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Problems and prospects of primary education in Mathura district: A geographical analysis

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Distribution and availability of primary education act as a vital factor in regional as well as human resource development. The present paper aims at assessing spatial problems of primary education among the blocks of Mathura district. This study was based on secondary sources of data. A total of eighteen selected variables were grouped into the three categories of primary educational attainment, primary educational facilities and socio-economic development. Statistical techniques like composite z-score and correlation have been applied to the data sets. The study revealed that at the block level there was unequal distribution of attainment in primary education. It is also interesting to note that the low level of attainment in primary education was mainly due to the socio-economic conditions of people rather than the educational facilities available in the blocks.

Key words: Universalization, curriculum, human resource, labor market and primary education.

INTRODUCTION

Primary education is the major concern of all nations, since it is the foundation of the entire superstructure of education and is directly related to success of democracy. Its universalization has been taken as an international challenge; a national commitment and an important concern of states over the last fifty years. Primary education is the base for the development of human resource. During the period of primary education, the child is at least made competent to be able to exchange his ideas, understanding things and put his ideas and feelings for the comprehension of others (Pathania and Pathania, 2006). The positive efforts of primary education in developing countries, both from private and social point of view are especially apparent (Marshall, 2004). The theory that education makes people more productive in the labor market and more able citizens of the society is now well established (Hanushek, 1986).

The age of primary schooling is defined as 6 - 10 years. This corresponds to grades 1 to 5 and it is sometimes referred to as lower primary. A large number of researches suggested that completion of at least five to six years of schooling is a critical threshold for sustainable mastery of basic competencies such as literacy and numeracy. In less than five to six years of schooling, children remain functionally illiterate for rest of their lives (Kumar, 2005). However, despite the high returns to education, many primary aged children in developing countries are not enrolled in primary school. Increase in drop out rate, decrease in attainment rate, lack of infrastructural facilities, indifferent attitude of teachers towards students, high pupil-teacher ratio, ineffective curriculum and vague understanding of the benefits of education among the parents of children are some of the major ills plaguing primary educational scenario in India.

According to the World Bank (1999) "successful development entails more than investing in physical capital or closing the gap in capital. It also entails acquiring and using knowledge as well as closing the gaps in knowledge." (Quoted, Odia and Omofonmwan, 2007). This is particularly pertinent in India, where primary education has historically been neglected by the state, with educational expenditures being concentrated on the tertiary sector (Dreze and Sen, 1995). The direct relationship between attainment in primary education and human resource development forced the Government of India to universalization of primary education through legislation. Sarva Shiksha Abhiyan was the central legislation earmarked in 2001. It gives emphasis on the fact that all children should be in schools of different kind by 2003; completion of primary schooling by 2007; completion of 8 years of elementary schooling by 2010 (Padhi, 2004). Despite that, primary education is not

homogeneously spread either in states or even with in the state, due to the various problems. To identify the problems in the primary education, numbers of studies have taken place. Some of the available relevant works concerned with the study are presented here. Prasad and Sharma (1982), Grover (1988) and Panda (2001) have assessed the better provision of physical facilities in schools with a motive to reduce wastage. Muthukumaran (2008) found the cause of dropout at primary schools as due to lack of facilities and amenities. Raza (1990) studied the inter-district variation in accessibility of schools in terms of population coverage and the mean distance. Barua (1999) highlighted the common problems such as sitting; basic facilities etc. existing in the schools. Penusamy and Sudarsan (2001) observed the regional disparities and rural urban background in teaching and learning climate at primary level. Bhalotra and Zamera (2006) examine the primary school attendance and primary school completion rate in India. There exists a relationship between educational, regional, economic or social development analysis by Dube and Misra (1981), Chaudhary and Nair (1981), Singh (1986), Siddiqui and Yadav (2004) and Mustaquim et al. (2006). Some scholars like, Rafiullah and Siddiqui (1981), Kumar (1982), Dash (1993), Joshi (2000) and Yasmeen et al. (2005) highlight the development of educational level and its relation with some independent variables of socio-economic development. With this background an attempt is made in this paper to analyze the spatial problems of primary education and suggest the effective measures to solve the problems in Mathura district.

OBJECTIVES

This paper was pursued with the following objectives:

i) To address the micro-regional variations in the attainment of primary education in Mathura district.
ii) To examine the causal relationships between the variables of attainment in primary education with variables of primary educational facilities and socio-economic development.
iii) Finally suggest some suitable measures which can help to achieve hundred percent attainments in primary education.

