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## Spatial analysis showing the variation of literacy rate in West Bengal: An overview

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### Abstract

Literacy is considered as one of the most important criteria of assessing the social development of a region. It not only highlights the social development of an area but also the associated economies and related achievements of human resources of that region. Even the United Nation Organization has recognized education as the basic component of Human Resource Development. In almost every states of India urban literacy rate is much higher than the rural counterparts. Even in West Bengal the scenario is same where literacy differentials are seen between the rural and urban areas. The present paper illustrates the spatial differentials of literacy rate in rural areas of the different districts of West Bengal. Rural unit is consider for the study as these areas have huge concentration of population mainly engaged in primary activities and are the regions of low development. The level and pattern of literacy rate is been evaluated by giving an index highlighting the spatial variation and also male-female differentiation of literacy in rural areas.

**Keywords:** Spatial differentiation, rural-urban literate concentration and rural male-female literacy rate differentials.

### 1. Introduction

Education and literacy rate is the key factor of socio-economic development of a region. Census of India has defined a person as literate as “if the person is above six years old and can read, write and understand any language”. Education not only makes a man perfect for economic activities but makes him able to achieve his goals to become eligible for overall social and cultural development. It is essential not only for males to be educated but also for the females especially for an overall development of the society. It is generally seen that in a society where females are equally educated along with their male counterpart that society experiences highest socio-economic development. It also encourages new avenues of economic development which in turn enhances standard of living, life expectancy, employment opportunities, productivity etc.

### 2. Study Area

The state of West Bengal is been selected as the study area which occupies an area of about 88752 square kilometres and has a total population of 91347736 as according to 2011 census. Presently the literacy rate rank of West Bengal is on twentieth position. Its literacy rate is 77.08 percent whereas literacy rate of India as a whole is 74.04 percent.

### 3. Objectives

The main objectives of this paper is

- To find out the concentration of rural literates in different districts of West Bengal
- To highlight the urban-rural differential literacy rate within the state
- To analyze the male-female rural differential literacy rate within the state.

### 4. Database and Methodology

The study is based on secondary data obtained from Census of India 2011. The data obtained has been analyzed and represented through statistical techniques to show the spatial variation of literacy rate. In the first part of the paper techniques like Location Quotient and Differential Index has been calculated. Location Quotient has been applied to show the variation in the concentration of literates within the state.

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Differential Index shows the regional variation of urban-rural literacy rate and rural male-female literacy rate within the districts of West Bengal.

The formula for calculating Location Quotient (LQ) is:

$$LQ = \frac{e_i / e}{E_i / E}$$

Where,  $e_i$  = Individual District Rural Literates

E = District Total Literate Population

$E_i$  = West Bengal Rural Literate Population

E = West Bengal Total Literate Population

The formula for calculating Differential Urban-Rural Literacy Rate Index (URDI) is:

$$URDI = \frac{\text{Urban Literacy Rate} - \text{Rural Literacy Rate}}{\text{Total Literacy Rate}}$$

The formula for calculating Differential Rural Male-Female Literacy Rate Index (RMFDI) is:

$$RMFDI = \frac{\text{Rural Male Literacy Rate} - \text{Rural Female Literacy Rate}}{\text{Total Rural Literacy Rate}}$$

In the second part of analysis Choropleth Maps have been drawn on the basis of computed data for visual representation of spatial variation of literacy rate.

**Table 1:** Literacy Characteristics of different districts of West Bengal, 2011

District	Location Quotient	URDI	RMFDI	District	Location Quotient	URDI	RMFDI
Burdwan	0.894	0.12	0.19	Nadia	1.062	0.19	0.13
Birbhum	1.331	0.18	0.20	Murshidabad	1.235	0.09	0.10
Bankura	1.406	0.22	0.31	Uttar Dinajpur	1.302	0.39	0.25
Purba Medinipur	1.382	0.02	0.13	Dakshin Dinajpur	1.290	0.25	0.18
Paschim Medinipur	1.356	0.12	0.21	Malda	1.301	0.26	0.17
Howrah	0.550	0.08	0.13	Jalpaiguri	1.089	0.16	0.23
Hooghly	0.918	0.1	0.17	Darjeeling	0.889	0.16	0.20
North 24 Parganas	0.598	0.14	0.13	Cooch Behar	1.372	0.20	0.18
South 24 Parganas	1.132	0.09	0.18	Puruliya	1.330	0.19	0.46
Kolkata	0.0	0.0	0.0				

Source: Computed by the author from Census of India, 2011.

