year 1971 (% WTP 71)
- ix) % of Net Area under Cultivation in a District [% NAC (D)]

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APPENDIX IV

EXPLANATORY VARIABLES FOR BLOCK LEVEL STUDY (CERT AND CERG)

- A. HARYANA
- i) No. of Primary Schools Per Thousand Children in the age 6 to 11 in the year 1976 (PPTC 76)
 - ii) Change in (i)
 - iii) No. of Middle/Sec./Hr. Sec. Schools Per Ten Thousand Population in the year 1976 (MSHSPTTP 76)
 - iv) Change in (iii)
 - v) % of Female Teachers in Primary Schools in the year 1976 (FT 76)
 - vi) Change in (v)
 - vii) % of Beneficiaries under CARE MDM Programme to total enrolment in the year 1976 (PB 76)
 - viii) Change in (vii) (CPB)
- B. KARNATAKA
- i) No. of Primary Schools Per Thousand Children in the age 6 to 10 in the year 1973 (PPTC 73)
 - ii) Change in (i)
 - iii) No. of Middle/Sec./Hr. Sec. Schools Per Ten Thousand Population in the year 1973 (MSHSPTTP 76)
 - iv) Change in (iii)
 - v) % of Female Teachers in Primary Schools in the year 1973 (% FT 73)
 - vi) Change in (v)
 - vii) % of Female Trained Teacher in Primary Schools in the year 1973 (% FTT 73)
 - viii) Change in (vii)
 - ix) % of Beneficiaries under CARE MDM Programme to total enrolment in the year 1973 (PB 73)
 - x) Change in (ix) (CPB)

APPENDIX V

A REVIEW OF MID-DAY MEALS PROGRAMME**Historical Review of Mid-day Meals Programme**

The Mid-day Meal programme is essentially a child welfare programme. This programme is not only considered as one of the most potent incentives for children belonging to disadvantaged class of society to attend school regularly, but also as one of the important factors for improving their health and academic status. In addition to these, the programme benefits the children in several ways such as helping them to inculcate proper dietary habits, develop a balanced social personality free from social and economic inhibitions.

The School Lunch Programme was initiated for the first time in the world by a Frenchman, Victor Hugo, in the year 1865 for the school children of France and in England and West Germany it started before First World War with the help of voluntary agencies. In India the School Lunch Programme was started as far back as 1925 and was introduced for the children belonging to poor socio-economic status, i.e., having a monthly income less than Rs. 50.00 in the Madras Corporation area. According to Devadas and Radharukmani (1966)¹, Keshav Academy in Calcutta introduced a compulsory Mid-day tiffin in 1928 for school boys charging a payment of four annas per child, per month. Other States in India such as Andhra Pradesh, Bihar, Gujarat, Kerala, Mysore and Uttar Pradesh introduced this programme only after the Second World War. At the same time, some international organisations such as UNICEF, FAO, WHO, assisted different States in introducing the MDM Programme. Similar assistance was also provided by international voluntary/charity organisations such as Catholic Relief Services (CRS), Church World Service, CARE, USA's Meals for Million Association.

Meals for Million Associations (USA) founded in 1946, started to provide low cost but high-protein-content, ready-to-eat snacks (Multi-Purpose Food) in 1956. The formula for MPF in India was developed at the Central Food Technological Research Institute, Mysore. The MPF's Nutro-biscuits, manufactured by Britannia Biscuit Company, Calcutta, have been found to be effectively combating protein malnutrition in children.

United Nation's Children Fund in 1956, initiated several child welfare programmes for the less developed countries of the world. In India, skim milk powder has been distributed since 1954 under UNICEF's Long Range

¹ Devadas, R.P. and Radharukmani, A. (1966) *The School Lunch Programme—Organisations and Outcomes*. Ministry of Education, Govt. of India, Publication No. 753

Food Programme in some States. Another programme was the Expanded Nutrition Programme (ENP) jointly sponsored by the FAO, the WHO, the UNICEF and the Government of India in 1958-59 in the State of Orissa. The objectives of the ENP Programme were:

- i. to help the people to increase production of nutritionally valuable food in village, school and home.
- ii. to provide nutrition education through schools, Mothers' Clubs, health services, Community Development and National Extension Services Blocks.
- iii. to improve the nutritional status of needy pregnant and nursing women and young children.
- iv. to impart training to local personnel such as school teachers, gram sevikas, home science extension workers, etc., for achieving the first three objectives.

The impact of the ENP was encouraging and hence sponsoring organisations decided to expand the ENP to other States under the name of Applied Nutrition Programme (ANP).

In India, the Catholic Relief Service (CRS), has taken up various projects in the area of maternal and child health care, School Feeding Programme, Individual Health Care and Socio-economic Development Programme in addition to rendering relief service at the time of disasters. The CRS assisted school-feeding programme provides daily ration to the underprivileged school children in the age group 6 to 14 through some municipal corporations and private or government institutions having the necessary infrastructure. Arrangements for doctors' visit are made in many schools covered by CRS for School Feeding Programme. Total number of beneficiaries during 1980-81 was reported by CRS as 4.43 lakhs.

Also, the Cooperative for American Relief Everywhere (CARE) has played a significant role in the School Lunch Programme organised in different States of India. Until 1954, when Public Law 480 was passed by the U.S. Govt., CARE's role was to organise emergency relief under its self-help programmes at the time of national calamities and social and economic upheavals in developing countries. In 1951, CARE laid the foundation of its nutrition programme by taking up various nutrition and rural development projects. It provided relief in terms of distributing milk powder, rice, butter oil and several other commodities like blankets to the children and victims of drought, earthquake and flood-hit areas in various parts of the country and also to the refugees from the Tibet and East Pakistan, during its first decade of Self-help Programme.

CARE initiated its assistance to the Mid-day Meal programme in 1961 in the States of Kerala and Tamil Nadu. Other States were covered at a later date. In addition to the MDM programme for primary stage children, CARE also assists Supplementary Nutrition Programme for Pre-school children and Food for Work Programme.

During the first year (1962) of CARE's assistance to MDM programme, 2.4 million pupils were provided mid-day meals, and the coverage

rose to 115 lakhs during the year 1970 but declined to 75.80 lakhs in 1977. By this time CARE extended its support in terms of providing food commodities to the MDM Programme in 12 States, namely Andhra Pradesh, Gujarat, Haryana, Kerala, Karnataka, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The State Governments met the incidental charges such as transportation, storage, distribution, etc.

The Government of India has decided to accord high priority to the nutrition of the vulnerable section of the population during the Sixth Five Year Plan. Vulnerable sections of the society, such as children below the age 14 years, expectant and nursing mothers and persons belonging to the disadvantaged class are to be given special attention. The policy envisages various measures for the coordinated development of major sector affecting the nutrition of people. These sectors are Agriculture, Food Industry and Commerce, Education and Health services. A Central Coordination Committee has been set-up for monitoring the National Policy and recommending from time to time action-oriented programmes. The Coordinated Committee consists of subject specialists, representatives of the Departments of Food, Agriculture, Social Welfare, Education, Health and Family Planning and the Planning Commission.

Management of MDM Programme in the States

The administrative arrangements, logistics, selection of beneficiaries and delivery systems in the thirteen States have important bearing on the efficacy of the MDM programme. Therefore, the following discussions in this section are based on the Status Report submitted by the State Governments in the year 1980 to the Ministry of Education and Culture, Government of India to consider streamlining the implementation of the MDM programme in the country.