DATA BASE AND METHODOLOGY

Data for the present analysis have been obtained from the Office of *Basic Shiksha Adhikari* (B.S.A.) Mathura, 2007 - 2008, District Statistical Handbook (2007 - 2008), and the Census of Uttar Pradesh, 2001 from Directorate of Census Operations, Lucknow, U.P. The present study used block (a block is an administrative unit within a district) as a smallest unit of analysis.

To achieve the objectives mentioned above, the relevant method of quantitative analysis has been employed. All the variables are grouped into three broad categories of attainment in primary

education, primary educational facilities and socio-economic development. After this, all variables were standardized by z-score technique, and finally z-score value of each variable was aggregated to find out the composite z-score (CS) for each block. The model is as follows:

$$CS = \frac{\sum z_{ij}}{N}$$

Where, $\sum z_{ij} =$ sum of z-score of indicators j in block I and N is the number of indicators.

To analysis the degree of association between two or more variables that is, between dependent variables (attainment in primary education) and the independent variables (primary educational facilities and socio-economic development) Karl Pearson's techniques of co-relation has been applied.

Study area

Mathura district, where this study was being undertaken is located in the western part of Uttar Pradesh. It lies between parallels of latitudes 27°14' to 27°58' North and longitudinal extension 77°17' to 77°58' East, covering a geographical area of 3340 km² (Figure 1). It is bounded on the north by state of Haryana and Aligarh district; in the south by Agra district; in the east by Hathras district; and in the west by state of Rajasthan. The district has been divided into three *tehsils* namely, Chhata, Mathura and Mant. These *tehsils* are further subdivided into ten blocks - Nandgaon, Chhata, Chaumha, Goverdhan, Mathura, Farah, Baldeo, Mant, Nohjheel and Raya. Mathura district as part of Indo-Gangetic plain has almost level plain and fertile soil. It lies in the basin of river Yamuna, which flows more or less in the Middle of the district from north to south. Total population of Mathura is 2.07 million out of which 54.4% are males and 45.6% are females according to the latest census (2001). Total literacy rate in the district is 61.5% which is below the national average of 64.8% (2001), male literacy rate 76.5% and literacy rate among females is 43.3%. Economically the study area is well developed in terms of good agricultural practices, industrialization and tourism.

RESULTS AND DISCUSSION

This part of the study analyzes the spatial distribution of the level of attainment in primary education, primary educational facilities and socio-economic condition at block level in the study area.

Level of attainment in primary education (APE)

Attainment in primary education have been measured with the help of four variables that is, percent of the total number of children going to primary schools, percent of boys going to primary school, percent of primary school girls and percent of the total schedule castes (SC) children going to primary schools. Table 1 shows the spatial variation in attainment in primary education in terms of their composite z-score (CS) values at the block level. The blocks of Mathura district have been arranged
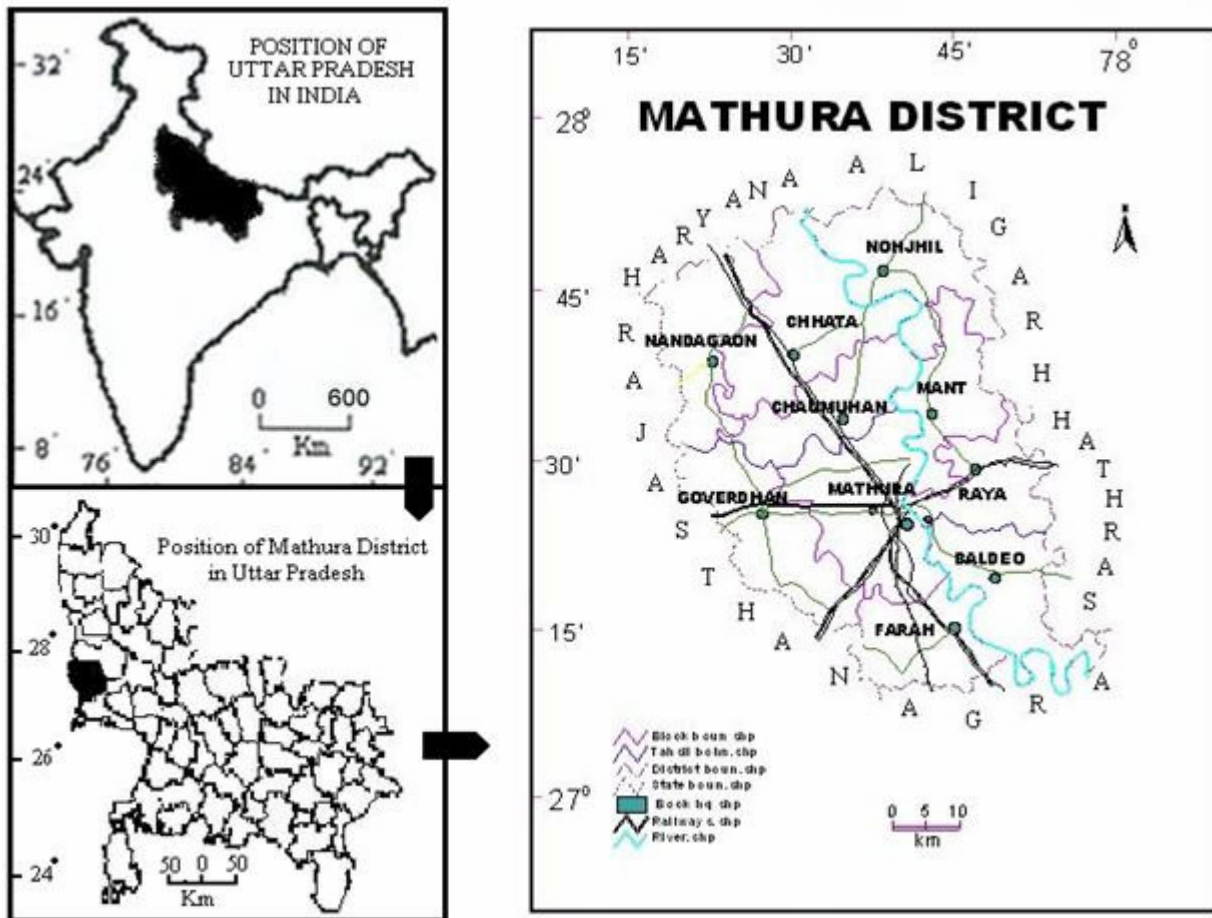
Figure 1. Location of Mathura district within India.

