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SPATIAL DIMENSIONS OF LITERACY AND SOCIAL DEVELOPMENT IN UTTAR PRADESH

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Abstract

Literacy is an indispensable tool for communication, learning and understanding the world around us. It is the first step in educating the people. Thus, it is a vital precondition for individual and national development. Social development is the core of development which leads to the betterment of human quality and life. Therefore, literacy is the axis of social development which is ultimately the supreme virtue of human life. Based on Census data by districts, this study attempts to analyze the spatial variations in levels of literacy and social development in the state of Uttar Pradesh. To fulfill the objectives, z score, correlation coefficient and t-test techniques have been used in this study. The study reveals that 48 per cent districts of the state have recorded high level of literacy rate, while 45 per cent districts witnessed high level of social development. Similarly, 35 per cent and 39 per cent districts have respectively registered low level of literacy rate and social development. It has been found that 69 per cent districts of the state show remarkable positive relationship between literacy and social development. The analysis reveals that the levels of literacy and social development are relatively high in western and southern parts of Uttar Pradesh.

Keywords: Literacy, Learning, Education, Development, Society.

Introduction

Literacy facilitates the acquisition of specific skills and helps in bringing about a rationalization of attitudes. Literacy is the first step of learning and knowledge building. Lack of education is the major factor for multiple inabilities, unawareness and inaccessibility therefore, a focus on literacy is treated as a key-input for social development, which is universally recognized (Adhikari and Kamle, 2010). Literacy is an important social element and it is a good measure for human progress. It is essential for social

reconstruction and improvement in quality of life. Education inculcates new ideas for betterment of society in particular and the nation in general (Jhariya and Jain, 2014). Literacy is essential for socio-cultural advancement of an area. It is not only an important indicator of quality of population, but also a crucial factor for demographic and socio-economic transformation (Gosal, 1999). Literacy plays a prominent role in influencing the quality of human resources as it helps in conveying ideas, thoughts and events over time and space. Therefore, it is an

instrument for conveying and containing information. Female literacy in particular, has its own role in the process of improvement of general literacy therefore, has been brought under special focus. Several researchers, planners and policy makers have stressed that literacy is the starting point of progress in human life (Gosal, 1979; Street, 1984; Ramchandran, 2006; Mustaquim, et al., 2006; Ali, 2009; Singh, 2011; Bharati and Tripathi, 2011).

Social development leads to transformation of society. It provides individuals and societies more control over their own destiny (Singh, 2008). Social development is a strategy of planned intervention to improve the capacity of existing social systems to cope with the demand of change and growth. It also leads to the process of institutional change to bring about a balance between human needs and social paradigm. Literacy levels and inequities therein, are impacted by the process of social development. At the same time, levels of education are also instrumental in shaping dynamics of social development. In fact, literacy and social development mutually reinforce each other and are interdependent. One cannot happen without the other. At the global level, levels of social development and literacy transitions (from illiteracy to literacy) have gone hand in hand. One cannot envisage a universally literate society without social development and vice-versa. Of course, once the illiteracy barrier is broken and a society is initiated into the transformation process, it leads towards progressively higher and varied levels of education (Mehta and Kahlon, 2010). It is broadly felt and accepted that education is a tool to alter the opinions and tendencies of the people and cultivate in them a sense of accountability and trust. Therefore, dissemination of education can contribute

dominantly in the process of social development (Singh, 2011). Education is a crucial social factor that plays a pivotal role in initiation of process of socio-cultural advancement. The development of education and literacy makes a person more enhanced, developed, aware, informative and knowledgeable (Kapur, 2018). Literacy brings about progressiveness in the lives of individuals, economically, administratively, politically and socially. In the light of this, an effort has been made in this study to analyze the spatial variations in levels of literacy as well as levels of social development and to identify the magnitudes of the degree of relationship between literacy and social development in Uttar Pradesh.

Objectives of the Study

Major objectives of the study are:

- to analyze the spatial variations in the levels of literacy and social development in the state of Uttar Pradesh and
- to study the relationship between levels of literacy and levels of social development.

Study Area

Uttar Pradesh, is located between the latitudes of 23° 52' 06" to 30° 25' 11" north and longitudes of 77° 04' 45" to 84° 38' 21" east. Administratively, the state has been divided into 47 districts (Fig.1). The state is one of the most populous states of India, contributing 16.49 per cent population, against 7.34 per cent of its share in the geographical area of the country. Density of population in the state is 829 persons per km² against national average of 382 persons per km². However, the state recorded less sex ratio of 912 females per thousand males against 943 registered by the country as a whole.



Fig. 1

Similarly, level of urbanization (22.28 per cent) is quite low as compared to the national average of 31.16 per cent. General rate of literacy is 67.68 per cent, while male and female literacy rates are 77.28 and 57.18 per cent, respectively. The economy is based mainly on agriculture as 65 per cent of the total population is dependent on it. Therefore, contribution of agricultural sector is quite significant in economic development of the state. Uttar Pradesh has witnessed rapid industrialization in the recent past, particularly after economic liberalization in the country. There are numerous types of minerals and many industries have come up based on these minerals. From demographic-socio-cultural and economic point of view, the state represents the typical Indian conditions.

Database and Methodology

Secondary data, obtained from Census of India, (2011) have been used in the present study. Data for the year 2014 have also been collected from the Directorate of Economics and Statistics, Uttar Pradesh. To identify the levels of literacy, three variables of total literacy rate, male literacy rate and female literacy rate have been taken up. Similarly, for assessment of the levels of social development, thirteen variables like, percentage of urban population (x_1), percentage of rural population (x_2), rural female literacy rate (x_3), percentage of scheduled castes population (x_4), scheduled castes literacy rate (x_5), male scheduled castes literacy rate (x_6), female scheduled castes literacy rate (x_7), percentage of females adopting family planning (all methods) to total married female population (x_8), number of schools (junior basic schools, senior basic schools and higher secondary schools) per lakh of population (x_9), number of school students per lakh of

population (x_{10}), number of medical hospitals/dispensaries per lakh of population (x_{11}), number of hospital beds per lakh of population (x_{12}) and number of doctors per lakh of population (x_{13}). These variables have been selected keeping in mind the diversification in social development. In order to examine the spatial variations in the levels of literacy and social development z scores have been computed. Further, composite mean z scores have been calculated by summing up the z scores of all the variables and divided by the number of variables. The causal relationship between level of literacy and variables of social development has been examined by applying Karl Pearson's method of correlation. Nature and extent of their relationship has been tested by applying t-test to find out the levels of significance.

Results and Discussion

Levels of Literacy

The levels of literacy have been calculated by taking into account three variables of literacy, i.e. general literacy rate, male literacy rate and female literacy rate. District-wise composite mean z scores have been calculated. The values of scores vary widely from 2.09 of Kanpur Nagar district to -2.44 of Shrawasti district with an overall average of 0.01 for the state as a whole. About 58 per cent districts have the scores above the state average on the positive scale. The districts have been divided into five categories of areas (Fig. 2).