Andhra Pradesh

An indigenous MDM programme was introduced on a modest scale in the State during 1959-60. This programme was replaced in the year 1962-63 by the CARE funded programme and covered 8 lakhs of pupils during the first year and continued for 10 years. In addition to the CARE funded MDM programme, the State again introduced its indigenous programme in 1977 for the Harijan students. In 1980-81, this programme was merged with the CARE's MDM programme. The number of beneficiaries under the CARE-assisted MDM programme was reduced to about 6.5 lakhs per year in 1974-75 but it was raised to 8,97,000 in 1978-79 and to 9 lakhs during 1979-80. The indigenous programme fed only 0.4 lakhs pupils during 1977-78 and 0.68 lakhs pupils per year during 1978-79 and 1979-80.

The Director of School Education is the highest officer at the decision-making level and the programme is looked after by a full time Special Officer. District Level Education Officers attend to the programme at the district level and at the Panchayat Samiti level and below, the Block Development Officer assisted by Deputy Inspectors of Schools looks after the programme. The Headmaster works for the programme at the

village feeding centre. All these officers work for the programme in addition to their normal duties. Panchayat and public are expected to contribute to the incidental expenditure through a Mid-day Meal Committee.

Year-wise total State Budget-Plan and Non-Plan for the MDM Programme is given below!

Year	Amount in Lakhs	
	Plan	Non-Plan
1975-76	—	Rs 46.41
1976-77	Rs. 10.02	Rs 46.41
1977-78	Rs. 38.18	Rs 41.75
1978-79	Rs. 54.00	Rs 37.18
1979-80	Rs 34.00	Rs. 57.18

Spot cooked food supplied by CARE is served to 70% primary stage pupils in selected schools in all the Community Development Blocks without discrimination. The Status Report mentions that the MDM programme helps in improvement of attendance if the feeding is regular. It also helps in stabilising the attendance.

Gujarat

The State had an indigenous programme on a moderate scale before CARE-assisted MDM programme was introduced in 1965. The State Government introduced an indigenous MDM programme on regular basis from 1975. Eighty-four Talukas of fourteen districts of the State are presently being covered under both the programmes.

During the first four years, the CARE-assisted programme covered 2,170 schools and 2.16 lakh pupils each year which rose to 5,319 schools and 4.00 lakh pupils during 1979-80. The indigenous MDM programme covered 200 schools and 0.20 lakh pupils each year from 1975-76 to 1977-78 and 250 schools and 0.25 lakh pupils during 1978-79 which rose to 270 during 1979-80 and covered 0.27 lakh pupils.

The Director of Public Health (incharge Nutrition programme) is the highest authority at the decision-making level and the District Development Officer (Chief Executive of District Panchayat) is incharge for implementation of the programme at the district level. He is assisted by the District Health Officer and Deputy Development Officer. The Taluka Development Officer is incharge of the programme at Taluka level.

The programme covers pupils of primary schools only. The budget (Rs. in lakhs) of the programme is presented below.

Year	CARE assisted programme		Indigenous programme	
	Plan	Non-Plan	Plan	Non-Plan
1976-77	—	12.36	10.80	—
1977-78	—	15.26	10.80	—
1978-79	—	16.64	13.50	—
1979-80	—	15.96	18.01	—

Haryana

The MDM programme was launched during 1961-62 with the assistance of CARE when it was part of the erstwhile State of Punjab. The Programme covered about 4 lakhs pupil each year from 1966-67 to 1968-69 and this number was reduced to about 2.16 lakhs in 1969-70. This coverage under the programme continued till 1977-78. The number of beneficiaries under the programme has been again restored to about 4.03 lakhs per year since 1978-79.

The programme is looked after by the Education Department under the Director of Public Instruction (School Education) with the help of Deputy Director of Education. At district, block and village levels, the programme is implemented by the District Education Officers, Block Education Officers and teachers in addition to their normal duties.

The MDM programme in the State does not utilize community resources and it received foodstuff from CARE and met the incidental charges as per the following budget

Year	Budget (Rs. in lakhs)
1975-76	16.25
1976-77	23.86
1977-78	26.68
1978-79	29.81
1979-80	33.50

The criterion for selection of rural Educational Blocks for the programme is the socio-economic condition of the population of the Block. About three-fourths boys and one-fourth girls of classes I to V are covered under the programme. These beneficiaries generally belong to below middle income group, although all students of the primary classes in selected schools are fed without discrimination.

Karnataka

The State Government started its indigenous MDM programme in 1957-58. CARE's assistance became available from 1963, and since then both the programmes have been functioning in the State and cover pre-school children as well as pupils of Classes I to VII. At the primary stage, the coverage was 3.12 lakh pupils during the year when CARE extended its assistance and increased to 11.7 lakhs in 1972-73. After that, a declining trend set in during the next three years. From 1976-77 onwards, the number of beneficiaries fluctuated between 6.0 lakhs and 8.5 lakhs.

The Director of Public Instruction is overall incharge of the programme and is assisted by the Joint-Director of Public Instruction (Mid-day Meals). The community participates through School Betterment Committees in the programme by way of donations and implementation of the programme. The children are supplied cooked as well as ready-to-eat food.

The Assistant Educational Officer selects the Talukas and schools

within the selected Talukas. The main consideration for selection is social and economical backwardness of the area. Schools with higher S.C., S.T. and the enrolment of other socially backward classes is preferred for the programme. Children belonging to lower middle class families (yearly income upto Rupees ten thousand) are generally covered under the programme. Children belonging to Higher or middle classes are not covered and they too do not choose to eat the food supplied in the MDM programme. The budget (Rupees in lakhs) for the MDM programme during the last 5 years is given below.

<i>Year</i>	<i>Non-Plan</i>	<i>Plan</i>
1975-76	45 00	32.50
1976-77	45.00	165.50
1977-78	50.00	151.00
1978-79	50.00	188.57
1979-80	265.00	163.70

Kerala

The indigenous MDM programme started in 1949 and was replaced by the CARE-assisted MDM programme in 1961. About 16 lakhs pupils were benefitted during 1962-63 and 19.00 lakhs during 1963-64. Since then it has remained almost constant. The highest number of beneficiaries was about 22.9 lakhs during 1972-73.

The Director of Public Instruction is overall incharge of the programme, who is assisted by a full-time Assistant Director at the State level. The programme at the district and lower levels is administered by Senior Administrative Assistant working under CARE. Only cooked food is supplied to children. As the State has only the CARE-assisted MDM programme, the raw food commodities are received unconditionally.

The programme covers only the primary stage of education and includes all the schools, but the food is served only to the poor and needy students. In several cases Parent-Teacher Associations take active interest in the functioning of the MDM programme. The budget (in lakhs of Rupees) of the programme for five years from 1975-76 is given below.

<i>Year</i>	<i>Plan</i>	<i>Non-Plan</i>
1975-76	6 00	53 03
1976-77	10 00	66 60
1977-78	10 00	76 29
1978-79	10 00	86 16
1979-80	15 00	69 44

Madhya Pradesh

The MDM programme was introduced in the State in 1966 and is linked in conjunction with a special Nutrition Programme covering about 12.5 thousand primary schools. It has CARE programme also. The Programme is being implemented by the Secretary of the Tribal and Harijan Welfare Department of the State Government, who is assisted by a full-time

Joint-Director of the Directorate of Tribal Welfare Department. The next lower level of administration is Region which is looked after by Regional Deputy Directors who are assisted by District organisers and Project Officers. Headmasters of the schools which serve as pay centres and teachers in other schools, manage the programme at the feeding centres. Teachers are paid some allowance for managing the programme. Cooked food and ready-to-eat food are supplied to students by CARE and the Department.

