

ASSESSING THE ROLE OF THE MID-DAY MEAL SCHEME IN STRENGTHENING SCHOOL EDUCATION IN INDIA: A SOCIO-ECONOMIC PERSPECTIVE

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Abstract

The present study attempts to examine the impact of Mid-Day Meal scheme on the development of educational system in the elementary (I-VIII) level in India at both aggregated and disaggregated level during 2011-15. The study chooses three indicators to assess the performance of the educational system in India at elementary level which are- level wise enrolment of school children, drop-out rate of the school children at the elementary level, learning achievement of the school children and lastly gender parity index in India for the years 2011-15. The study explores that for primary classes(I-V), the enrolment for both boys and girls has fallen significantly. It appears that MDMS fails to boost the level wise enrolment in elementary classes and check the drop-out rate of the school children as they proceed to the next level of education. But the scheme is quite successful in improving the learning achievement of school children in India at both primary and upper primary level of education. The high rate of drop out especially in the upper primary section indicates that an effective redistributive policy is necessary in under resourced areas in order to contribute to higher educational attainment to reap long run benefits of education.

Keywords: Mid-Day Meal, Gross Enrolment Ratio, Learning Achievement, Gender Parity Index

Introduction

The National Programme of Nutritional Support to Primary Education (NP-NSPE) popularly known as Mid Day Meal (MDM) scheme began in the year 1995 with the aim to cover all students in elementary classes (I-VIII) in Government, Government aided Schools & Madrasas. Initially, the scheme started with distribution of dry meals in the form of fruit bread, baked porridge, raw wheat, rice and sweet/salted Mathis. In 2001 the scheme was converted to Cooked Mid Day Meal Scheme under which every child in every Government and Government aided primary school was to be served a prepared Mid-Day Meal with a minimum content of 300 calories of energy and 8–12-gram protein per day for a minimum of 200 days. The Scheme was further extended in 2002 to cover not only children studying in Government, Government aided and local body schools, but also children studying in Education Guarantee Scheme (EGS) and Alternative & Innovative Education (AIE) centres. The Scheme was further revised in April 2008, to extend the programme to all recognized as well as unrecognized Madarsas and Maqtabas.

The objective of this study is to find out how the Mid-Day Meal Scheme benefits the educational attainment of elementary school children in India at both primary and upper primary levels. For this purpose, the study wants to explore the effects of MDM programme on enrolment, dropout rate and learning achievement of school going children of elementary classes(I-VIII) in the country during the period 2011 to 2015. In this context, the study also

attempts to verify whether MDMS is successful in bridging the gender gap in the education sector in India.

The rest of the paper is organised as follows. In section 2, we briefly discuss the selected volume of literature in connection with the impact and benefits of Mid-Day Meal programme in India. Section 3 derives the methodological framework for evaluating the effects of mid-day meal programme on the educational attainment of school children of elementary classes on the basis of enrolment, drop out and learning achievements in India at both primary and upper primary classes. In section 4, we present the coverage and analysis of the data collected for the purpose of our study. Section 5 empirically analyses the role of mid-day meal programme on the school children in India at elementary level. Section 6 concludes the paper.