Areas of Very High Level of Literacy

Eighteen districts with composite mean z score of more than 0.75 have been included in this category of areas (Fig. 2). Nine districts namely, Kanpur Nagar, Auraiya, Etawah, Kanpur Dehat, Mainpuri,

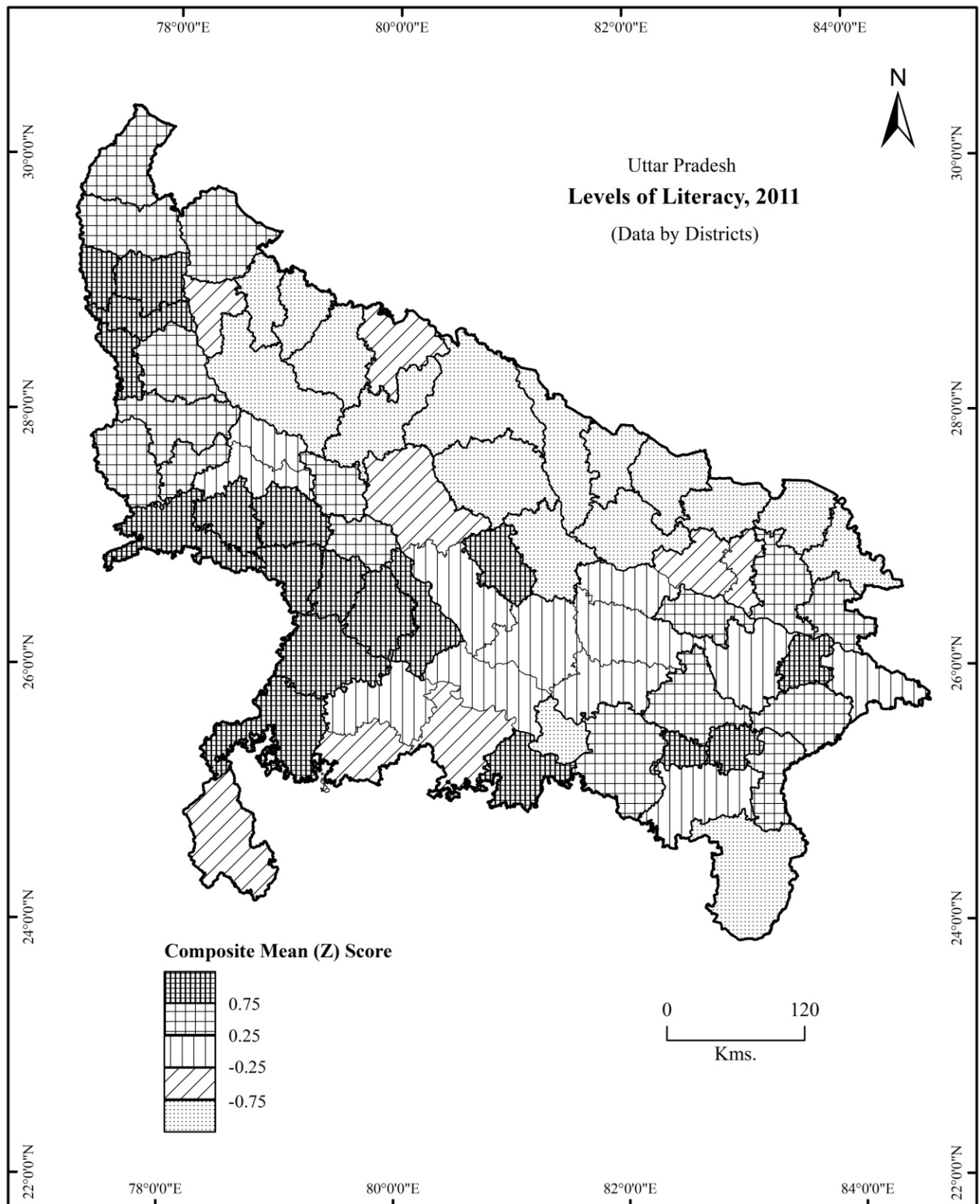


Fig. 2

Firozabad, Jalaun, Jhansi and Agra recording very high level of literacy rate forming a contiguous belt are located in the southern-central part of the study area (Fig. 2). Similarly, a very small patch comprising districts like Ghaziabad, Gautam Buddha Nagar, Meerut and Baghpat having very high level of literacy rate has been located in the western part. Spatially speaking, five districts Lucknow, Varanasi, Sant Ravidas Nagar, Chitrakoot and Mau of this category are scattered in the eastern, central and southern parts. Leaving aside, Jhansi, Mau and Agra districts, all other districts falling in this category have recorded very high level of all the three indicators of levels of literacy (Table 1). These areas are highly urbanized and have high level of general, male and female literacy rates.

Areas of High Level of Literacy

The districts recording composite mean z score ranging between 0.25 and 0.75 have been categorized as the areas of high

level of literacy rate. Sixteen districts namely, Mahamaya Nagar, Allahabad, Kannauj, Saharanpur, Farrukhabad, Mathura, Muzaffarnagar, Jaunpur, Chandauli, Ghazipur, Gorakhpur, Deoria, Bulandshahare, Ambedkar Nagar, Aligarh and Bijnor fall in this category (Fig. 2). Among these, seven districts like Saharanpur, Muzaffarnagar, Bijnor, Bulandshahare, Aligarh, Mahamaya Nagar and Mathura constitute two distinct regions separately, in the western parts. Four mini regions forming two districts each are well distinguishable in the central and eastern parts (Fig. 2). It is interesting to note that in this category, there are districts like Kannauj, Saharanpur and Farrukhabad which have registered very high level of female literacy rate against high level of general and male literacy rates. Similarly, it is worthwhile to note that Ambedkar Nagar district with moderate level of general literacy rate has recorded high level of male and female literacy rates. There are districts like Mathura,

Table 1
Uttar Pradesh: District-wise, Z Scores of Total, Male and Female Literacy Rates, 2011

Districts	Literacy			Districts	Literacy			Districts	Literacy		
	T	M	F		T	M	F		T	M	F
Kanpur Nagar	2.22	1.29	2.77	Muzaffarnagar	0.47	0.35	0.60	Basti	-0.30	-0.19	-0.49
Auraiya	1.56	1.27	1.79	Jaunpur	0.31	0.83	0.25	Hardoi	-0.48	-0.50	-0.50
Ghaziabad	1.48	1.24	1.65	Chandauli	0.44	0.58	0.25	Sant Kabir Nagar	-0.58	-0.25	-0.70
Etawah	1.48	1.25	1.62	Ghazipur	0.32	0.69	0.24	Pilibhit	-0.68	-0.71	-0.56
Lucknow	1.33	0.81	1.94	Gorakhpur	0.42	0.54	0.13	Jyotiba Phule Nagar	-0.74	-0.70	-0.73
Gautam Buddha Nagar	1.38	1.41	1.24	Deoria	0.30	0.70	0.08	Lalitpur	-0.77	-0.56	-0.89
Varanasi	1.25	1.02	1.17	Bulandshahare	0.34	0.60	0.08	Sonebhadra	-0.77	-0.67	-0.82
Sant Ravidas Nagar	1.10	1.01	1.16	Ambedkar Nagar	0.21	0.29	0.38	Kheri	-0.84	-1.05	-0.05
Kanpur Dehat	1.03	0.85	1.33	Aligarh	0.29	0.33	0.17	Sitapur	-0.86	-0.99	-0.73
Mainpuri	1.02	0.89	1.00	Bijnor	0.27	0.02	0.48	Shahjahanpur	-0.89	-1.03	-0.66
Chitrakoot	0.97	1.00	0.89	Pratapgarh	0.18	0.57	-0.02	Kushinagar	-0.93	-0.59	-1.24
Meerut	0.96	0.70	1.17	Ballia	0.19	0.35	0.17	Barabanki	-0.90	-1.12	-0.76
Firozabad	1.02	0.80	0.96	Hamirpur	0.17	0.35	-0.16	Bareilly	-0.98	-1.14	-0.72
Jalaun	0.98	0.79	0.77	Azamgarh	-0.10	0.25	0.18	Kaushambi	-0.96	-0.77	-1.22
Baghpat	0.82	0.92	0.76	Fatehpur	0.30	0.02	0.02	Maharajganj	-1.01	0.84	0.48
Jhansi	1.04	1.13	0.29	Faizabad	0.07	0.07	0.08	Moradabad	-1.22	-1.57	-0.89
Mau	0.84	0.76	0.72	Sultanpur	-0.02	0.19	-0.08	Siddharthanagar	-1.41	-1.36	-1.50
Agra	0.88	0.78	0.69	Mirzapur	-0.11	0.09	-0.25	Gonda	-1.52	-1.40	-1.49
Mahamaya Nagar	0.68	0.84	0.48	Unnao	-0.16	-0.28	0.04	Rampur	-1.93	-2.32	-1.28
Allahabad	0.63	0.79	0.49	Etah	-0.10	-0.15	-0.25	Budaun	-1.98	-2.23	-1.71
Kannauj	0.59	0.45	0.77	Kanshiram Nagar	-0.10	-0.15	-0.25	Bahraich	-2.30	-2.61	-1.94
Saharanpur	0.55	0.24	0.85	Rae Bareilly	-0.21	-0.14	-0.25	Balrampur	-2.41	-2.59	-2.05
Farrukhabad	0.56	0.26	0.76	Banda	-0.24	0.06	-0.50	Shrawasti	-2.46	-2.49	-2.38
Mathura	0.55	0.87	0.18	Mahoba	-0.31	-0.13	-0.54	State Average	0.01	0.02	0.01