The MDM programme operates in all Tribal blocks under sub-plan¹ areas. Budget for the last few years is not available in the reports submitted by the State.

Maharashtra

Devdas and Radharukmani (1966) report that a free Mid-day-Meals programme was initiated in Bombay in 1942 to encourage attendance of school children of the age below 14 years. This programme also covered expectant and nursing mothers. CARE started its participation in the School Feeding Programme on a limited scale in 1963. The programme was known as the Bombay-CARE School Feeding Programme and was limited to 2.5 lakhs of primary school children of the Municipal Corporation. In 1968-69, the MDM programme was launched on a larger scale under the supplementary Nutrition programme with CARE's Assistance. The children under this programme used to get Paushtik Ahar (Sukhada) prepared from CARE donated food and milk. The support of CARE to the programme was withdrawn in 1973-74.

The programme covered 0.94 lakhs of pupils of classes I to IV during its year of inception which rose to 4.5-lakhs during 1973 but decreased to 2.8 lakhs during 1974-75.

The programme is being looked after by the Rural Development Department. The Zilla Parishads' Chief Executive Officer at the district level implements this scheme with the help of primary school teachers. The community does not provide any financial assistance but helps in implementation of the programme. The budget (rupees in lakhs) of the programme is given below.

<i>Year</i>	<i>Non-Plan</i>	<i>Plan</i>
1975-76	1.63	20.25
1976-77	1.62	11.00
1977-78	1.26	7.00
1978-79	1.22	11.40
1979-80	4.71	47.47

Orissa

The MDM programme in the State was initiated in 80 villages during 1958-59 with the launching of the Expanded Nutrition Programme (ENP)

¹ Sub-plan areas are those C D Blocks belonging to erstwhile scheduled areas and having more than 50% tribal population. In case some nearby pucker in the vicinity of such area not fulfilling this criteria but otherwise found to be undeveloped is also included in sub-plan areas.

and CARE extended its help to the programme from 1965. Presently only the CARE MDM programme is in operation. It covered 5.6 lakhs of students per year till December 1978 which rose to 7.6 lakhs in 18,107 schools from January 1979.

The programme is a part of special Nutrition Programme and administered by the State Community Development and Rural Reconstruction Department.

The District Collector is incharge of the programme at the district level. He is assisted by a full-time officer designated as Special Officer (Feeding Programme). At the next lower channel of administration (Block), the Block Development Officer assisted by the Social Education Organiser. The Lady Social Education Organiser is incharge of the programme helped by the primary school teacher.

The programme covers all the Community Development/Tribal Development Blocks. The selection of schools for implementing the programme is made on the basis of enrolment of vulnerable segments of the society and it covers all the children of the selected schools.

Punjab

UNICEF and other voluntary organisations used to supply skim milk to school children on a very limited scale in the erstwhile State of Punjab. In 1962 the CARE-supported MDM programme was established in the State on a regular basis by the State Planning Department. This programme used to be managed by the Block Development Officer at the village level. Administration of the programme was transferred to the Education Department of the State in 1970. The Education Commissioner and Secretary of the Government of Punjab is the overall incharge of the programme who is assisted by a part-time Director of Public Instruction (Primary Education) in the office of Directorate of Public Instructions. At the district and Community Development Block levels, the programme is being implemented by the District Education Officer (Primary) and the Block Education Officer with the help of teachers in schools in addition to their own duties.

The number of primary schools covered during 1979-80 was 3,412. The programme is functioning in the selected Blocks having a large number of poor and vulnerable sections of the society. Once the school is selected every child is served with the Mid-day-Meals without discrimination.

The State Government meets only incidental and transportation expenses as per the following non-plan budget allocation.

<i>Year</i>	<i>Non-Plan (in lakhs)</i>
1975-76	22 00
1976-77	27 00
1977-78	28 00
1978-79	33 00
1979-80	38 00

Rajasthan

The MDM programme in the State was inaugurated on 2 October 1962 with the assistance from CARE. It covered 5 lakhs pupils during the first year of its programme which rose to 10 lakhs during the next few years, but again reduced to 3.37 lakh students belonging to 7,000 primary schools in 1975-76 and has remained constant during the following years.

The programme, though linked with SNP Programme, is being implemented independently by the Community Development and Panchayat Department of the State. The District Collector is overall incharge of the programme and is assisted by the Additional District Development Officer. The Block Development Officer manages the programme at the Block level and the school teacher at the teaching centre. The personnel involved at all levels of administration, work for this programme in addition to their duties. The programme covers tribal areas and economically backward areas. The state has made budget provision of Rs. 19.38 lakhs annually during last five years.

Tamil Nadu

The Mid-day-Meals programme, though introduced in 1925 by the Corporation of Madras, received the State Government support from 1957. Detailed and precise rules for the working of MDM programme were prepared by the Government to secure cooperation and active participation of the community. Under these rules, the elementary schools were to run this programme with a voluntary contribution of 4 paise per meal per pupil from the community together with the Government contribution equal to the actual expenditure in excess of community's contribution subject to a ceiling of 6 paise per meal per pupil. The menu of the meals comprised cooked rice served with sambhar or curds and vegetables or pickles.

The Government of Madras received aid from CARE in 1961 to supplement its MDM programme. The State Government presently provides food for 100 days during a year and CARE for another 100 days in a year.

The MDM programme covers all the recognised primary and upper primary schools of the state. The voluntary MDM Scheme is in operation in a few secondary and higher secondary schools also. All pupils in a school are not served the mid-day meals. The number of beneficiaries is about one-third of the effective enrolment in a district. Only poor and deserving students are served with mid-day meals.

The MDM programme is managed through the School Education Department. A full-time special officer for MDM looks after the programme. Every school has a MDM Committee which receives contribution from local bodies at the rate of 5 paise per meal per pupil. The MDM programme is independently implemented and not linked to any other programme.

Uttar Pradesh

A Mid-day Meals scheme is in operation on voluntary basis in the State since 1953. The regular MDM programme was started in the year 1961 as a part of Applied Nutritional Programme jointly sponsored by UNICEF.

WHO and FAO. Simultaneously, another Mid-day Meals scheme started in November 1961 on a purely voluntary basis. Devadas and Radharukmani (1966) report that the latter scheme had a wider coverage, with 5.72 lakhs of beneficiaries in 0.088 lakhs of schools, than the former scheme functioning in 79 feeding centres with 3,950 beneficiaries. In 1963, a new scheme of Mid-day-Meals covering 1.5 lakhs children in 17 districts supplemented the existing scheme of Mid-day-Meals. The beginning of the CARE-assisted MDM programme was made in 1965 covering 17 districts of the State. The expansion of the programme began gradually from 1970. By 1975 the districts covered under the programme rose to 42. The Department of Education launched its own scheme in 6 of the 42 districts which were earlier covered under the CARE-sponsored programme. The programme now covers 36 districts, and the number of beneficiaries has been about 6.2 lakhs in 1781 schools under the indigenous programme and 4412 schools under the CARE-supported programme.

The programme is implemented by the Directorate of Education. At the district level the Basic Shiksha Adhikari (that is, the Education Officer for primary schools) attends this programme in addition to his own duties. At the feeding centre, the teacher-in-charge looks after the programme in addition to his own duties and a part-time cook helps him in implementing the programme. Yearly budget allocation in lakhs of rupees during the last five years is given below.

Year	Plan	Non-Plan
1975-76	57.50	90.00
1976-77	60.00	74.00
1977-78	62.50	74.00
1978-79	68.00	74.00
1979-80	35.50	127.14

West Bengal

Earlier, some government and private schools used to have feeding schemes on voluntary basis. The State Government and the Board of Secondary Education provided special tiffin grants to such schools. The government schools used to charge Rs. 2/- per head per month as the tiffin fee. Presently all the 15 districts of the State are covered under the following three Mid-day-Meals programme.