II. Survey of Selected Literature

The purpose of this study is to explore the role of mid-day meal programme in enhancing enrolment, decreasing the dropout rate and improving learning achievement of elementary school children at all India level. Though there is a varied and diverse literature on the impact of mid-day meal programme on the school children in India but very few literatures are available exploring the effects of this programme on the learning achievement of the school children in the age group 6-14. Rajan and Jayakumar (1992) attempt to analyze the impact of Noon meal programme on primary education on the basis of enrolment, attendance and drop out on the basis of primary data in the Nagercoil district of Tamilnadu and find that Mid-day meal programme has a significant positive impact on enrolment and attendance of primary school children. Laxmaiah, Sarma, Rao et. Al (1999), attempts to assess the effect of the Mid-Day Meal (MDM) Program on enrolment, attendance, dropout rate and retention rate in the schools and its impact on nutritional status as well as on school performance of children in elementary schools Drèze and Goyal (2003) present one of the earliest evaluations of the scheme through a survey in the states of Chhattisgarh, Rajasthan and Karnataka. They find an increase in school enrollment after the introduction of the scheme with a particularly high jump for girls (19 per cent). They also identify the spillover effects of this scheme in promoting gender equity through the reduction of implicit costs associated with educating girls. Khera (2006) reviews evidence from nine field studies and government documents to understand how the scheme actually works on the ground. Farzana (2011) in his article assesses the effect of transition from monthly distribution of free food grains to the daily provision of free cooked meals to school children on enrolments and attendance in a rural area of India. The results suggest that programme transition had a significant impact on improving the daily participation rates of children in lower grades. Bonds (2012) in her study evaluates the Mid-Day Meal Program by estimating the impact of receipt of the program on primary school enrollment. Results indicate that the school feeding program was extremely successful in raising enrollment rates, particularly among children from the lowest socio-economic backgrounds. A study by Jayaraman and Simroth (2015) provides a large-scale assessment of the enrollment effects of India's midday meal scheme. Using a panel dataset of more than 420,000 schools observed annually from 2002 to 2004, the study finds that midday meals result in substantial increases in primary school enrollment, driven by early primary school responses to the programme. Singh and Gupta (2015) have identified four important areas for achieving the goal of Education for all. These are Access to Education, Enrolment of children, and Retention of the enrolled children as well as in academic achievement. Their study evaluates the impact of mid day meal scheme on those four broad areas in Uttar Pradesh. Results show that MDM scheme proved a major mean in improving enrollment and attendance comparatively. Chakraborty and Jayaraman (2016) carried out a study to analyze

the effect of the world's largest school feeding program on children's learning outcomes. Their study found that midday meals have a dramatic positive effect on learning achievement for children with up to 5 years of primary school exposure improve their test scores by approximately 10-20%. Brahma and Mukherjee (2017) using state-level data on India's Mid-Day Meal program, investigates if funds disbursed and food-grains supplied for the purpose can actually serve as good determinants of number of children covered by the scheme. Sofi (2017) in his study analyzes the impact of mid-day meal programs on enrolment and dropout rate of students at primary level in the districts of Pulwama and Srinagar in Jammu and Kashmir. The study finds that mid-day meal scheme has a significant impact on enrolment and dropout rate of students at primary level.

The survey of literature reveals that very few studies are found so far to the best of the knowledge of the present researcher which empirically verify the impact of India's free school lunch programme on educational attainment of elementary school children in India. The present research work will concern with this and will make modest contribution to fill this gap by investigating the role of mid day meal programme in improving the gender wise educational status of school children in India at both primary and upper primary level during 2011-15.

III. Methodology

To evaluate the contribution of Mid-day Meal programme in educational development in India we have used three education indicators namely, i) the enrolment of elementary school children, ii) the average annual drop-out rate of the school children and iii) the learning achievement of school children at both primary(classes I-V) and upper primary(VI-VII) levels for both sexes(boys and girls). We have compared the behavior and movements of these three variables at both level wise(Class wise) as well as gender wise during the period 2011-15 to ascertain if the Mid Day Meal programme has positively influenced the educational performance of the school children at both primary and upper primary levels in India. In this context the study measures the average annual growth rate of these three variables during the period of study and attempts to find out whether these three education indicators have significantly improved during this particular period. The study also tries to search the role of MDMS in boosting the morale of gender equity by evaluating the gender parity index (GPI) in India level wise.

In this context, the study analyses the different components and year wise budget allocation for Mid-Day Meal Scheme in India during the five year study period. We have evaluated the growth rate of children covered under this programme along with the budgetary contribution of the government. In this respect we have measured the average annual growth rate of food grain allocation, budget allocation and total amount released by the government for this purpose to evaluate the performance of this scheme in developing the educational structure in India for the children aged 6-14 years during the period 2011-15.

IV. Data and Sources

For the purpose of our study we have used three indicators of educational development namely, level wise enrolment of children, gross enrolment ratio(GER), drop out rate of elementary school children at both aggregated and disaggregated levels(both primary and upper primary) and level wise learning achievement of the school children in India during this five year period. Gender parity index is used to assess the role of mid day meal scheme in reducing the gender gap in terms of school education in India.