Source: Compiled by Author; T- Total, M- Male; F- Female

Jaunpur, Chandauli, Ghazipur, Gorakhpur, Deoria, Bulandshahare and Aligarh which have been included in this category even after recording moderate level of female literacy rate against high level of general and male literacy rates (Table 1). These areas have been characterized by high level of urbanization as well as high levels of general, male and female literacy rates.

Areas of Medium Level of Literacy

Twelve districts recording z score values ranging between 0.25 to -0.25 fall under the category of medium level of literacy. A well distinguished region comprising eight districts of Pratapgarh, Hamirpur, Fatehpur, Azamgarh, Faizabad, Sultanpur, Unnao and Rae Bareilly is located in the southern, central and eastern parts (Fig. 2). Similarly, a mini region formed by Kanshiram Nagar and Etah districts is located in the south-western part. In this area of moderate level of literacy, there are districts like Fatehpur with high level of general literacy rate and Pratapgarh, Ballia and Hamirpur with high level of male literacy rate. Similarly, Unnao district with low level of male literacy rate and Mirzapur, Etah, Kanshiram Nagar and Rae Bareilly with low level of female literacy rate also fall in this category of areas. Thus, the average condition of urbanization and average rates of general, male and female literacy are the leading determinants for the medium level of literacy.

Areas of Low Level of Literacy

Eight districts of Banda, Mahoba, Basti, Hardoi, Sant Kabir Nagar, Pillibhit, Jyotiba Phule Nagar and Lalitpur fall under the areas of low level (-0.25 to -0.75 score) of literacy. Spatially, one distinct region formed by two districts of Mahoba and Banda is

located in south-central part. Another such small region formed by Basti and Sant Kabir Nagar district is found in north-eastern part. Other such districts included in this category are scattered in the central and north-western parts (Fig. 2). Within this category, there are districts like Banda with moderate level of general and male literacy rate; Basti and Mahoba with moderate male literacy rate and Lalitpur with very low level of general and female literacy rate (Table 1). The areas of low level of literacy have been characterized with low levels of male, female and general literacy rates.

Areas of Very Low Level of Literacy

Seventeen districts with composite mean z scores of less than -0.75 have been categorized as areas of very low level of literacy. The districts included in this category are Moradabad, Rampur, Budaun, Bareilly, Shahjahanpur, Kheri, Sitapur, Barabanki, Bahraich, Shrawasti, Gonda, Balrampur, Siddharthnagar, Maharajganj, Kushinagar, Kaushambi and Sonebhadra. A well-marked contiguous region of fifteen districts, extending from Moradabad district in the west to Kushinagar district in the east is spreading along the northern border (Fig. 2). This zone of the state comprises the weaker sections of the society. Rest of the two districts of Kaushambi and Sonebhadra are scattered in the south-eastern part and therefore do not form any identifiable region. In this category of areas, there are districts like Maharajganj and Kheri which have, respectively witnessed high and moderate levels of female literacy rate. Similarly, there are districts like Kushinagar with low level of male literacy rate and Sitapur and Shahjahanpur with low level of female literacy rate (Table 1). On the whole, these areas have very low level of

female, male and general literacy rates.

Levels of Social Development

Levels of social development have been identified on the basis of the performance of thirteen variables used for calculation of composite mean z scores. Composite mean z scores vary from a maximum of 1.39 recorded by Kanpur Nagar to minimum of -1.26 witnessed by Shrawasti district, with state average of 0.01. Kanpur Nagar, Lucknow and Etawah districts, respectively have attained first, second and third position in levels of social development. On the other hand, Shrawasti, Siddharthnagar and Gonda districts respectively have recorded lowest level of social development (Table 2). On the whole, 55 per cent districts have recorded the composite z score above the state average, while remaining 45 per cent districts recorded below the average. Further,

to describe the spatial variations in the levels of social development, following five types of areas have been identified.

Areas of Very High Level of Social Development

Nineteen districts recording composite mean z score of more than 0.30 have been included in this category. Two distinct regions comprising fifteen districts can be distinguished on Fig. 3. The first region located in the southern-central part comprises the districts of Pratapgarh, Fatehpur, Kanpur Nagar, Kanpur Dehat, Jalaun, Jhansi, Auraiya, Etawah, Mainpuri, Firozabad and Agra. While, the other region on the western margin includes, four districts of Baghpat, Meerut, Ghaziabad and Gautam Buddha Nagar. Four districts, namely, Lucknow, Ballia, Sant Ravidas Nagar and Saharanpur of this category are scattered in northern, central

Table 2
Uttar Pradesh: District-wise, Composite Mean Z Scores of Social Development, 2011

Districts	Mean Z Scores	Districts	Mean Z Scores	Districts	Mean Z Scores
Kanpur Nagar	1.39	Mathura	0.24	Azamgarh	-0.27
Lucknow	0.95	Varanasi	0.23	Sant Kabir Nagar	-0.27
Etawah	0.86	Rae Bareilly	0.21	Faizabad	-0.29
Jhansi	0.80	Aligarh	0.17	Shahjahanpur	-0.31
Agra	0.79	Bulandshahare	0.16	Sonebhadra	-0.32
Jalaun	0.70	Mahamaya Nagar	0.15	Pilibhit	-0.33
Auraiya	0.68	Mau	0.14	Jyotiba Phule Nagar	-0.37
Meerut	0.68	Chandauli	0.12	Sultanpur	-0.43
Pratapgarh	0.68	Ghazipur	0.08	Bareilly	-0.43
Gautam Buddha Nagar	0.62	Bijnor	0.07	Kheri	-0.44
Ghaziabad	0.58	Muzaffarnagar	0.06	Maharajganj	-0.46
Ballia	0.45	Ambedkar Nagar	0.04	Moradabad	-0.46
Fatehpur	0.43	Barabanki	0.03	Gorakhpur	-0.50
Mainpuri	0.42	Hamirpur	0.03	Lalitpur	-0.56
Sant Ravidas Nagar	0.41	Kushinagar	0.02	Rampur	-0.57
Kanpur Dehat	0.39	Sitapur	-0.03	Deoria	-0.58
Saharanpur	0.34	Banda	-0.04	Budaun	-0.79
Baghpat	0.33	Unnao	-0.04	Bahraich	-0.80
Firozabad	0.31	Kaushambi	-0.04	Basti	-0.86
Mahoba	0.26	Hardoi	-0.11	Balrampur	-0.87
Allahabad	0.25	Etah	-0.14	Gonda	-0.97
Farrukhabad	0.25	Kanshiram Nagar	-0.14	Siddharthnagar	-0.99
Jaunpur	0.25	Mirzapur	-0.20	Shrawasti	-1.26
Kannauj	0.24	Chitrakoot	-0.24	State Average	0.01