Table 1. Mathura district: Value of composite z-score.

Blocks	CS values		
	Primary education	**Educational facilities**	**Socio-economic development**
Nandgaon	-0.503	0.094	-0.185
Chhata	0.342	0.157	-0.474
Chaumuha	-0.168	0.189	-0.263
Goverdhan	-1.183	-0.315	-0.276
Mathura	0.991	-0.260	0.256
Farah	-1.549	-0.146	-0.080
Nohjheel	0.488	0.230	0.136
Mant	0.188	-0.008	0.082
Raya	1.891	0.041	0.821
Baldeo	-0.557	0.008	0.029

CS values indicate composite z-score values all the variables. Source: Computed by author from BSA, Mathura, 2007 – 2008.

into three groups of high (> 0.461), medium (-0.461 to 0.461), and low (< –0.461) on the basis of their CS values of attainment in primary education.

As shown in the Table 2, only three blocks were marked in the high level APE. Three blocks of this category are from two regions. One region with Mathura

Table 2. Mathura district: Level of attainment in primary education.

Category	Composite mean z-score	No. of blocks	Name of the blocks
High	>0.461	3	Mathura, Nohjheel, Raya
Medium	-0.461 to 0.461	3	Chaumuha, Mant, Chhata
Low	<-0.461	4	Nandgaon, Goverdhan, Farah, Baldeo

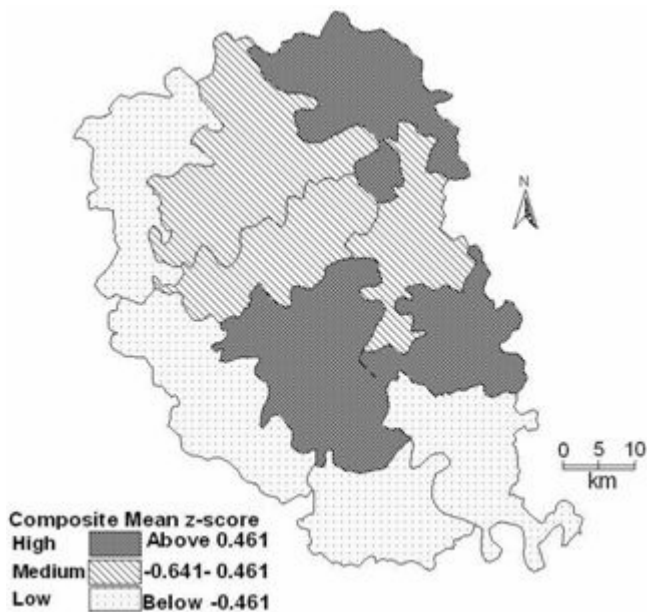Source: Computed by author from BSA, Mathura, 2007 – 2008.

Figure 2. Levels of attainment in primary education, Mathura district, 2007 – 2008.

and Raya blocks is situated in the centre part whereas the other region with Nohjheel block is located in the north-western part. Highest CS value of APE was observed in Raya (1.891) block, followed by Mathura (0.991) block and Nohjheel (0.488) block.