(a) CARE-Assisted Child Nutrition Programme (Rural)

This programme was initially launched with the assistance from CARE as a relief programme through the Relief and Welfare Department during 1965 in all the 15 districts of the State except Calcutta. The programme was transferred to Education Department in 1967-68 and since then the programme is functioning on a regular basis. The programme covered 9,500 schools in which 7 lakhs of students were fed during 1979-80.

The budget of State for Mid-day-Meals for 5 years ending 1979-80 is

given below in lakhs of rupees.

<i>Year</i>	<i>Budget</i>
1975-76	35.00
1976-77	35.00
1977-78	95.00
1978-79	36.00
1979-80	36.00

(b) CARE-Assisted Child Nutrition Programme (Urban)

This programme was implemented in the Municipal Corporation area of the city of Calcutta in 1966-67 through Educational Department. It covered 2.50 lakhs of students during 1979-80.

The yearly non-plan State budget for five years upto 1979-80 is given below.

<i>Year</i>	<i>Budget (in lakhs Rupees)</i>
1975-76	12.68
1976-77	13.96
1977-78	14.93
1978-79	117.02
1979-80	132.42

(c) State Plan-Nutrition Plan Programme

The SPNP programme was introduced in the rural and urban areas of the 8 districts under the Fifth Five Year Plan. Later on, this programme has been extended to 15 districts except Calcutta. In 1979-80 the programme covered 21.21 lakhs of students of 20,000 schools.

Year-wise budget for 5 years ending 1979-80 was as follows.

<i>Year</i>	<i>Budget (in lakhs Rupees)</i>
1975-76	12.78
1976-77	24.00
1977-78	80.50
1978-79	282.50
1979-80	434.00

Conclusions

The programme of Mid-day Meals was in existence on a meagre scale in some States even before Independence of the Country. It got a fillip when international agencies started rendering their support to this programme. CARE's support substantially helped in wider coverage in all the major States of the country. The policy of implementation of this programme was based on the social structure, administrative set up and resources available with individual States. For example, the Education Department at the State level is the agency responsible for implementation of the programme in case of Andhra Pradesh, Haryana, Karnataka,

Kerala, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal. However the programme is looked after by the Public Health Department in Gujarat, and the Tribal and Harijan Welfare Department in Madhya Pradesh. The other Departments which control the programme are the Rural Development, the Community Development and Rural Reconstruction and the Community Development and Panchayat Development in Maharashtra, Orissa and Rajasthan respectively. Further, the States of Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Tamil Nadu and Uttar Pradesh have reported that the programme is looked after by a full-time officer whose status varies from state to state. In some other States, like Gujarat, Haryana and Punjab, the officer-incharge at the State level manages the programme in addition to his regular duties. The programme in all the States is implemented by teachers at the school level.

All the States attempt to cover vulnerable sections of population, namely, children from poor families, Scheduled Castes and Scheduled Tribes Communities. The procedure of coverage, however, differs from State to State. The States of Tamil Nadu and Kerala cover all the recognised schools of the State but only needy and poor children are fed under this programme. The States of Andhra Pradesh and Orissa cover all the blocks of the State and the programme is implemented in selected schools. In the remaining States, the programme is implemented in selected schools within selected Blocks. The number of beneficiaries in almost all the States did not show increasing trend during the last 8 years. The reason may be the CARE's decision to phase-down the programme.

TABLE 1

Year of Commencement of CARE MDM Programme, Beneficiaries under MDM and Percentage of People below Poverty Line in Different States.

States	Year of Introduction of CARE MDM	No. of Beneficiaries under MDM (in Thousands)				% of People Below Poverty Line*
		Total		CARE MDM		
		1973	1978	1973	1978	
1	2	3	4	5	6	7
1. Andhra Pradesh	1962	10 00	9.79	10 00	8.92	42.18
2. Gujarat	N.A.	3.60	4.35	3.60	4.15	39.04
3. Karnataka	1963	12.00	10.50	12.00	8.50	48.34
4. Tamil Nadu	1961	19.00**	21.24**	19.00	21.24	52.12
5. Uttar Pradesh	1965	10.00	10.94	10.00	6.17	50.09
6. West Bengal	1965	12.00	25.02	12.00	8.50	52.54
7. Haryana	1961	4.00	4.04	4.00	4.03	24.84
8. Madhya Pradesh	1966	4.00	7.79	4.00	7.64	57.73
9. Maharashtra	1963	N.A.	N.A.	4.00	N.A.	47.71
10. Orissa	1965	7.25	7.71	7.25	7.60	66.40
11. Punjab	1961	3.50	2.97	3.50	2.96	15.13
12. Rajasthan	1962	4.00	4.03	4.00	4.01	33.76
13. Kerala	1961	21.00	17.69	21.00	17.69	46.95

*Source: *Sixth Five Year Plan (1980-85)*, Government of India, p. 16.

(**CARE provides food for 100 days and State Govt. provides food for 100 days, N.A. — Not available)

TABLE 2

Different Points of Time at which Impact of MDM Programme on Enrolment and Retention was Studied

Variable	Point of Time	Year of Study for			
		District Level		Block Level	
		All States	Cluster IV	Haryana	Karnataka
1	2	3	4	5	6
1 Enrolment Rates (ERT:ERG)	First	1973	1967	1976	1973
	Second	1978	1978	1981	1979
2 Retention Rates (RRT:RRG RRS)	First	1973-77	1967-71	1975-79	1974-77
	Second	1974-78	1974-78	1977-81	1976-79

TABLE 3

Number of Observational Units Used for the Analysis of Dependent Variables in the District and Block Level Studies.

Dependent Variable	Point of Time	All States	District Level Studies				Block Level Study	
			Cluster I	Cluster II	Cluster III	Cluster IV	Haryana	Karnataka
1	2	3	4	5	6	7	8	9
1. ERT/ERG	First	277	145	132	196	54	107	90
	Second	251	145	106	196	54	107	90
2. RRT	First	197	91	106	N.A.	54	107	90
	Second	206	145	61	151	54	107	90
3. RRG	First	197	91	106	N.A.	54	107	90
	Second	206	145	61	151	54	107	83
4. RRS	First	182	76	106	N.A.	54	107	89
	Second	191	130	61	136	54	107	78

(N A. - Not Analysed)

TABLE 4

Distribution of Percentage of Beneficiaries under MDM Programme in the Analysis of ERT/ERG

Point of Time	Item of Information	All States	District Level Study			Block Level Study	
			Cluster			Haryana	Karnataka
			I	II	III		
1	2	3	4	5	6	7	8
First	1. All Distt/Blocks						
	a) No. of Obs	277	145	132	196	107	90
	b) Mean PB	17.93	18.89	16.88	21.83	22.95	30.95
	c) S.D. PB	18.34	15.12	22.24	20.18	19.48	20.29
	d) cv in %	105.09	80.01	131.81	92.44	84.88	65.53
	2. MDM Distt/Blocks						
	a) No. of Obs.	223	124	99	165	75	90
	b) Mean PB	22.27	22.09	22.51	25.93	32.74	30.95
	c) S.D. PB	18.55	14.01	23.09	19.42	14.79	20.29
	d) cv in %	83.32	63.44	102.63	74.89	45.16	65.53
Second	1. All Distt/Blocks						
	a) No. of Obs.	251	145	106	196	107	90
	b) Mean PB	14.35	15.09	13.33	15.80	35.24	25.57
	c) S.D. PB	13.59	13.22	14.08	14.32	30.65	18.41
	d) cv in %	94.72	87.61	105.60	90.65	86.97	64.18
	2. MDM Distt/Blocks						
	a) No. of Obs	188	118	70	151	75	81
	b) Mean PB	19.16	18.54	20.18	20.51	50.27	28.41
	c) S.D. PB	12.43	12.27	12.70	12.97	24.06	14.76
	d) cv in %	65.11	66.18	62.95	63.24	47.88	51.95