Source: Compiled by Author

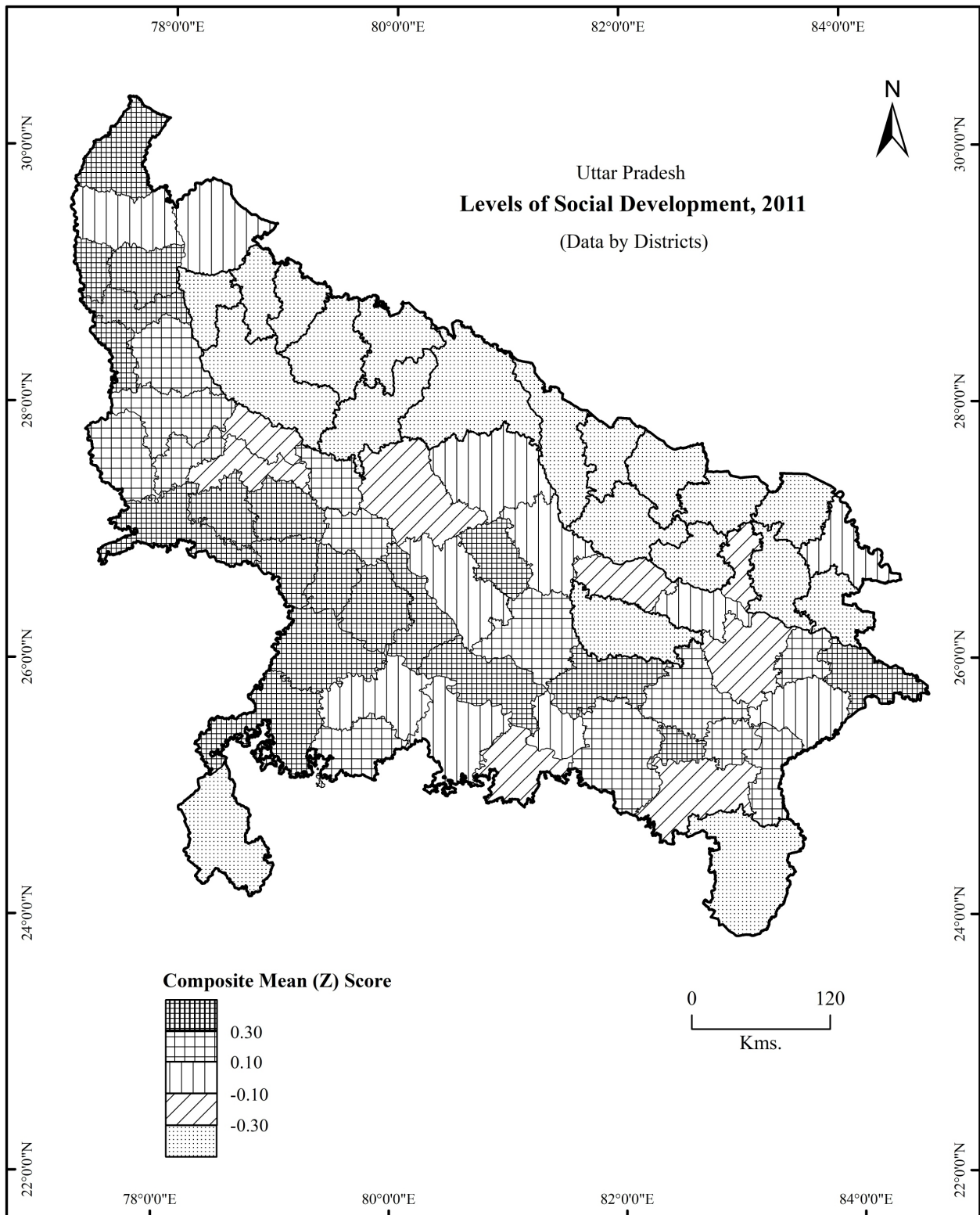


Fig. 3

and eastern parts of the state (Fig. 3).

It is surprising to find that Saharanpur district having recorded very low level of social development in five variables such as urban population (x_1), scheduled castes literacy rate (x_5), male scheduled castes literacy rate (x_6), female scheduled castes literacy rate (x_7) and females adopting family planning (x_8) has witnessed very high level of social development (Table 3). There are districts like Jhansi, Gautam Buddha Nagar, Ghaziabad, Fatehpur and Kanpur Dehat which have registered very low level in four variables of social development. Similarly, out of this group of fifteen districts, there are ten districts like Kanpur Nagar, Agra, Lucknow, Gautam Buddha Nagar, Jhansi, Ghaziabad, Ballia, Sant Ravidas Nagar, Saharanpur and Firozabad which have witnessed very low level of school population ratio (x_9). Thus, all the districts of very high level of social development have witnessed varying number of variables where their performance is poor or very poor. Thus, leaving aside population-school ratio (x_9), school-student ratio (x_{10}) and availability of medical facilities (x_{11}), the high values recorded by all other variables are the major factors responsible for very high level of social development in these areas (Table 3).

Areas of High Level of Social Development

Thirteen districts recording composite mean z scores ranging 0.30 to 0.10 have been included in this category. Among these areas, Mahoba and Chandauli districts respectively have scored the highest (0.26) and the lowest (0.12) z scores (Table 2). Two distinct regions have been formed by four districts each under the areas of high level of social development. One region comprising districts of Bulandshahare, Aligarh, Mahamaya Nagar and

Mathura lies in western part, while the other located in the south-eastern part includes the districts of Allahabad, Jaunpur, Varanasi and Chandauli. Remaining five districts of Farrukhabad, Kannauj, Rae Bareilly, Mau and Mahoba are scattered in central, southern and eastern parts (Fig. 3). It may be noted that in this category, there are six districts like Farrukhabad, Jaunpur, Kannauj, Varanasi, Mahamaya Nagar and Chandauli which have registered very high level of rural population (x_2) and rural female literacy rate (x_3). Within this category, there is Allahabad district which has recorded high and low levels of development in two variables i.e. number of medical hospitals/dispensaries per lakh of population (x_{11}) and school-student ratio (x_{10}) respectively. On the other hand, it has registered very high level of development in three variables of percentage of scheduled castes population (x_4), percentage of females adopting family planning (x_8) and population-school ratio (x_9) and very low level of development in remaining eight variables of social development (Table 3). Similarly, all the districts falling in this category have witnessed various levels of performance ranging from very high to very low in various variables of social development. Overall, high level of social development in these areas is due to high levels of rural female literacy, male scheduled castes literacy, scheduled castes literacy and females adopting family planning.