Three blocks are marked in the medium category namely: Chaumuha, Mant and Chhata and all these blocks form a region located in the northern part of the study area. The maximum CS value in this category was noted in Chhata (0.342) block and lowest in Chaumuha (-0.168) block. Mant block with CS value 0.188 is another block of medium category. The CS value of the four blocks marked below –0.461. All these four blocks including Farah (-1.549), Goverdhan (-1.183), Baldeo (-0.557) and Nandgaon (-0.503) were of low grade and forms a region from north to south in the eastern part of Mathura district (Figure 2).

Levels of primary educational facilities (PEF)

The spatial variation of indicators of primary educational facilities has been studied at the block level in Mathura

district. It is generally believed that primary educational facilities of a region are responsible for spatial variations in the levels of attainment in primary education at that region. A total of eight indicators has been selected on the bases of their relevance to find out the levels of primary educational facilities and are classified into the pupil teacher ratio (PTR), pupil school ratio (PSR), school teacher ratio (STR), number of primary schools per lakh (0.1 million) of population, number of upper primary schools per lakh (0.1 million) of population, total number of private primary schools, percentage availability of drinking water facilities in the primary schools and percentage availability of toilet facilities in the primary schools. The composite z-score (CS) values of these indicators has been obtained for each block and on the bases of their values, all the blocks were grouped into three grades high (> +0.086), medium (-0.086 to 0.086) and low (< -0.086) level as shown in Table 3.

High composite z-score value indicated that, there is good availability of primary educational facilities in that block while low value indicated vise-versa. High grade (> +0.086) is noted in four blocks of the study area. All four blocks are arranged according to their descending CS value and highest value is noted in Nohjheel (0.230) block followed by Chaumuha (0.189), Chhata (0.157) and lastly Nandgaon (0.094). All four blocks touch the board of each other forming a compact region in the northern part of Mathura district (Figure 3).

Three district blocks were noted in medium grade (-0.086 to 0.086): Mant (-0.008), Raya (0.041) and Baldeo (0.008). All three blocks formed a region in the eastern part of Mathura district. Low grade (< -0.086) of primary school facilities were also marked in three blocks. It includes the blocks of Goverdhan (-0.315), Mathura (-0.260) and Farah (-0.146) and these blocks are situated in the southern part of the study area.
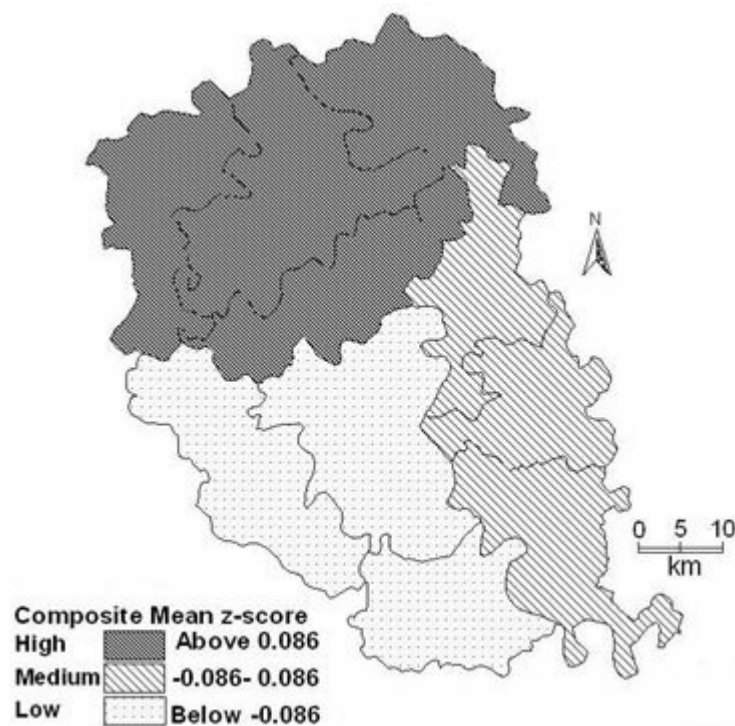
Levels of socio-economic development

Educational attainment of any region was highly influenced by the socio-economic conditions of population living in that region. Enrolment in primary education was especially very much depending on the living standard of parents. So it was also necessary to measure the levels of socio-economic development in the blocks. For this analysis six indicators were taken, namely, the total literacy rate, percentage of schedule

Table 3. Mathura district: Level of primary educational facilities.