The data for level wise enrolment of children, GER, drop out rate of school children, gender parity index in the age group 6-14 are obtained from Educational Statistics at a Glance 2018, published by Department of School Education & Literacy Division, Govt. of India, Ministry of Human Resource. To estimate the learning achievement of school children at both primary and upper primary level of education we have used the primary and lower secondary completion rate of the school children in India during the study period. The World Bank and the UNESCO Institute for Statistics jointly developed both the primary completion rate and upper primary or lower secondary completion rate indicators. Increasingly used as a core indicator of an education system's performance, it reflects an education system's coverage and the educational attainment of students. As the data for the year 2012 is not available we have estimated the approximate value of these two variables with the help of interpolation method.

Next, we have analysed the components and year wise budget allocation by the government in Mid-Day Meal scheme in the country for the years 2011-15. For this purpose, we have evaluated the data of children (in crores) covered under this scheme, total food grain allocation (in lakh MTS), total budget allocation and total release of funds both in crores of rupees, which are obtained from Education Statistics, published by MHRD, Govt. of India, various years. With the help of this data the study makes a modest attempt to verify whether Mid-Day Meal scheme plays the role of a positive catalyst in improving the educational status of elementary school children in India.

V. Results and Analysis

The objective of the Mid Day Meal programme is to boost the universalization of Elementary Education in the country by increasing enrolment, attendance, retention and simultaneously improving the nutritional status of children in elementary classes. The cost of the MDMS is shared between the central and state governments. The central government provides free food grains to the states. The cost of cooking, infrastructure development, transportation of food grains and payment of honorarium to cooks and helpers is shared by the centre with the state governments. The central government provides a greater share of funds while the contribution of state governments differs from state to state. Table 1 presents the components and Year wise Budget allocation in Mid-Day Meal Scheme during 2011-16.

From Table 1 it appears that the number of children covered under Mid-Day Meal programme has decreased over the years. It covered 10.54 lakh children in the year 2011-12 which comes down to 9.78 lakh in the year 2016-17. In fact it is estimated that the number of children covered under MDMS has decreased considerably at the rate of 1.765 percent (Table A.1) annually during these six years. The food grain allocation by the central government has also declined during the study period. During 2011-12, it was 29.09 lakh metric tons but allocation of food grains falls to 27.17 lakh metric tons in the year 2016-17.

Table- 1

Components and Year wise Budget allocation in Mid Day Meal Scheme during 2011-16

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Children Covered(in cr)	10.54	10.68	10.80	10.22	10.03	9.78
Food grain allocation(in lakh MTS)	29.09	29.55	29.77	29.33	28.83	27.17
Budget Allocation(in	10380	11937	13215	13215	9236.40	9700

Cr)						
Total Release(in Cr)	9901.91	10868	10927.21	10526.97	9151.55	9483.4

Data Source: Ministry of Human Resource Development, Government of India

It is evident that the average annual decrease in food grain allocation during 2011-16 was 1.23 percent, though the rate of decrease was not that significant. Both the budget allocation by the union government for Mid-Day Meal scheme and the total release of funds for this very purpose has fallen over the years. So, it can be inferred from the above table that MDMS has failed to provide right to education to the elementary school children in India.

Our next task is to find out the contribution of Mid-Day Meal programme on the educational status of school children in India in the age group 6-14. For this purpose, we have analysed the movement of the three educational performance indicators in India, i.e., level wise enrolment and gross enrolment rate, drop-out rate and learning achievement of the school children at both primary and upper primary levels.

i) Level wise Enrolment of Elementary School Children

Table 2 shows level wise enrolment of elementary school children sex wise as well as for both primary and upper primary levels. It is clear from this table that the enrolment of elementary school children (both boys and girls) decreases during the study period. For primary classes(I-V), the enrolment for both boys and girls has fallen significantly. But the result is quite different for upper primary classes(VI-VIII). In upper primary section, enrolment for both boys and girls has increased significantly. It is also interesting to note that in upper primary classes the increase in enrolment of girls is higher than that of boys.