Areas of Medium Level of Social Development

This category includes the districts registering composite mean z score ranging between 0.10 to -0.10 (Table 2). Eleven districts (Ghazipur, Bijnor, Muzaffarnagar, Ambedkar Nagar, Barabanki, Hamirpur,

Table 3
Uttar Pradesh: Variable-wise Z Scores among the Districts, 2011

Districts	Variable-wise Z Scores												
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁	X ₁₂	X ₁₃
Kanpur Nagar	3.49	0.82	1.90	-0.80	3.08	2.16	4.01	1.37	-0.69	-0.54	0.15	3.29	-0.17
Lucknow	3.25	0.05	0.30	0.09	0.62	0.37	0.89	0.87	-0.62	-0.15	2.01	2.78	1.89
Etawah	0.30	1.34	1.69	0.48	1.78	1.36	1.90	0.92	0.66	0.58	0.10	0.55	-0.48
Jhansi	1.30	1.64	3.30	2.73	-2.09	-2.17	0.10	0.76	-1.62	-4.74	5.21	0.13	6.39
Agra	1.76	0.46	0.16	0.18	0.69	0.60	0.52	0.74	-0.41	1.71	-0.17	2.21	1.82
Jalaun	0.32	0.90	0.88	1.15	1.64	1.62	0.99	1.70	0.73	-1.10	-0.01	-1.14	1.44
Auraiya	0.40	1.43	1.21	1.27	1.78	1.36	1.90	0.63	0.62	0.06	-0.49	-0.85	-0.48
Meerut	2.15	0.91	0.40	-0.43	1.58	1.48	1.24	0.42	0.10	-0.15	-0.47	1.28	-0.02
Pratapgarh	-0.63	0.39	0.46	0.78	0.11	0.19	-0.10	-0.59	7.20	0.15	0.21	-0.29	-0.30
Gautam Buddha Nagar	1.30	1.21	1.11	-0.83	1.91	1.64	1.84	0.62	-0.41	0.84	-0.63	-0.72	0.18
Ghaziabad	2.64	0.96	1.16	-0.51	1.91	1.64	1.84	0.54	-1.13	-0.24	-0.87	-0.58	0.18
Ballia	0.04	0.79	0.99	0.36	0.44	0.49	0.47	-0.25	-0.38	4.52	-0.21	-0.75	-0.66
Fatehpur	-0.68	0.98	1.18	1.02	-0.88	-0.81	-0.95	0.42	0.76	0.63	3.54	-0.22	0.60
Mainpuri	-0.33	1.01	1.23	-0.27	1.37	1.09	1.38	0.77	0.62	-0.15	-0.20	-0.43	-0.63
Sant Ravidas Nagar	1.55	0.87	0.92	-1.28	0.10	0.28	-0.26	-0.11	-0.43	1.49	-0.25	2.83	-0.38
Kanpur Dehat	-0.88	1.09	1.58	0.75	-0.62	0.68	2.49	0.41	1.43	-0.11	-0.63	-0.95	-0.17
Saharanpur	-0.32	0.07	-0.11	3.87	-0.34	-0.44	-0.50	-0.55	-0.38	-0.19	0.09	-0.11	3.33
Baghpat	0.06	0.97	1.06	-1.81	1.58	1.48	1.24	0.32	0.06	0.02	-0.20	-0.47	-0.02
Firozabad	0.83	1.07	1.21	-0.36	1.23	1.02	0.52	0.34	-0.38	-0.07	-0.70	-0.58	-0.10
Mahoba	-0.17	0.09	-0.11	0.37	-0.02	0.10	-0.47	0.31	0.10	-0.28	3.19	-0.13	0.40
Allahabad	-0.86	-0.65	-0.85	2.81	-0.59	-0.51	-0.64	5.03	0.41	-0.15	0.14	-0.51	-0.38
Farrukhabad	0.20	0.51	0.85	-0.81	0.62	0.34	0.78	0.30	0.22	-0.63	0.76	0.24	-0.13
Jaunpur	-0.66	0.34	0.45	-0.80	0.52	0.74	0.11	0.95	-0.08	0.67	0.44	-0.18	0.62
Kannauj	-0.16	0.70	1.05	-0.44	0.62	0.34	0.78	0.29	0.13	0.24	0.25	-0.55	-0.13
Mathura	0.67	0.43	-0.07	-0.22	0.55	0.80	-0.34	0.20	0.22	-0.54	0.07	1.54	-0.21
Varanasi	-0.61	0.48	0.53	0.65	0.10	0.28	-0.26	2.82	-0.10	0.28	-0.18	-0.62	-0.38
Rae Bareli	-0.68	-0.11	-0.01	1.48	-0.70	-0.62	1.34	0.18	0.03	0.15	1.05	-0.04	0.66
Aligarh	0.72	0.34	0.12	0.08	0.29	0.35	-0.09	0.12	-0.71	-0.67	0.23	2.24	-0.81
Bulandshahare	0.30	0.44	0.18	-0.11	0.82	0.99	0.16	0.12	0.01	0.41	-0.34	-0.38	-0.52
Mahamaya Nagar	0.07	0.79	0.70	0.81	0.29	0.35	-0.09	-0.05	0.52	0.67	-0.66	-0.82	-0.81
Mau	-0.82	0.25	0.48	0.91	-0.25	0.02	0.07	1.98	-0.45	0.54	-0.31	-0.41	-0.19
Chandauli	-0.82	0.45	0.51	0.11	0.28	0.53	-0.06	1.06	-0.08	0.02	-0.26	-0.56	0.38
Ghazipur	-0.84	0.44	0.42	0.21	0.05	0.35	-0.24	1.15	-0.43	0.54	-0.31	-0.43	0.13
Bijnor	0.39	0.40	0.67	0.03	0.50	0.59	0.08	0.07	-0.62	0.37	-0.48	-0.44	-0.66
Muzaffarnagar	-0.31	1.77	-0.15	0.25	0.06	0.20	-0.20	0.30	-0.32	0.25	-0.35	-0.34	-0.38
Ambedkar Nagar	-0.40	0.04	0.19	0.33	-0.27	-0.13	-0.38	0.01	0.13	1.88	-0.65	-0.18	-0.04
Barabanki	0.41	0.22	-0.04	0.15	-0.59	-0.51	-0.64	1.35	-0.78	0.28	-0.32	1.24	-0.38
Hamirpur	0.32	0.01	-1.03	0.26	-1.22	-1.29	-0.88	0.22	0.92	0.11	0.69	0.62	1.66
Kushinagar	0.05	0.21	-0.96	0.23	0.16	-0.10	-0.73	-0.01	-0.38	0.06	0.18	1.99	-0.44
Sitapur	-0.51	1.15	-0.63	2.04	-0.77	-0.79	-0.75	-0.10	-0.20	-0.37	-0.19	1.04	-0.31
Banda	0.21	-0.36	-0.28	0.92	-0.02	0.10	-0.47	-0.01	0.59	-0.80	-0.23	-0.57	0.40
Unnao	-0.27	-0.10	0.09	1.82	-0.21	-0.22	-0.19	-0.01	0.20	-1.15	-0.27	-0.52	0.31
Kaushambi	-0.99	0.33	0.36	0.22	-0.48	-0.18	0.13	0.01	0.34	0.41	-0.28	-0.10	-0.29
Hardoi	-0.50	-0.32	-0.31	2.04	-0.21	-0.16	-0.54	-0.13	0.01	0.19	-0.45	-0.60	-0.45
Etah	-0.12	0.01	-0.06	-0.67	0.21	0.15	0.01	-0.98	0.06	0.15	-0.67	0.41	-0.32
Kanshiram Nagar	-0.12	0.01	-0.06	-0.67	0.21	0.15	0.01	-0.16	0.06	0.15	-0.67	-0.41	-0.32
Mirzapur	-0.45	0.34	-0.15	0.15	0.10	0.28	-0.26	0.14	-0.55	0.19	-1.13	-0.88	-0.38
Chitrakoot	-0.19	-0.29	-0.57	0.01	-0.88	-0.81	-0.95	-0.21	0.03	-0.58	0.87	-0.15	0.60
Azamgarh	-0.66	0.38	0.35	-0.48	-0.76	-0.08	-0.53	-0.30	-0.22	-0.37	-0.02	-0.25	-0.57
Sant Kabir Nagar	-0.97	-1.13	-0.07	0.01	-0.42	-0.21	-0.69	0.76	-0.17	-0.45	0.16	0.36	-0.69
Faizabad	-0.70	-0.64	-0.41	1.13	-1.14	-3.30	-0.85	0.85	0.17	0.15	-0.07	1.16	-0.12
Shahjahanpur	0.13	-0.74	-0.53	-0.57	-0.65	-0.80	-0.45	-0.38	0.10	0.24	0.04	-0.18	-0.24
Sonebhadra	-0.39	-0.04	-0.12	1.10	-1.07	-1.02	-1.06	-1.80	-0.80	-0.24	0.01	-0.26	1.53
Pilibhit	-0.08	-1.52	-0.57	-1.03	-0.49	-0.46	-0.48	-0.12	-0.13	0.89	-0.55	-0.22	0.47
Jyotiba Phule Nagar	0.42	-0.49	-0.63	-0.65	-0.38	-0.36	-0.51	-0.36	0.38	-0.20	-0.63	-0.69	-0.71
Sultanpur	-0.73	0.33	0.24	0.67	-0.27	-0.13	-0.38	-0.44	-0.94	-1.84	-1.05	-1.01	-0.04
Bareilly	0.99	-1.05	-1.08	-1.50	-0.29	-0.37	-0.29	-0.88	-0.27	-0.80	-0.45	0.11	-0.21
Kheri	-0.59	-0.66	-0.51	0.88	-0.96	-1.01	-0.80	-0.67	-0.03	0.41	-0.50	-1.13	-0.34
Maharajganj	0.03	0.40	0.35	0.50	0.20	0.36	-0.10	0.02	0.35	0.38	-2.79	-2.99	-2.69
Moradabad	0.88	-1.28	-1.27	-0.91	-0.38	-0.36	-0.51	-0.42	0.13	-0.37	-0.51	-0.27	-0.71
Gorakhpur	-1.01	-0.72	-1.08	-0.24	-0.92	-0.67	-0.94	1.58	-0.55	0.15	-0.41	-0.92	-0.77
Lalitpur	-1.61	0.40	-0.11	1.34	1.48	1.45	1.08	-14.02	-0.25	-0.63	0.99	1.98	0.62
Rampur	0.44	-1.84	-1.63	-1.37	-0.94	-0.97	-0.83	-0.53	-0.17	0.37	-0.04	-0.23	0.33
Deoria	-1.04	-0.63	-0.83	-0.49	-0.76	-0.08	-0.53	-0.64	-0.62	-0.20	-0.41	-0.74	-0.57
Budaun	-0.06	-1.74	-1.71	-0.68	-1.05	-1.18	-0.80	-0.76	-0.29	-0.37	-0.45	-0.49	-0.69
Bahraich	-1.03	0.15	0.26	-1.58	-0.76	-0.63	-0.78	-5.19	-0.08	-0.37	-0.17	-0.06	-0.16
Basti	-1.10	-1.04	-1.06	-0.79	-1.17	-1.03	-1.20	-0.76	-0.36	-0.93	-0.23	-0.57	-0.94
Balrampur	-1.17	-1.91	-1.99	-0.46	-1.37	-1.35	-1.30	-0.84	0.10	0.19	-0.58	0.01	-0.64
Gonda	-0.79	-2.04	-1.92	-1.35	-1.41	-1.39	-1.23	-1.00	0.13	0.63	-0.76	-0.60	-0.88
Siddharthanagar	-0.86	-1.26	-1.35	-0.95	-1.41	-1.39	-1.23	-1.03	-0.50	-1.02	-0.26	-0.73	-0.88
Shrawasti	-0.65	-0.02	-1.89	-1.18	-1.37	-1.35	-1.30	-6.72	-0.73	-0.15	-0.34	-0.04	-0.64
State Average	0.01	0.09	0.09	0.06	0.01	0.01	-0.01	-0.13	0.01	0.01	-0.02	0.01	-0.01