Category	Composite mean z-score	No. of blocks	Name of the blocks
High	>0.086	4	Nandgaon, Chhata, Chaumuha, Nohjheel
Medium	- 0.086 to 0.086	3	Mant, Raya, Baldeo
Low	<-0.086	3	Mathura, Goverdhan, Farah

Source: Computed by author from BSA, Mathura and Statistical Handbook, 2007 - 2008.

Figure 3. Levels of primary educational facilities, Mathura district, 2007 – 2008.

caste population, percentage of urban population, average size of household, per capita income (which controls economic development) and density of metaled road (length/1000 km^2). To find out spatial pattern in the levels of socio-economic development in the district, composite z-score (CS) value have been calculated for each block as shown in Table 1 and on the basis of their CS value, the blocks have been grouped into three grades of high (> +0.157), medium (-0.157 to 0.157) and low (< –0.157).

High level of socio-economic development was observed in only two blocks of the district. Raya with CS value of 0.821 reflects highest level of socio-economic development and Mathura (0.256), another block of high grade. Both blocks form a region in the centre part of the district (Table 4).

Nohjheel (0.136), Mant (0.082), Baldeo (-0.029) and Farah (-0.080) blocks showed medium level of socio-economic development. All these blocks formed two regions of two-two blocks each. First such region was noted in the southern part and the other in the north-eastern part of the study area (Figure 4). As in the medium grade, four blocks were also noted in the low grade. Chhata (-0.474) block which is at the low ladder of the socio–economic development is preceded by Goverdhan (-0.276), Chaumuha (-0.263) and Nandgaon (-0.185) blocks. The regions of low grade appeared in the northern and eastern part of the study area.

Dimension and spatial relationships of variables

An attempt has been made in this part of the study to find out the dimension and spatial relationship between the

Table 4. Mathura district: Level of socio-economic development.

Category	Composite mean z-score	No. of blocks	Name of the blocks
High	>0.157	2	Mathura, Raya
Medium	- 0.157 to 0.157	4	Nohjheel, Mant, Baldeo, Farah
Low	<- 0.157	4	Nandgaon, Goverdhan, Chhata, Chaumuha

Source: Computed by author from census of India and Statistical Handbook, 2007 – 2008.
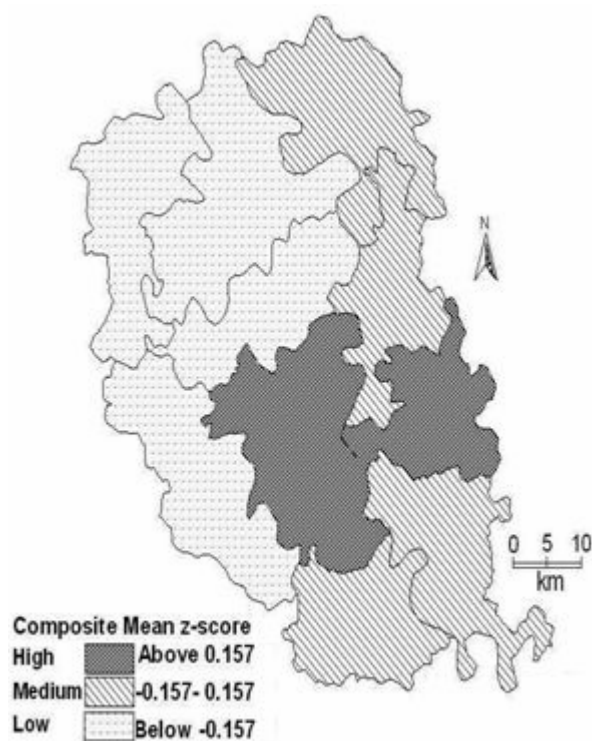

Figure 4. Levels of socio-economic development, Mathura district.

variables. Dimension was measured first between attainment in primary education and primary educational facilities and secondly between attainment in primary education and socio-economic development.

Attainment in primary education (APE) vs. primary educational facilities (PEF)

Three blocks marked their appearance in the high level of attainment in primary education (APE) but out of three blocks, Mathura, Nohjheel and Raya, only Nohjheel was noted in the category of high level of primary educational facilities (PEF), and Raya showed in the category with a medium level of educational facilities (Figure 5). In the category with a medium level of APE, three blocks, Chaumuha, Mant and Chhata are noted. Only Mant fall in the medium category of primary educational facilities, where Chaumuha and Chhata have been recorded in the

high category of PEF. Two blocks Farah and Goverdhan, categorized under low level of both APE and PEF, where Baldeo appeared in the category of low level of APE and medium level of PEF. Baldeo block was noted in the low level of APE but showed high level of PEF. Mathura was the only block where APE appeared high and PEF was low. So it has been observed that, two blocks Mathura and Baldeo showed inverse relationship between APE and PEF. In spite of that, the value of the correlation between attainment in primary education and primary educational facilities were 0.265. It may therefore be generalized that the literacy and educational facilities were positively correlated.