(Obs. — Observations)

TABLE 5

Distribution of ERT and ERG in Different Sets of Data Arrangements of District and Block Level Study

ERT/ ERG	Point of Time	Item of Information	All States	District Level Study			Block Level Study		
				Cluster			Haryana	Karnataka	
				I	II	III			
1	2	3	4	5	6	7	8	9	
ERT	First	1. All Distt/Blocks							
		a) Mean ERT	80.04	90.06	69.03	74.64	70.69	71.84	
		b) S.D. ERT	22.51	21.98	17.42	21.25	26.84	23.84	
		c) cv in %	28.13	24.41	25.24	28.47	37.94	33.19	
		2. Mean ERT for							
		a) MDM Distt/ Blocks	81.67*	89.03	72.45*	77.99*	71.36	N.A.	
	b) Non-MDM/ Blocks	73.32	96.13	58.80	56.81	69.12	N.A.		
	Second	1. All Distt/Blocks							
		a) Mean ERT	76.86	81.11	71.04	79.36	74.05	79.31	
		b) S.D. ERT	20.36	22.65	14.96	19.86	22.09	17.77	
		c) cv in %	26.48	27.92	21.06	25.02	29.84	22.40	
		2. Mean ERT for							
a) MDM Distt/ Blocks		78.90*	82.69	72.50	81.56*	76.05	N.A.		
b) Non-MDM Distt/Blocks	70.78	74.22	68.20	71.98	69.36	N.A.			
ERG	First	1. All Distt / Blocks							
		a) Mean ERG	60.39	71.41	48.28	56.25	52.31	65.25	
		b) S.D. ERG	24.68	21.37	21.23	24.99	24.61	25.45	
		c) cv in %	40.86	31.33	43.98	44.93	47.05	39.00	
		2. Mean ERG for							
		a) MDM Distt/ Blocks	64.03*	72.04	54.01*	61.01*	53.69	N.A.	
b) Non-MDM Distt/Blocks	45.34	67.69	31.11	30.91	49.08	N.A.			

TABLE 5 (Contd.)

1	2	3	4	5	6	7	8
Second	1. All Distt/ Blocks						
	a) Mean ERG	58.46	65.57	48.74	60.82	58.33	73.24
	b) S.D. ERG	28.46	31.19	20.70	26.27	24.45	20.26
	c) cv in %	48.68	47.58	42.48	43.19	41.92	27.66
	2. Mean ERG for						
	a) MDM Distt/ Blocks	62.9 i *	68.49'	53.58 ^b	65.11,*	59.87	N.A.
	b) Non-MDM Distt/Blocks	45.17	52.80	39.44	46.42	54.70	N.A.

(*Significant at 5% level; N.A.—Not Analysed for most of blocks had MDM Programme)

TABLE 6

Multiple R and Analysis of Covariance of ERT

Point of Time	Item of Information	All States	District Level Study			Block Level Study	
			Cluster			Haryana	Karnataka
			I	II	III		
1	2	3	4	5	6	7	8
1. First	a) No. of evs	11	10	10	11	4	5
	b) Multiple R	.71*	.69*	.85*	.84*	.65*	.71*
	c) Adjusted Means for						
	i. MDM Distt/ Blocks	80.86	89.07	70.23	75.07	70.22	N.A.
	ii. Non-MDM Distt/Blocks	79.84	95.90	65.46	72.37	71.79	N.A.
2. Sec- ond	a) No. of evs	9	10	6	8	4	3
	b) Multiple R	.73*	.75*	.77*	.78*	.71*	.62
	c) Adjusted Means for						
	i. MDM Distt/ Blocks	75.60	80.66	71.28	79.18	74.63	N.A.
	ii. Non-MDM Distt/Blocks	77.65	83.09	70.28	75.96	72.68	N.A.
3. Chan- ge	a) No. of evs	6	7	8	9	4	4
	b) Multiple R	.62*	.70*	.68*	.52*	.44*	.51*

(*Significant at 5% level; N.A —Not Analysed)

TABLE 7

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with ERT in the Regression Analysis of District Level Study

Explanatory Variables	All States				Cluster I			
	1973		1978		1973		1978	
	b	r	b	r	b	r	b	r
1	2	3	4	5	6	7	8	9
1. PPTC	4.30*	-.08	.74*	.03	5.35*	.18*	.58*	.07
2. MSHSPTTP	-3.95*	-.004						
3. %FT								
4. %TT			.32*	.16*			.46*	.13
5. PTR	.22*	.26*	.12*	.24*	.23*	.16	.10*	.24*
6. PB	-.18*	-.01	-.19*	.09	-.25*	-.06	-.30*	.23*
7. %VE	.26*	.35*			.29*	.20*		
8. LMRPT T P			.64*	.43*			.74*	.46*
9. %NAC	.29*	.21*	.13*	.02	.31*	.16	.20*	-.17*
10. %CMBTM								
11. %L71/B1	.94*	.43*	.76*	.56*	.80*	.23*	.73*	.48*
12. %SC/STP 71	-.20*	-.27*						
13. %WTP 71/81	-.24*	-.12*						
14. %FWTW 71/81					-.43*	-.09		
15. IDR 71	-.05*	-.02					.27*	.28*
16. %HPPSC								
17. %PSPSH	-.40*	-.13*			-.21*	-.21*		
18. %PFT/O					.53*	.08		
19. %PSTB 73					-.31*	.10		
20. %PFC 73								
21. %PS 73			3.49*	.39*			3.32*	.54*
22. %PFT 73			.31*	.15*			.47*	.24*

(*Significant at 5% level; b—partial regression coefficient and r—correlation coefficient)

TABLE 7 (Contd.)

Explanatory Variables	Cluster II				Cluster III			
	1973		1978		1973		1978	
	b	r	b	r	b	r	b	r
	10	11	12	13	14	15	16	17
1. PPTC	2.00	.35 ^a	1.20 ^a	-.01	3.87	-.05	.53	.04
2. MSHSP TTP								
3. %FF								
4. %TT	.24 ^a	.49					.29 ^a	.21
5. PTP	.25 ^a	.12	.34	.03	.18	.34 ^a	.09	.19
6. PB	.01	.02	-.04	-.22	-.17 ^a	.18 ^a	-.22	.06
7. %VE	.16	.54 ^a			.22	.52 ^a		
8. LMRPTTP	-.45 ^a	.04					.66 ^a	.43 ^a
9. %NAC					.22	.21		
10. %CMBTM								
11. %L 71/81	1.17 ^a	.74	1.08 ^a	.67	.95	.67 ^a	.87 ^a	.64 ^a
12. %SC/STP 71								
13. %WTP 71/81	-.43 ^a	-.19 ^a			-.23 ^a	-.13		
14. %FWTW 71/81	.60	.05						
15. IDR 71	-.07 ^a	.05						
16. %HPPSC					-.18	-.07		
17. %PSPSH			.25 ^a	.37				
18. %PFT/O			.21 ^a	.27	-.30 ^a	-.28 ^a		
19. %PSTB 73								
20. %PFC 73								
21. %PS 73					1.57 ^a	.34 ^a	3.02 ^a	.40 ^a
22. %PFT73					.16	.15 ^a	.28	.12