Source: Compiled by Authors

Kushinagar, Sitapur, Banda, Unnao and Kaushambi) fall under the medium level of social development. Six districts among these form three distinct regions of two districts each such as Muzaffarnagar and Bijnor; Sitapur and Barabanki and Hamirpur and Banda. These are located in western, central and southern parts. While other districts, falling in this category, are scattered in different parts of the state (Fig. 3). There are districts like Ghazipur, Muzaffarnagar, Barabanki, Hamirpur, Sitapur and Kaushambi which have registered medium level of development only in one variable. In all other variables, their values vary between very high to very low (Table 3). No district has witnessed medium level of development in more than three variables, suggesting that medium level of social development is the sum total of the variables recording high and low level of development. The average proportion of females adopting family planning and scheduled castes literacy are the main factors responsible for the medium level of social development.

Areas of Low Level of Social Development

Eight districts recording composite mean z scores ranging between -0.10 and -0.30 are included in this category (Table 2). Among these, two districts of Etah and Kanshiram Nagar form a very small region in western part, while remaining six districts, namely Hardoi, Faizabad, Sant Kabir Nagar, Azamgarh, Mirzapur and Chitrakoot are scattered in different parts (Fig. 3). The districts included in low level of social development have witnessed different levels of development in respect of various variables of social development. There are districts with one, two or three variables recording very high or high level of development, even then

these districts fall in areas of low level of social development due to predominance of variables recording low and very low level of development.

Areas of Very Low Level of Social Development

Twenty districts recording composite mean z score of less than -0.30 comprise this category. Seventeen districts from these constitute a dominant and extensive contiguous region in the middle north-eastern part known as the area of weaker sections of the society (Fig. 3). Remaining three districts of this category Sonebhadra, Lalitpur and Sultanpur are far apart from the main region. It is worth mentioning that within this group of districts there are only two districts of Basti and Siddharthanagar having low and very low levels of development in all variables of social development. On the other hand, Lalitpur district has witnessed very high level of development in eight variables such as proportion of rural population (x_2) and scheduled castes population (x_4), scheduled castes literacy rate (x_5), male scheduled castes literacy rate (x_6), female scheduled castes literacy rate (x_7), medical hospitals/dispensaries per lakh of population (x_{11}), hospital beds per lakh of population (x_{12}) and doctors per lakh of population (x_{13}) (Table 3). In all other districts, majority of variables have recorded low or very low level of development. As a result, these districts fall in areas of very low level of social development.