Attainment in primary education (APE) vs. socio-economic development

Attainment in primary education and socio-economic development showed that three blocks, Mathura, Nohjheel and Raya falls under the category of high level of attainment in primary education (APE); of these, two (Mathura and Raya) blocks have high level of socio-economic development, on the other hand Nohjheel block categorized in medium level of socio-economic development (Figure 6). Only three blocks of the study area namely Chaumuha, Mant and Chhata, were noted in medium level of APE. Out of these three blocks Mant block marked in the medium level of socio-economic development. Whereas the remaining two blocks, Chaumuha and Chhata, were categorized in the low level of socio-economic development. Low level of APE and socio-economic development was noted in Goverdhan and Nandgaon blocks. On the other hand, low level of APE and medium level of socio-economic development was observed in Farah and Baldeo blocks. It has been noted that, no single block of high level of APE falls under low level of socio-economic development and vice-versa. The value of correlation between the APE and socio-economic development is 0.693. So we may say that socio-economic condition is more closely related with attainment in primary education than the primary educational facilities in the district.

Significance test of relationship

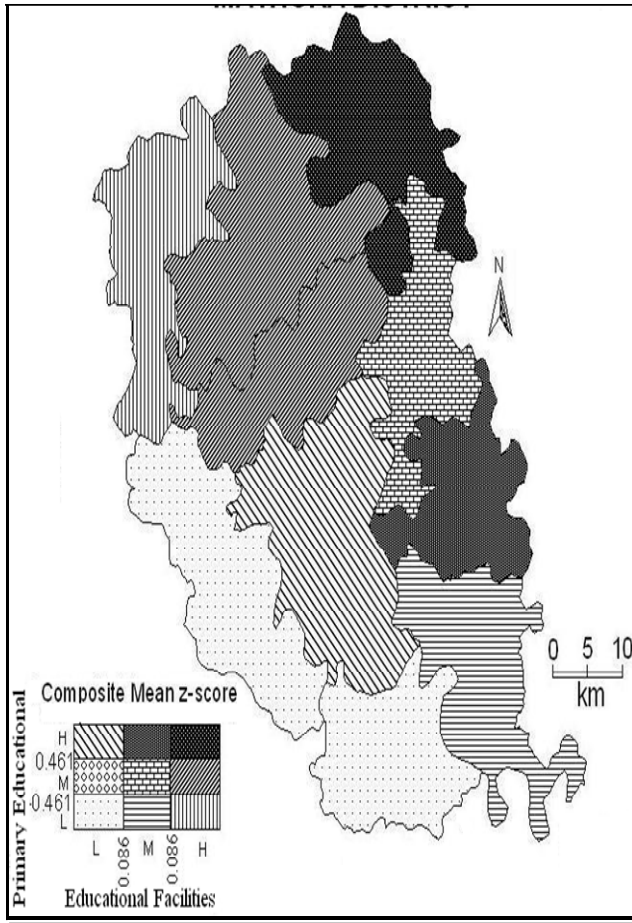Finally, efforts has been made to work out relationships

Figure 5. Association between primary education and educational facilities, Mathura district.
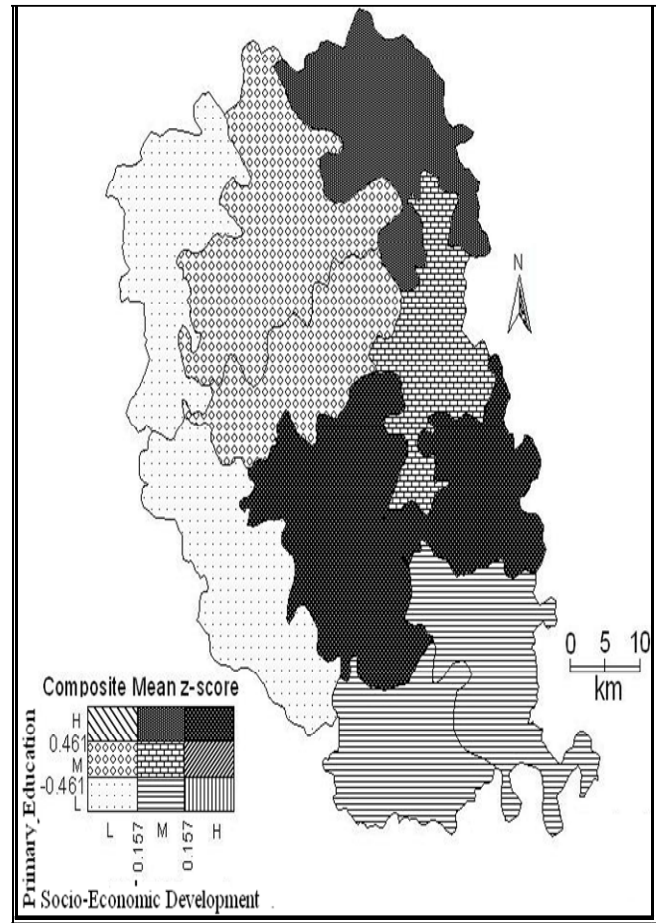