Table-2

Level wise Enrolment of Elementary School Children in India (in Lakhs)

Year	Primary			Upper Primary			Elementary		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2011	726	672	1398	331	299	630	1057	971	2028
2012	696	652	1348	333	317	650	1029	969	1998
2013	686	638	1324	341	323	664	1027	961	1988
2014	676	629	1305	345	327	672	1021	954	1975
2015	669	622	1291	347	329	676	1016	951	1967
Mean	690.6	642.6	1333.2	339.4	319	658.4	1030	961.2	1991.6
SD	22.266	19.895	42.068	7.127	12.083	18.729	15.937	8.843	23.437

Data Source:Ministry of Human Resource Development, Government of India / National Institute of Educational Planning & Administration, New Delhi.

So it can be pointed out from the above analysis that Mid-Day Meal programme could not improve the overall number of enrolment of children in the age group 6-14 and therefore fails to fulfill its objective of universalizing the education system in India.

Further we have examined the Gross Enrolment Rate (GER) of elementary school children in India during 2011-15. Table 3 reveals that in primary classes (I-V), GER shows declining trend for both boys and girls. In fact the percentage rate of decline in GER variable for girls

(2.178 percent) is much more prominent than boys(1.7888 percent) as clear from Table A.2. But the result is different for upper primary level (see fig-1). In upper primary level the GER variable shows a sharp increase for girls (4.8138 percent annually) compared to the boys(annual average increase of 1.581 percent) during the period of observation.

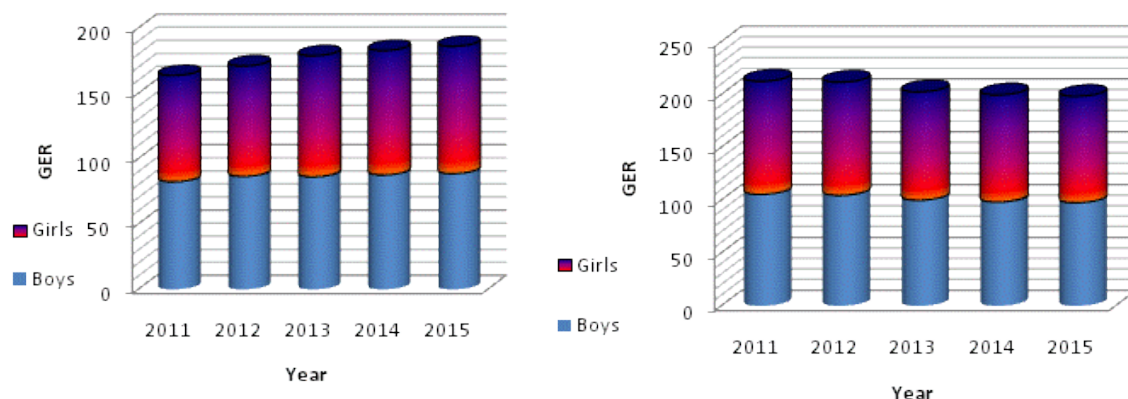
Table-3
Level wise Gross Enrolment Rate (GER) for Elementary school children in India

Year	Primary(I-V)			Upper Primary(VI-VIII)			Elementary(I-VIII)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2011	105.8	107.1	106.5	82.5	81.4	82	97.2	97.6	97.4
2012	104.8	107.2	106	86.6	84.6	82.5	95.6	98.6	97
2013	100.2	102.65	101.36	86.31	92.75	89.33	95.1	99.1	97
2014	98.85	101.43	100.08	87.71	95.29	91.24	94.8	99.2	96.9
2015	97.87	100.69	99.21	88.72	97.57	92.81	94.5	99.6	96.9
Mean	101.43	103.81	102.63	86.37	90.32	87.58	95.44	98.82	97.04
SD	3.648	3.125	3.397	2.364	6.99	5.019	1.064	0.769	0.207

Data Source:Ministry of Human Resource Development, Government of India / National Institute of Educational Planning & Administration, New Delhi.

Table 3 also underlines the fact that there is level wise variation in the GER indicator. In fact there is major difference between the values of GER variable at primary and upper primary levels indicating the fact that more and more children drop out as they proceed to the next level of education. The GER variable is also represented in Fig-1 for elementary school children in India, during 2011-15 at both primary and upper primary level which indicates that while GER follows a rising trend at primary level, for upper primary level GER shows a declining trend.