Dimensions of Relationship between Literacy and Social Development

The spatial relationship between levels of literacy and social development among the districts of the state has been presented in Fig. 4. The abscissa indicates the

levels of literacy and ordinate represents the levels of social development. The districts on the basis of composite mean z score values of levels of literacy have been categorized into three groups, i.e., high (more than 0.45), medium (0.45 to -0.45) and low (less than -0.45). Similarly, on the basis of composite mean z scores for social development, the districts have been arranged in three groups of high (more than 0.30), medium (0.30 to -0.30) and low (less than -0.30) respectively. There are sixteen districts like Kanpur Nagar, Auraiya, Ghaziabad, Etawah, Lucknow, Gautam Buddha Nagar, Sant Ravidas Nagar, Kanpur Dehat, Mainpuri, Meerut, Firozabad, Jalaun, Baghpat, Jhansi, Agra, and Saharanpur which have recorded high levels of literacy as well as high levels of social development (Table 4). Thirteen districts among these form two distinct regions located in the south-western and western parts. Rest of the three districts (Lucknow, Sant Ravidas Nagar and Saharanpur) are scattered over different parts. These areas are characterized with high level of general, male and female literacy; rural female literacy, scheduled castes general, male, and female literacy rate, proportion of urban population, rural and scheduled castes population and females adopting family planning.

The medium level of literacy and social development has been witnessed by sixteen districts, namely, Chandauli, Ghazipur, Bulandshahare, Ambedkar Nagar, Aligarh, Bijnor, Hamirpur, Azamgarh, Faizabad, Mirzapur, Unnao, Etah, Kanshiram Nagar, Rae Bareilly, Banda and Mahoba. Among these, a group of fifteen districts constitute four distinct regions. One region of large size, comprising districts of Chandauli, Ghazipur, Ambedkar Nagar, Azamgarh, Faizabad and Mirzapur lies in eastern part.

The remaining three regions of small size are located in western, southern and central parts. Medium levels of total male and female literacy and scheduled castes literacy rates are the factors responsible for medium levels of social development.

The low levels of literacy and social development are also recorded by sixteen districts, namely, Pilibhit, Jyotiba Phule Nagar, Lalitpur, Sonebhadra, Kheri, Shahjahanpur, Bareilly, Maharajganj, Moradabad, Siddharthanagar, Gonda, Rampur, Budaun, Bahraich, Balrampur and Shravasti (Table 4). A contiguous belt comprising fourteen districts extending from Jyotiba Phule Nagar in the west to Maharajganj in the east is spreading along the northern border of the state (Fig. 4). The remaining two districts of Lalitpur and Sonebhadra are scattered in southern part. The characteristics of these areas are not attributed to one or two factors but many factors working together. However, to mention a few of them one has to consider the overwhelming dependence on deplorably low levels of literacy and all selected variables of social development. This all have led to low levels of literacy as well as low levels of social development in these districts.

Apart from the above, there are districts recording different levels of literacy and social development. There are ten districts of Varanasi, Chitrakoot, Mau, Mahamaya Nagar, Allahabad, Kannauj, Farrukhabad, Mathura, Muzaffarnagar and Jaunpur which have recorded high level of literacy but medium level of social development. Out of these, four districts like Varanasi, Chitrakoot, Allahabad and Jaunpur, constitute a distinct region in south-eastern part, while rest are scattered in different parts. It may be pointed out that high levels of total, male and female literacy and high to medium and low levels of

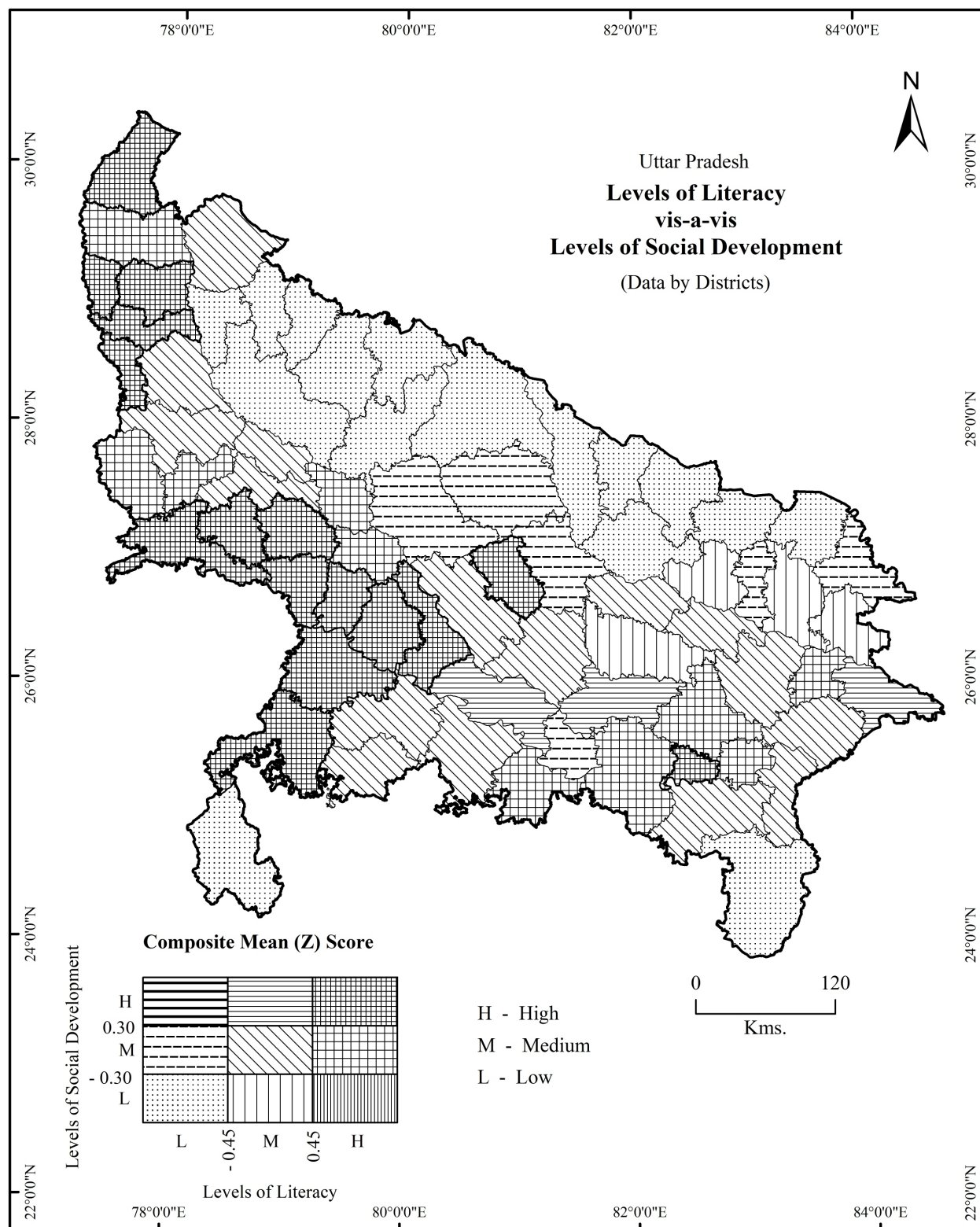


Fig. 4

Table 4
Uttar Pradesh: Composite Mean Z Scores of Literacy and Social Development, 2011