Figure 6. Association between primary education and socio-economic development, Mathura district.

between dependent variables { total attainment in primary education (Y_1), boys (Y_2), girls (Y_3) and SC (Y_4)} and independent variables (primary educational facilities and socio-economic development) have been analyzed and tested.

The values of correlation coefficient in Table 5 revealed that total attainment in primary education (Y_1) is positively correlated with per capita income (r = 0.894) at 5% level of significance and also positively correlated with the number of private primary schools (r = 0.710) at 1% level of significance. This value reveals that, with an increase of per capita income and the number of private primary schools, the study area can achieve higher rate of total attainment in primary education. Also the Table 5 data revealed that total primary education attainment was also positively related with percentage of urban population, density of metalled road (length/1000 km^2), school-teacher ratio, number of upper primary schools per lakh persons and number of upper primary schools with water facility, while it is negatively correlated with SC population, total literate, average family size, pupil-school ratio, number of primary schools per lakh and primary school with toilet facility without any significant level. The

direction of the relationship proves that primary educational attainment can be increased by percentage of urban population, density of metalled road (length/1000 km^2), school-teacher ratio, number of upper primary schools per lakh persons and number of upper primary schools with water facility.

The variables of boys primary education in primary attainment was positively correlated with per capita income (r = 0.931) and the number of private primary schools (r = 0.708) at 5 and 1% level of significance, respectively. This also reveals the above findings. There are same trends of relationship as total primary attainment. The variables of girl's primary attainment have also been positively related above mentioned variables, where 'r' value is 0.750 and 0.646 at 5 and 1% level, of significance, respectively. This suggests that the variables per capita income and number of private primary schools was related with, both boys and girls in primary education on the one hand; while primary educational attainment of SC was also positively correlated with the above mentioned variables, with 'r' value 0.793 and 0.620 at 5 and 1% level of significance, respectively.

Table 5. Correlation coefficient (r) between attainment in primary education and socio-economic and educational facilities, Mathura district.

Independent variables of socio–economic development and educational facilities	Attainment in primary education			
	Total (Y_1)	Boys (Y_2)	Girls (Y_3)	S.C. (Y_4)
Percent of schedule castes population (X_1)	-0.069	-0.193	0.128	0.064
Percent of total literate (X_2)	0.371	0.280	0.485	0.412
Percent of urban population (X_3)	0.233	0.229	0.230	0.018
Average size of family (X_4)	-0.295	-0.277	-0.328	-0.291
Per capita income (X_5)	0.894**	0.931**	0.750**	0.793**
Density of metalled roads in 1000/km^2 (X_6)	0.246	0.219	0.275	0.255
No of private primary schools (X_7)	0.710*	0.708*	0.646*	0.620*
Pupil–school ratio (X_8)	-0.166	-0.178	-0.156	-0.641
Pupil-teacher ratio (X_9)	0.198	0.209	0.125	-0.002
School teacher ratio (X_{10})	-0.415	-0.409	-0.375	-0.502
No. of primary schools per lakh person(X_{11})	-0.125	-0.105	-0.130	-0.165
No. of upper primary schools per lakh person X_{12})	0.090	0.115	0.035	0.328
Percent of primary school with water facility (X_{13})	0.138	0.055	0.274	0.369
Percent of primary school with toilet facility (X_{14})	-0.300	-0.250	-0.355	-0.272

** and * indicate statistical significance at the 1 and 5% level, respectively. Source: Computed by Author from census of India and District Statistical Handbook, 2007 – 2008.

Conclusion

This study showed that there were great spatial variations in the children's attainment in primary education at the block level in Mathura district. The blocks like Raya and Mathura showed attainment of children in primary school with more than 95%, where Farah and Goverdhan blocks showed this ratio below 85%. The co-relation results showed that, both indicators that is, primary education facilities and socio-economic development were positively influenced by the attainment of children at primary level of education in the study area. But the influences of the socio-economic conditions on the attainment in primary education, was more pronounced than availability of facilities for the primary education. This showed that attainment of children in primary education was determined by the wish of parents rather than the children themselves.