Fig-1
Gross Enrolment Rate at Elementary Level in India



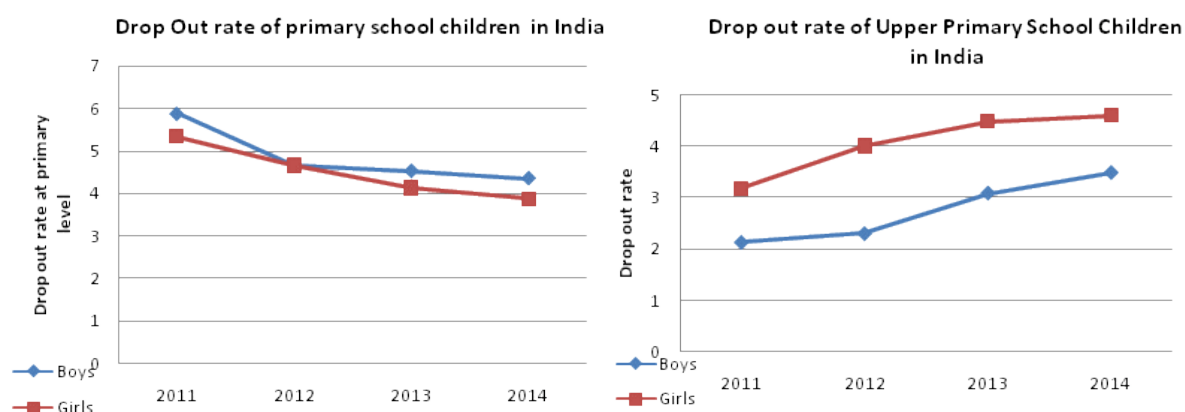
So it is evident from the above analysis that the objective of the government to universalize the right of education by introducing the Mid-Day meal programme remains unaccomplished.

ii) Average Annual Drop Out Rate

This subsection tries to find out whether the Mid-Day Meal Scheme in India has any positive influence on drop-out rate at elementary level of education. Table 4 and Fig-2 explore the behavior of average annual dropout rate for elementary school children in India.

Fig-2

Average annual Drop Out rate of Elementary school children in India



It is quite clear from both Fig-2 and Table-4 that the average annual rate of dropout of both genders is higher at the upper primary level compared to that of primary level, signifying the fact that more number of students leave schools as they go up to the higher classes.

Table-4

Average annual drop- out rate in India

Year	Primary(I-V)			Upper Primary(V-VIII)		
	Boys	Girls	Total	Boys	Girls	Total
2011	5.89	5.34	5.62	2.13	3.20	2.65
2012	4.68	4.66	4.67	2.3	4.01	3.13
2013	4.53	4.14	4.34	3.09	4.49	3.77
2014	4.36	3.88	4.12	3.49	4.6	4.045
2015	NA	NA	4.13	NA	NA	4.6
Mean	4.865	4.505	4.576	2.7525	4.075	3.639
SD	0.696	0.6442	0.6247	0.6455	0.6371	0.7653

Data Source: Ministry of Human Resource Development, Government of India / National Institute of Educational Planning & Administration, New Delhi

At primary level, the drop-out rate falls at an average rate of 7.414 percent per annum compared to upper primary level where it rises at 10.948 percent (Table A.2) annually. Though the drop-out rate declines for both sexes in primary classes, it increases consistently for both genders in upper primary classes. The gender wise study of the dropout rate also reveals that the average annual drop-out rate of girls at upper primary level is much higher than that of boys questioning the very objective of gender equity through universalizing education system in India.

So the above analysis indicates that though the Mid-Day Meal programme has significantly decreased the drop out rate at the primary level it failed to restrict the rising dropout rate at upper primary level, in India according to our period of study.

iii) Learning Achievement of Elementary School Children in India

To measure the impact of Mid Day Meal programme on the learning achievement of the school children in India in elementary classes, we have evaluated both primary and upper primary completion rate of school children in India during 2011-15. The primary and upper primary completion rate of school children in India as a percentage of relevant age group are presented in Table-5 and Fig-3.