Districts	Levels of Literacy	Levels of Social Development	Districts	Levels of Literacy	Levels of Social Development	Districts	Levels of Literacy	Levels of Social Development
Kanpur	2.09	1.39	Faizabad	0.07	-0.29	Varanasi	1.15	0.23
Auraiya	1.54	0.68	Mirzapur	-0.09	-0.29	Chitrakoot	0.95	-0.24
Ghaziabad	1.46	0.58	Unnao	-0.13	-0.04	Mau	0.77	0.14
Etawah	1.45	0.86	Etah	-0.17	-0.14	Mahamaya	0.67	0.15
Lucknow	1.36	0.95	Kanshiram	-0.17	-0.14	Allahabad	0.64	0.25
Gautam	1.34	0.62	Rae Bareilly	-0.20	0.21	Kannauj	0.60	0.24
Sant Ravidas	1.09	0.41	Banda	-0.27	-0.04	Farrukhabad	0.53	0.25
Kanpur	1.07	0.39	Mahoba	-0.33	0.26	Mathura	0.53	0.24
Mainpuri	0.97	0.42	Pilibhit	-0.65	-0.33	Muzaffarnagar	0.47	0.06
Meerut	0.94	0.68	Jyotibha Phule	-0.72	-0.37	Jaunpur	0.46	0.25
Firozabad	0.93	0.31	Lalitpur	-0.74	-0.56	Gorakhpur	0.36	-0.50
Jalaun	0.85	0.70	Sonebhadra	-0.76	-0.32	Deoria	0.36	-0.58
Baghpat	0.83	0.33	Kheri	-0.85	-0.44	Sultanpur	0.03	-0.43
Jhansi	0.82	0.80	Shahjahanpur	-0.86	-0.31	Basti	-0.33	-0.86
Agra	0.76	0.79	Bareilly	-0.95	-0.43	Pratapgarh	0.24	0.68
Saharanpur	0.55	0.34	Maharajganj	-0.99	-0.46	Ballia	0.24	0.45
Chandauli	0.42	0.12	Moradabad	-1.23	-0.46	Fatehpur	0.11	0.43
Ghazipur	0.42	0.08	Siddharathnagar	-1.43	-0.99	Hardoi	-0.49	-0.11
Bulandshahre	0.35	0.16	Gonda	-1.47	-0.97	Sant Kabir	-0.51	-0.27
Ambedkar	0.29	0.04	Rampur	-1.84	-0.57	Sitapur	-0.86	-0.03
Aligarh	0.26	0.17	Budaun	-1.97	-0.79	Kushinagar	-0.92	0.02
Bijnor	0.26	0.07	Bahraich	-2.28	-0.80	Barabanki	-0.93	0.03
Hamirpur	0.12	0.03	Balrampur	-2.35	-0.87	Kaushambi	-0.98	-0.04
Azamgarh	0.11	-0.27	Shrawasti	-2.44	-1.26	State	0.01	0.01

Source: Compiled by Author

selected variables of social development are the chief determinants of such characteristics of these districts. Similarly, four districts of Gorakhpur, Deoria, Sultanpur and Basti have been found with medium level of literacy but low level of social development. Two districts namely, Gorakhpur and Deoria among these form a small distinct region in eastern part. Such a situation in these districts has resulted due to high, medium and low levels of literacy and low levels of all variables of social development. The districts of Pratapgarh, Ballia and Fatehpur are widely scattered and therefore, fail to delimit any area under the medium level of literacy and high level of social development. This area is in close association with number of variables of medium and high levels of literacy; and high level of social development. Six districts of Hardoi, Sant Kabir Nagar, Sitapur, Kushinagar, Barabanki and Kaushambi have

recorded low level of literacy and medium level of social development. Among these, three districts of Hardoi, Sitapur and Barabanki form a distinct region of small size in central part. It must be mentioned that none of the districts fall under the categories of high level of literacy and low level of social development and low level of literacy and high level of social development. However, the state as a whole has witnessed medium levels of both literacy and social development.

Measurement of Relationship

To provide statistical support to above mentioned observations, coefficients of correlation between composite mean z scores of literacy and variables of social development have been calculated and the results are presented in Table 5. The results reveal that variables like percentage of urban

Table 5

Uttar Pradesh: Correlation between Levels of Literacy and Variables of Social Development

No.	Variables	Correlation
X ₁	Percentage of urban population	0.67*
X ₂	Percentage of rural population	0.89*
X ₃	Rural female literacy rate	0.88*
X ₄	Percentage of scheduled castes population	0.32*
X ₅	Scheduled castes literacy rate	0.84*
X ₆	Male scheduled castes literacy rate	0.87*
X ₇	Female scheduled castes literacy rate	0.69*
X ₈	Percentage of females adopting family planning (all methods) to total married female population	0.10
X ₉	Number of schools (junior basic school, senior basic school and higher secondary school), per lakh of population	0.16
X ₁₀	Number of school students, per lakh of population	0.40*
X ₁₁	Number of medical hospitals/dispensaries, per lakh of population	-0.24**
X ₁₂	Number of hospital beds, per lakh of population	0.36*
X ₁₃	Number of doctors, per lakh of population	-0.25**

Source: Compiled by Author; * Significant at 1 per cent level; ** Significant at 5 per cent level

population (x_1), percentage of rural population (x_2), rural female literacy rate (x_3), percentage of scheduled castes population (x_4), scheduled castes literacy rate (x_5), male scheduled castes literacy rate (x_6), female scheduled castes literacy rate (x_7), number of school students per lakh of population (x_{10}) and number of hospital beds per lakh of population (x_{12}) are positively correlated with literacy rate. The relationship has been found to be positive. It is significant at 1 per cent level of confidence, suggesting that with the increase in rate of literacy there is corresponding improvement in the levels of these variables. However, two variables like number of medical hospitals/dispensaries per lakh of population (x_{11}) and number of doctors per lakh of population (x_{13}) are inversely correlated with literacy rate at 5 per cent level of significance, suggesting that with the improvement in literacy rate, the value of these variables decline in magnitude and vice-versa. However, another two variables like, percentage of females adopting family planning (x_8) and number of schools per lakh of population (x_9) are also positively related but could not attain any level of significance.

On the whole, the statistical results of this study conclude that the levels of literacy and levels of social development are positively correlated ($r = 0.84$) which is significant at 99 per cent level of probability, suggesting that higher the level of literacy more is the level of social development and vice-versa.

Conclusions

The study reveals that there is much synonymity between the levels of literacy and levels of social development among districts in Uttar Pradesh. Eighteen districts have recorded very high level of rate of literacy. Similarly, nineteen districts have reported very high level of social development. Again, seventeen districts have registered very low level of rate of literacy, while twenty districts are falling in this level of social development. The study highlights that 48, 17 and 35 per cent of districts have registered high, medium and low levels of literacy rates respectively along with 45, 16 and 39 per cent of districts recording such levels of social development. Such a similarity can also be observed in the spatial distribution of districts recording various levels of literacy rate and social

development. High level of rate of literacy and social development has been observed in the south-western, middle-southern and western parts. A contiguous belt of fourteen districts, comprising weaker sections of society with low level of literacy and social development is well marked along the northern border of the state. In this study, nine variables of social development have shown very high positive correlation at 1 per cent level of confidence with the levels of literacy. However, two variables of medical hospitals/ dispensaries per lakh of population and doctors per lakh of population have shown negative relationship with literacy at 5 per cent level of confidence. The remaining two variables of females adopting family planning and school going children per lakh of population have shown positive relationship, but it could not reach to any level of confidence. Thus, the study concludes that the level of literacy and level of social development are positively correlated, so higher the level of literacy more is the level of social development and vice-versa. The study further highlights that rural female literacy rate, scheduled castes female literacy rate and adoption of family planning among the females are central points of social development. Hence, the females need to be targeted with more serious efforts to improve literacy rates among them, so as to enable them to play their role more effectively in the process of social development. Therefore, planners and policy makers should make a comprehensive policy to reduce such spatial variations in the rate of literacy.

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