Factors like per capita income (X_5) and number of private primary schools (X_7) are positive factors in the improvement of attainment in primary education, where pupil-school ratio (X_8) and average size of household (X_4) are the leading factors in creating the variation in attainment in primary education for both the sexes including SC primary attainment. We may say that the problem of primary education in Mathura district are still serious, inspite of many government-run programms like SSA, mid-day meal etc. that they have to tackle as early as possible. So particular measures should be taken, like increasing the employment rate in rural areas, transformation of technology, knowledge or ideas from urban to rural areas and increase in the numbers of private schools can bring the homogeneity and increase the rate of attainment in primary education in the Mathura district. If it is not possible to implement these measures soon under the present circumstances, the universalization of primary education is bound to remain a slogan in the study area.

ACKNOWLEDGEMENT

REFERENCES

Barua K (1999). Plight of Rural Primary Schools, The Primary Teachers. 24: 39-43.
Bhalotra S, Zaamera B (2006). Primary Education in India Prospects of Meeting the MDG Target, United Nations University, Research Paper No. 2006/08. pp.1-13.
Chaudhary MD, Nair KPG (1981). Rural-Urban Disparity in Literary: Inter-State Variation in India, Indian J. Region. Sci. 30(1): 22-37.
Dreze J, Sen A (1995). India: Economic Development and Social Opportunity, New Delhi: Oxford University Press.
Dube RS, Mishra RO (1981). Level of Education – A Versatile Indicator of Regional Development, Geogr. Revi. India. 43(3): 278-285.
Durh TR (1993). Regional Inequalities in Educational Development in Orissa, Indian J. Region. Sci., 25(1): 19-29.
Grover I (1988). Enrolment and Retention Trends in Primary Education in a Rural Community in Haryana: Longitudinal Perspective, Indian Edu. Rev., 12(4): 129-134.
Hanushek EA (1986). The Economics of Schooling: Production and Efficiency in Public Schools. J. Econ. Lit., 24: 1141-1177.
Joshi H (2000). Educational Development in India: Spatio-Temporal Appraisal, Indian J. Region. Sci., 13(2): 87-93.
Kumar UR (1982). Rural Disparities in Educational Development in Karnataka. In Bhat LS et al. (eds.) Regional Inequalities in India, New Delhi, pp. 244-269.

Kumar N (2005). Primary Education in India Initiatives and Prospects, Kurukshetra: J. Rural Dev. 53(8): 9-19.

Marshall JH (2004). If you build it will they come? The Effects of School Quality on Primary School Attendance in Rural Guatemala, Dissertation, Stanford University.

Mustaquim M, Ahmad A, Ali MJ (2006). Regional Imbalances in the Levels of Literacy and its Determinants in West Bengal: A Quantitative Analysis, Punjab Geogr. 1(2): 99-111.

Muthukumaran S (2008). Prospects and Relevance of School Curriculum, The Hindu, 10 Feb., 2008. p.14.

Odia LO, Omofonmwan (2007). Educational System in Nigeria Problems and Prospects. J Soc. Sci. 14(1): 81-86.

Padhi DK (2004). Serva Shiksha Abhiyan in Arunachal Pradesh, Kurukshetra. J. Rural Dev. 52(11): 36-38.

Panda BN (2001). Indicators of Quality Learning Achievement of Primary School Children of Orissa, The Primary Teachers. 26: 30-41.

Pathania A, Pathania K (2006). Primary Education and Mid-Day Meal Scheme, Deep and Deep Publications Pvt. Ltd., New Delhi. p. 3.

Ponnusamy P, Sudarsan S (2001). Attitude of Teachers Towards Joyful Learning Approach at Primary School Level, The Primary Teachers. 26: 22-25.

Prasad E, Sharma R (1982). Wastage, Stagnation and Inequality of Opportunity in Rural Primary Education – A case study of Andhra Pradesh Research Report, ASCI, Hyderabad.

Rafiullah SM, Siddiqui FA (1981). Analysis of Occupation Regions of Uttar Pradesh. Nat"l Geogr. J. India. 30(1): 21-30.

Raza (1990). School Education in India, The Regional Dimension, New Delhi, NIEPA.

Siddiqui FA, Yadav S (2005). Health and Educational Development in Aligarh District, the Geographer. 52(2): 6-13.

Singh A (1986). Agricultural Population in Urban Centers of Varanasi City Region – A Geographical Analysis. Nat'l Geogr. J. India. 32(1): 40-48.

Yasmeen N, Siddiqui FA, Khan K (2005). Dimensions of Educational Development and Its Correlates in Western Uttar Pradesh. Indian J. Region. Sci., 37(1): 101-110.