Table-5
Learning Achievement of Elementary School Children in India

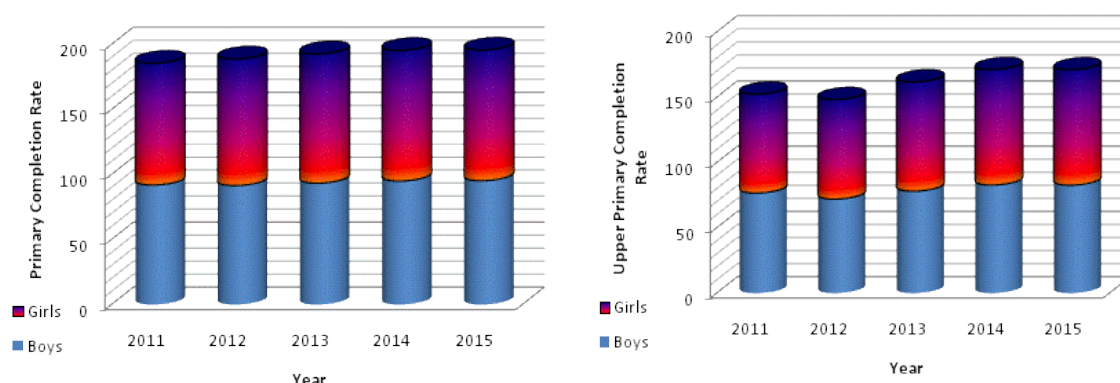
Year	Primary Completion Rate(% of relevant age group)			Upper Primary Completion Rate(% of relevant age group)		
	Boys	Girls	Total	Boys	Girls	Total
2011	92.019	93.6	92.763	76.797	75.687	76.274
2012	93.427	99.32	96.201	72.113	76.29	74.079
2013	95.064	99.32	96.201	78.178	83.716	80.785
2014	95.293	100.388	97.571	82.893	88.44	85.504
2015	94.192	100.422	97.711	82.8	88.395	85.434
Mean	93.5965	98.2567	95.792	79.311	83.5835	81.322
SD	1.5462	2.5698	1.9329	4.4419	6.1863	5.1611

Data source: UNESCO Institute for Statistics

From the given data it appears that the completion rate is higher for girls at both primary and upper primary levels, compared to boys during the study period. Level wise analysis reveals that completion rate declines as children are attaining higher level of education.

Fig-3

Learning Achievement of Elementary school children in India



So from Figure 3 it appears that learning achievement decreases with higher level of education. Gender wise comparison indicates that average annual growth rate of primary and upper primary education completion rate is higher for females (1.03 percent for primary completion and 3.729 percent for upper primary completion rate) compared to that of males

(2.84 percent primary completion rate and 2.476 percent as upper primary completion rate) as evident from Table-A.2 in Appendix.

So this analysis states that Mid-Day Meal scheme is successful in fulfilling one of its objective like improvement in learning achievement of the elementary school children in India during 2011-15. The study explores that both primary and upper primary completion rate have risen considerably for both genders during the study period. The higher educational achievement of girls compared to boys become a silver lining for the educational system in India. But a primary completion rate of less than 100 percent is an area of major concern for educational system in India as indicated by Table 5.

iv) Gender Equality in Elementary education in India

The practice of gender discrimination in food allocation is very common in Indian households. This gender disparity in Indian society transforms from family to education sector. One of the important objectives of Mid-day meal programme is to promote gender equality. Its aim is to contribute to an increase in female enrolment over male enrolment thus reducing the gender gap in education. This subsection wants to explore whether MDMS is successful in bridging the gender gap in elementary level of education in India. For this purpose we have evaluated the Gender Parity Index at both primary and upper primary level of education during the period 2011-15. With the emphasis of education for all, gender parity in education helps to compare the participation in and opportunities for schooling between females and males. Table 6 gives the year wise gender parity index in India.

Table-6
Gender Parity Index at Elementary Level of Education in India

Year	Primary	Upper Primary	Elementary
2011	1.01	0.99	1.00
2012	1.02	1.05	1.03
2013	1.03	1.08	1.04
2014	1.03	1.09	1.05
2015	1.03	1.10	1.05
Average	1.024	1.062	1.034

Data Source: Ministry of Human Resource Development, Government of India / National Institute of Educational Planning & Administration, New Delhi

It is clear from Table 6 that in case of India GPI value greater than one in both primary and upper primary level of education indicates a disparity in favour of females in the education sector in India. It is also observed that gender parity index remains almost static at primary level during 2013-14 whereas GPI at upper primary level shows a steady rise over the years. The greater than 1 GPI value shows reduction of gender gap in elementary level of education in India. This indicates stronger role of women in decision making process both social and economic in the country. Therefore, it can be said that Mid-Day meal programme acts as a positive catalyst in achieving the goal of gender equality in India.