(^a Significant at 5% level, b—partial regression coefficient and r—correlation coefficient)

TABLE 8

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables in the Regression Analysis of ERG and ERT for Block Level Study

Explanatory Variables	ERT				ERG			
	1976/1973		1981/1979		1976/1973		1981/1979	
	b	r	b	r	b	r	b	r
	2	3	4	5	6	7	8	9
A. Haryana								
1. PPTC	4.82*	.46*	4.24*	.48*	3.90*	.33*	4.80*	.44*
2. MSHSP TTP	9.88*	.46*	10.69*	.59*	9.62*	.39*	13.36*	.57*
3. %FT					.27*	-.01	.21*	-.13*
4. PB	-.29*	-.08	.01	.28*	-.07	.01	.02	.24*
5. %SC/STP 71								
6. %FWTW 71								
7. %WTP 71	-3.22*	-.23*	-2.92*	-.21*	-3.54*	-.30*	-3.91*	-.29*
8. NAC (D)								
B. Karnataka								
1. PPTC					2.16*	.23*		
2. MSHSP TTP	8.10*	.51*	3.87*	.31*	6.01*	.50*	4.57*	.33*
3. %FT								
4. %FTT					-.08*	-.22*		
5. PB	-.43*	-.49*	-.32*	-.32*	-.53*	-.51*	-.38*	-.33*
6. %SC/STP 71	.82*	.06						
7. %FWTW 71	-.87*	-.08	-1.43*	-.35*			-1.70*	-.36*
8. %WTP 71								
9. %NAC (D)	.20*	.14						

(*Significant at 5% level; b—partial regression coefficient; r—correlation coefficient)

20. Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with RRG in the Regression Analysis
21. Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with RRS in the Regression Analysis
22. Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables in the Regression Analysis Block Level Study

TABLE 9

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with Change in CRT

Explanatory variables	All States		Cluster I		Cluster II		Cluster III	
	b	r	b	r	b	r	b	r
1	2	3	4	5	6	7	8	9
1. PPTC								
2. Change in (1)			-1.50	.05				
3. MSHSPTTP					-4.60	-.14		
4. Change in (3)					-3.00	-.17	-2.02	-.03
5. %FT							.35	.03
6. Change in (5)	.48*	.21			.51	-.17	.26	.08
7. %TT								
8. Change in (7)					-.26	-.04	-.21	-.01
9. PTR								
10. Change in (9)	.41	.26*	.51	.46	.30	.56	.42	.33
11. PB	.17*	.10	.21	.28	-.01	-.18	-.05	-.06
12. Change in (11) (CPB)	1.17	-.04	.29	-.08	-.04	.12	-.09	.01
13. %VE								
14. Change in (13)								
15. LMRPTTP								
16. Change in (15)								
17. %NAC								
18. Change in (17)								
19. %L 71							-.47*	-.15*
20. Change in (19)							-.44*	-.05
21. %WTP 71								
22. Change in (21)								
23. %FWTW 71			.30*	.32*				
24. Change in (23)								
25. %HPPSC								
26. Change in (25)			.47*	.05				
27. %PSPSH	.27*	.38*			.25*	.11		
28. Change in (27)								
29. %PFT/O			-.76*	-.46*				
30. Change in (29)	.28*	.09						

(*Significant at 5% level of significance; b—partial regression coefficient; r—correlation coefficient)

TABLE 10

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables in the Regression Analysis of Block Level Study

Explanatory Variables	Change in ERT		Change in ERG	
	b	r	b	r
1	2	3	4	5
A. Haryana				
1. PPTC	34	.07	1.70*	.20*
2. Change in (1)	2.44	.26*	1.11	-.02
3. MSHSPTTP				
4. Change in (3)				
5. %FT				
6. Change in (5)				
7. PB	.27*	.34*	-.07	-.18
8. Change in (7) (CPB)	-.14	.23	.10	.09
B. Karnataka				
1. PPTC				
2. Change in (1)				
3. MSHSPTTP				
4. Change in (3)				
5. %FT	.40*	.13	.54*	.27*
6. Change in (5)	.25	.01	.18	-.11
7. %FTT				
8. Change in (7)				
9. PB	.31*	.43*	.35*	.44*
10. Change in (7) (CPB)	-.12	-.36*	-.10	-.35*

(*Significant at 5% level; b—partial regression coefficient; r—correlation coefficient)

TABLE 11

Multiple R and Analysis of Covariance of ERG

Point of Time	Item of Information	All States	District Level Study			Block Level Study	
			I	Cluster II	III	Haryana	Karnataka
1	2	3	4	5	6	7	8
1. First	a) No. of evs	8	7	8	9	5	4
	b) Multiple R	.73 [*]	.64 [*]	.86 [*]	.86 [*]	.58 [*]	.71 [*]
	c) Adjusted Means for						
	i. MDM Distt/Blocks	61.60 [*]	71.41	5.05 [*]	57.45 [*]	52.85	N.A.
	ii. Non-MDM Distt/Blocks	55.37	71.41	4.14	49.85	51.05	N.A.
2. Second	a) No. of evs	8	3	7	9	5	3
	b) Multiple R	.65 [*]	.50 [*]	.88 [*]	.78 [*]	.72 [*]	.65 [*]
	c) Adjusted Means for						
	i. MDM Distt/Blocks	60.63 [*]	68.20 [*]	50.31 [*]	62.38 [*]	58.41	N.A.
	ii. Non-MDM Distt/Blocks	51.97	54.04	45.68	55.56	58.11	N.A.
3. Change	a) No. of evs	6	4	5	30†	4	4
	b) Multiple R	.41 [*]	.40 [*]	.45 [*]	.38	.31 [*]	.58 [*]

(*Significant at 5% level; N.A.—Not Analysed)

†As value of R was not significant, the regression analysis was not suitable)

TABLE 12

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with ERG in the Regression Analysis in the District Level Study

Explanatory Variables	All States				Cluster I			
	1973		1978		1973		1978	
	b	r	b	r	b	r	b	r
1	2	3	4	5	6	7	8	9
1. PPTC	3.20 ^a	-.12	.62 ^a	.00	2.86 ^a	.07		
2. MSHSPTTP	-4.06 ^a	.01						
3. %FT							.67 ^a	.35 ^a
4. %TT			.37 ^a	.17 ^a				
5. PTR	.22 ^a	.23 ^a	.12 ^a	.20 ^a	.09 ^a	.17 ^a		
6. PB	-.08	.07	.05	.12	-.18	.06	.09	.21 ^a
7. %VE	.27 ^a	.42 ^a			.29 ^a	.36 ^a		
8. LMRPTTP			.73 ^a	.41 ^a			1.54 ^a	.39 ^a
9. %NAC	.21 ^a	.11			.21 ^a	-.01		
10. %CMBTM								
11. %L 71/81	1.30 ^a	.58 ^a	1.36 ^a	.56 ^a	.90 ^a	.45 ^a		
12. %SC/STP 71								
13. %WTP 71/81								
14. %FWTW 71/81								
15. IDR 71								
16. %HPPSC								
17. %PSPSH								
18. %PFT/O	-.38 ^a	-.08 ^a	.34 ^a	-.07	-.27 ^a	-.10		
19. %PSTB 73								
20. %PFC 73								
21. %PS 73								
22. %PFT 73			.42 ^a	.11				

Significant at 5% level; b—partial regression coefficient, r—correlation coefficient)

TABLE 12 (Contd.)

Explanatory Variables	Cluster II				Cluster III			
	1973		1978		1973		1978	
	b	r	b	r	b	r	b	r
1	10	11	12	13	14	15	16	17
1. PPTC	1.87*	-.27*	2.09*	.05	4.17*	-.09	.74*	-.03
2. MSHSPTTP							2.86*	.27*
3. %FT			.27*	.58*	.34*	.53*	.30*	.50*
4. %TT	.30*	.45*						
5. PTR			.21*	-.11	.16*	.30*		
6. PB	.08	.05	.07	-.08	-.07	.18*	.04	.11
7. %VE	.18*	.48*			.21*	.55*	.17*	.47*
8. LMRPTTP			.94*	.57*			.89*	.46*
9. %NAC					.17*	.12		
10. %CMBTM							-.27*	-.15*
11. %L 71/81	1.59*	.78*	1.29*	.76*	1.10*	.76*	.88*	.67*
12. %SC/STP 71	.22*	-.30*					.58*	-.02
13. %WTP 71/81	-.34*	-.10						
14. %FWTW 71/81	.53*	.08	-.24*	-.39*				
15. IDR 71								
16. %HPPSC								
17. %PSPSH								
18. %PFT/O					-.42*	-.32*		
19. %PSTB 73								
20. %PFC 73								
21. %PS 73					1.64*	.34*		
22. %PFT 73								

(*Significant at 5% level; b—partial regression coefficient, r—correlation coefficient)

TABLE 13

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with Change in ERG

Explanatory Variables	All States		Cluster I		Cluster II	
	b	r	b	r	b	r
1	2	3	4	5	6	7
1 PPTC						
2. Change in (1)						
3 MSHSPTTP						
4. Change in (3)						
5 %FT						
6 Change in (5)						
7 %TT					.48*	.31*
8 Change in (7)						
9 PTR						
10 Change in (9)	21.74*	.28*	37.59*	.34*	11.51*	.01
11 PB	.14	.14*	.37*	.18*	.10	.13
12. Change in (11) (CPB)	.02	-.09	.17	-.08	.05	-.13
13. %VE						
14 Change in (13)						
15 LMRPTTP						
16. Change in (15)						
17 %NAC	-.14*	-.18*				
18. Change in (17)						
19. %L 71						
20. Change in (19)						
21. %WTP 71						
22. Change in (21)						
23. %FWTW 71						
24. Change in (23)						
25. %HPPSC						
26. Change in (25)						
27. %PSPSH	.23*	.25*			.23*	.25*
28. Change in (27)						
29. %PFT/O						
30. Change in (29)	.43*	.15*	.71*	.11		

(* Significant at 5% level; b—partial regression coefficients; r—correlation coefficient)

Note: Regression Analysis was not valid in the case of Cluster III

TABLE 14

Distribution of PB in the District and Block Level Study of Retention Rates

Item of Information	District Level Study					
	All States		Cluster I		Cluster II	
	Total	MDM	Total	MDM	Total	MDM
1	2	3	4	5	6	7
A. Study of PRT						
i Total No of Units	206	167	145	118	61	49
ii Mean of PB	15.91	19.62	15.09	18.54	17.85	22.22
iii S.D. of PB	13.45	12.30	13.22	12.27	14.03	12.12
iv cv of PB in %	84.79	62.69	87.61	56.17	78.55	54.54
B. Study of RRG						
i No of Units	206	167	145	118	61	49
ii Mean of PB	15.91	19.62	15.09	18.54	17.85	22.22
iii S.D. of PB	13.49	12.30	13.22	12.27	14.03	12.12
iv cv of PB in %	84.79	62.69	87.61	66.17	78.55	54.54
C. Study of RRS						
i No of Units	191	152	130	103	61	49
ii Mean of PB	14.65	18.41	13.15	16.60	17.85	22.22
iii S.D. of PB	13.07	12.05	12.37	11.66	14.03	12.12
iv cv of PB in %	89.22	65.45	94.05	70.20	78.55	54.54

TABLE 14 (Contd.)

Item of Information	Block Level Study				
	Cluster III		Haryana		Karnataka
	Total	MDM	Total	MDM	
1	8	9	10	11	12
A. Study of RRT					
i. Total No. of Units	151	130	107	75	90
ii. Mean of PB	18.37	21.34	35.24	50.27	25.57
iii. S.D. of PB	14.04	12.86	30.65	24.06	16.13
iv. cv of PB in %	76.47	60.26	86.97	47.88	64.19
B. Study of RRG					
i. No. of Units	151	130	107	75	83
ii. Mean of PB	18.37	21.34	35.24	50.27	25.93
iii. S.D. of PB	14.04	12.88	30.65	24.06	16.59
iv. cv of PB in %	76.47	60.26	86.97	47.88	63.93
C. Study of RRS					
i. No. of Units	136	115	107	75	78
ii. Mean of PB	16.87	19.95	35.24	50.27	25.00
iii. S.D. of PB	13.82	12.81	30.65	24.06	17.06
iv. cv of PB in %	81.95	64.22	86.97	47.88	68.27

TABLE 15

Distribution of Means of RRT, RRG and RRS for Different Sets of Data Arrangement in the District Level Study and in the Block Level Study

Item of Information	District Level Study				Block Level Study	
	All States	Cluster I	Cluster II	Cluster III	Haryana	Karnataka
1	2	3	4	5	6	7
A. Study of RRT						
i. Mean (All Units)	38.78	36.57	44.02	42.61	69.09	46.47
ii. S.D.	17.83	16.52	19.78	18.08	16.52	20.69
iii. cv in %	45.98	45.17	44.93	42.43	23.93	44.52
iv. Mean (MDM Distt/Blocks)	38.02	36.11	46.09	42.36	71.28*	N.C.
v. Mean (Non-MDM Distt/Blocks)	37.60	38.55	35.61	44.16	63.96	N.C.
B. Study of RRG						
i. Mean (All Units)	34.29	32.07	39.58	38.95	63.39	40.24
ii. S.D.	18.61	17.41	20.38	18.10	17.07	19.45
iii. cv in %	54.28	54.31	51.49	46.48	26.68	48.34
iv. Mean (MDM Distt/Blocks)	35.08*	31.98	42.55*	39.09	64.22	N.C.
v. Mean (Non-MDM Distt/Blocks)	30.90	32.45	27.41	38.08	63.45	N.C.
C. Study of RRS						
i. Mean (All Units)	29.80	28.71	32.13	28.97	65.39	44.49
ii. S.D.	17.88	16.50	20.45	19.13	24.82	27.36
iii. cv in %	59.98	57.48	63.65	66.05	37.96	61.49
iv. Mean (MDM Distt/Blocks)	29.44	27.27	34.00	28.57	63.85	N.C.
v. Mean (Non-MDM Distt/Blocks)	31.22	34.23	24.47	31.45	68.98	N.C.