Conclusion

The present study attempts to examine the impact of Mid-Day Meal scheme on the development of educational system in the elementary (I-VIII) level in India at both aggregated and disaggregated level during 2011-15. It is observed that both the budget

allocation by the union government for Mid Day Meal scheme and the total release of funds for this very purpose has fallen over the years. The study chooses three indicators to assess the performance of the educational system in India at elementary level. These three indicators are- level wise enrolment of school children, drop out rate of the school children at the elementary level, learning achievement of the school children(measured in terms of both primary and secondary completion rate) and lastly gender parity index in India for the years 2011-15. The study explores that for primary classes(I-V), the enrolment for both boys and girls has fallen significantly. But the result is quite different for upper primary classes (VI-VIII). In upper primary section, enrolment for both boys and girls has increased significantly. It is also interesting to note that in upper primary classes the increase in enrolment of girls is higher than that of boys. The same is also true for gross enrolment rate (GER). This underlines the fact that more and more children drop out as they proceed to the next level of education. Though the drop-out rate declines for both sexes in primary classes, it increases consistently for both genders for upper primary classes. The gender wise study of the drop-out rate reveals that the average annual drop-out rate of girls at upper primary level is much higher than that of boys questioning the very objective of gender equity through universalizing education system in India. The study reveals that both primary and upper primary completion rate have risen significantly for both genders during the study period and girls fare better than boys at both primary and upper primary level. Lastly, greater than one gender parity index at both aggregated and disaggregated level of elementary education shows that Mid-Day Meal programme is trying to reduce gender disparity in the education sector in India. So, it can be inferred that MDMS fails to boost the level wise enrolment in elementary classes and check the dropout rate of the school children as they proceed to the next level of education. But the scheme is quite successful in improving the learning achievement of school children in India at both primary and upper primary level of education. The study further reveals that Mid-Day Meal scheme is aiming towards bridging the gender gap in the educational attainment of elementary school children in India thus indicating a stronger role of women in both social and economic decision-making process.

Education plays an integral role in the developing process of a nation. Mid-Day Meal programme is one of the major policy initiatives on the part of the government that provide access to primary education for children in the lowest socio-economic levels paving the way for future generations to receive equal opportunities in education and employment. The high rate of drop out especially in the upper primary section indicates that an effective redistributive policy is necessary in under resourced areas in order to contribute to higher educational attainment to reap long run benefits of education. By making funding information more publicly available, increasing checks on local schools, and establishing penalties for non-compliance, the program can be more effective for long term gains in education, social and labour market outcomes. It is therefore beneficial for the central government to continue allocating funds to the school feeding program in order to increase human capital formation for future economic development of the country.

Appendix

Table- A.1

Percentage rate of growth of Components and year wise allocation of Mid Day Meal Scheme, 2011-16

Components	Annual avg growth rate
Children covered	-1.765

	(-3.287)*
Food grain allocation	-1.229 (-1.946)
Budget allocation	-3.20 (-0.8269)
Total release	-2.197 (-1.337)

*t values are significant at 5 percent level

Table-A.2

Percentage rate of growth of different indicators of Children education in India, 2011-15

Education Variables	Primary			Upper Primary		
	Boys	Girls	Total	Boys	Girls	Total
GER	-1.788 (-4.862)*	-2.178 (-6.068)*	-1.99 (-5.611)*	1.581 (3.639)*	4.814 (6.980)*	3.483 (5.528)*
Dropout Rate	-9.349 (-2.787)	-10.765 (-9.313)*	-7.414 (-3.742)*	17.766 (6.208)*	12.018 (3.768)	10.949 (4.715)*
Learning Achievement	0.723 (2.8406)*	1.031 (2.1235)	0.8715 (2.701)*	2.4759 (2.788)*	3.7296 (4.909)*	3.0752 (3.981)*

*t values are significant at 5percent level (p< 0.05)

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