(*Means of Districts/Blocks with MDM Programme were significantly different than means of those without MDM Programme, N.C.—Not computed because all the blocks had MDM Programme)

TABLE 16

Multiple P and Analysis of Covariance of RRT

<i>Item of Information</i>	<i>All States</i>	<i>Cluster I</i>	<i>Cluster II</i>	<i>Cluster III</i>
1	2	3	4	5
1. District Level Study				
a) No. of evs used	9	6	6	7
b) Multiple R	.81 [*]	.75 [*]	.87 [*]	.85
c) Adjusted Means for				
i) MDM Districts	38.64	35.86	45.09	42.70
ii) Non-MDM Distts	39.36	35.69	39.67	42.09
2. Block Level Study, Haryana				
a) No. of evs used	3			
b) Multiple R	.38 [*]			
c) Adjusted Mean				
i) MDM Blocks	71.23 [*]			
ii) Non-MDM Blocks	64.09			
3. Block Level Study, Karnataka				
a) No. of evs used	3			
b) Multiple R	.54 [*]			

(^{*} Significant at 5% level)

TABLE 17

Multiple R and Analysis of Covariance of RRG

<i>Item of Information</i>	<i>All States</i>	<i>Cluster I</i>	<i>Cluster II</i>	<i>Cluster III</i>
1	2	3	4	5
1. District Level Study				
a) No. of evs used		4	6	6
b) Multiple R	.80*	.73*	.85*	.81*
c) Adjusted Mean				
i) MDM Districts	34.67	31.86	40.29	39.38
ii) Non-MDM Distts	32.67	32.98	36.67	36.29
2. Block Level Study, Haryana				
a) No. of evs used	2			
b) Multiple R	.25*			
c) Adjusted Means for				
i) MDM Blocks	64.58			
ii) Non-MDM Blocks	62.60			
3. Block Level Study, Karnataka				
a) No. of evs used	2			
b) Multiple R	.57*			

(*Significant at 5% level)

TABLE 18

Multiple R and Analysis of Covariance of RRS

<i>Item of Information</i>	<i>All States</i>	<i>Cluster I</i>	<i>Cluster II</i>	<i>Cluster III</i>
1	2	3	4	5
1. District Level Study				
a) No. of evs used	10	6	6	10
b) Multiple R	.65*	.44*	.88*	.78*
c) Adjusted Mean				
i) MDM Districts	29.51	28.04	31.65	28.54
ii) Non-MDM Distts	30.94	31.28	34.09	31.32
2. Block Level Study, Haryana				
a) No. of evs used	3			
b) Multiple R	.33*			
c) Adjusted Mean				
i) MDM Blocks	63.55			
ii) Non-MDM Blocks	69.67			
3. Block Level Study, Karnataka				
a) No. of evs used	2			
b) Multiple R	.35*			

(* Significant at 5% level of significance)

TABLE 19

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with RRT in the Regression Analysis

Explanatory Variables	All States		Cluster I		Cluster II		Cluster III	
	b	r	b	r	b	r	b	r
1	2	3	4	5	6	7	8	9
1 PPTC								
2. MSHSP TTP								
3 %FT			.35*	.55*	-.28*	.44*		
4 %TT					.48*	.63*	.31*	.53*
5 PTR								
6. PB	.05	.03	-.00	.16*	.19	.26*	.07	-.10
7. %VE	.08	.61*	.11*	.55				
8 LMRPTTP								
9 %NAC	.13*	.14*			.29*	.64*	.12*	.26*
10. %CMBTM	.43	.47*					.29*	.36*
11. %L 71 81	.77*	.57*	.34*	.59*	.98*	.73*	.93*	.63*
12. %SC STP 71	-.16	-.17*						
13. %WTP 71 81	-.36*	-.13					-.48*	-.23*
14. %FWTW 71 81								
15 IDR 71								
16. %HPPSC	.25	.17*			.34*	.55*	.27*	.22*
17. %PSPSH	-.13	.28*						
18. %PFT 0								
19. %PSTB 73								
20. %PFC 73								
21. %PS 73			.40*	.46*				
22. %PFT 73			-.22*	-.10				

(Significant at 5% level)

Note: Complete names of variables are given at Appendix I

TABLE 20

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with RRG in the Regression Analysis

Explanatory variables	All States		Cluster I		Cluster II		Cluster III	
	b	r	b	r	b	r	b	r
	2	3	4	5	6	7	8	9
1. PPTC								
2. MSHSPTTP					5.98*	.08		
3. %FT			.46*	.66*				
4. %TT	.13*	.27*						
5. PTR							.35*	.48*
6. PB	.11	.06	.06	.17*	.11	-.20	.06	-.07
7. %VE			.19*	.55*	.21*	.66*		
8. LMRPTTP								
9. %NAC	.16*	.13						
10. %CMBTM	.38*	.46*						
11. %L 71/81	.93*	.59*	.29*	.60*	.62*	.75*	.21*	.30*
12. %SC/STP 71							.92*	.63*
13. %WTP 71/81	-.36*	-.13						
14. %FWTW 71/81					-1.41*	-.56*	-.61*	-.23*
15. IDR 71								
16. %HPPSC	-.34*	.19*						
17. %PSPSH					.34*	.53*	.33*	.24*
18. %PFT/O								
19. %PSTB 73								
20. %PFC 73								
21. %FS 73								
22. %PFT 73								

(*Significant at 5% level)

Note: Complete names of explanatory variables are given at Appendix I

TABLE 21

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables with RRS in the Regression Analysis

Explanatory Variables	All Stations		Cluster I		Cluster II		Cluster III	
	b	r	b	r	b	r	b	r
1	2	3	4	5	6	7	8	9
1. PPTC					-1.74 ^a	-.36 ^a		
2. MSHSPTTP								
3. %FT			.25 ^a	.21 ^a				
4. %TT	.32 ^a	.25 ^a	.30 ^a	.11			.41 ^a	.31 ^a
5. PTR							-.09 ^a	-.25 ^a
6. PB	.10	-.16 ^a	-.01	-.14	-.08	-.23	.03	-.17 ^a
7. %VE	.19 ^a	.35 ^a					.25 ^a	.49 ^a
8. LMRPTTP							-.56 ^a	.10
9. %NAC	.12 ^a	.27 ^a						
10. %CMBTM	.16 ^a	.08					.41 ^a	.18 ^a
11. %L 71/81	.53	.25 ^a			1.06 ^a	.71 ^a	.60 ^a	.32 ^a
12. %SC/STP 71	-.38 ^a	.16 ^a	-.30 ^a	-.04	-.30 ^a	-.41 ^a	-.48 ^a	-.17 ^a
13. %WTP 71/81								
14. %FWTW 71/81								
15. IDR 71								
16. %HPPSC								
17. %PSF'S:H	-.28 ^a	.04						
18. %PFT/O							.30 ^a	.18 ^a
19. %PST8 73	-.47 ^a	-.26 ^a	-.32 ^a	-.03				
20. %PFC 73					6.84 ^a	.65 ^a		
21. %PS 73								
22. %PFT 73	.47 ^a	-.01 ^a	.29 ^a	.02	.74 ^a	-.11	.89 ^a	.02

(*Significant at 5% level)

Note: Complete names of explanatory variables are given in Appendix I

TABLE 22

Partial Regression Coefficients and Correlation Coefficients of Explanatory Variables in the Regression Analysis Block Level Study

Explanatory Variables	ARR		RRG		RRS	
	b	r	b	r	b	r
1	2	3	4	5	6	7
A. Haryana						
1. PPTC					3.52*	1.73*
2. MSHSPTTP						
3. %FT	-.17*	-.23*				
4. PB	.09	.22*	.01	-.004	-.003	.09
5. %SC/STP 71						
6. %FWTW 71						
7. %WTP 71	-2.44*	-.19*	-2.59*	-.25*	-3.58*	-.21*
8. %NAC(D)						
B. Karnataka						
1. PPTC						
2. MSHSPTTP						
3. %FT	.54*	.40*	.89*	.54*	.80*	.30*
4. %FTT						
5. %PB	.12	.12	.20	.18	.26	.17
6. %SC/STP 71						
7. %FWTW 71	-1.22*	-.44*				
8. %WTP 71						
9. %NAC(D)						

(*Significant at 5% level)

Note: Complete names of explanatory variables are given in Appendix III