**5. Results and Discussion**

**5.1 Concentration of Rural Literates:** The total number of literates in West Bengal is about 62614556 persons out of

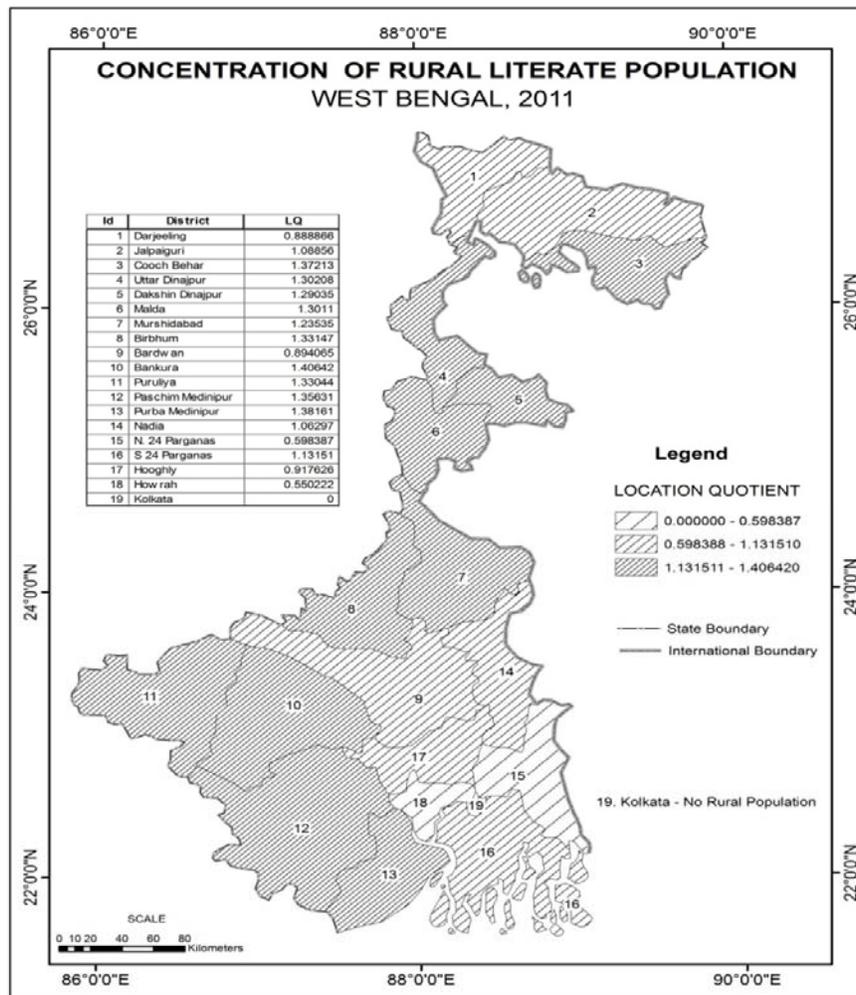
which 39898187 persons live in rural areas. By applying Location Quotient technique the district wise concentration pattern of rural literates can be categorized as following:

Category	Districts
High	Cooch Behar, Uttar Dinajpur, Dakshin Dinajpur, Malda, Murshidabad, Birbhum, Bankura, Puruliya, Pashim Medinipur and Purba Medinipur
Moderate	Darjeeling, Jalpaiguri, Burdwan, Nadia, South 24 Parganas and Hooghly.
Low	North 24 Parganas and Howrah.

Source: Computed by the author

The districts of Cooch Behar, Uttar Dinajpur, Dakshin Dinajpur, Malda, Murshidabad, Birbhum, Bankura, Puruliya, Pashim Medinipur and Purba Medinipur have higher concentration of rural literates as compared to the other districts which may be due to the prevalence of higher concentration of rural population in these districts than urban population. Moderate concentration is found in the districts of Darjeeling, Jalpaiguri, Burdwan, Nadia, South 24 Parganas and Hooghly where rural literates are lower in number. This may be due to lesser number of people residing in rural regions and may be due to lack of

availability of educational facilities. Low concentration of rural literates are seen in only two districts namely North 24 Parganas and Howrah as these district have overall higher concentration of people in urban areas than in rural areas. The rural population is lower in these districts as a whole in which the literate concentration is much lesser which may be due to migration of rural literate people to their surrounding urban areas in search of better social and economic opportunities. Concentration of literate population is also been represented by Choropleth map (Map No. 1) for visual analysis.



Source: Computed by the author

Map 1: Concentration of Rural Literate Population

**5.2 Urban – Rural Literate Differential Index:** Another characteristic of literacy rate in West Bengal is seen between urban-rural literate differential. This is shown with

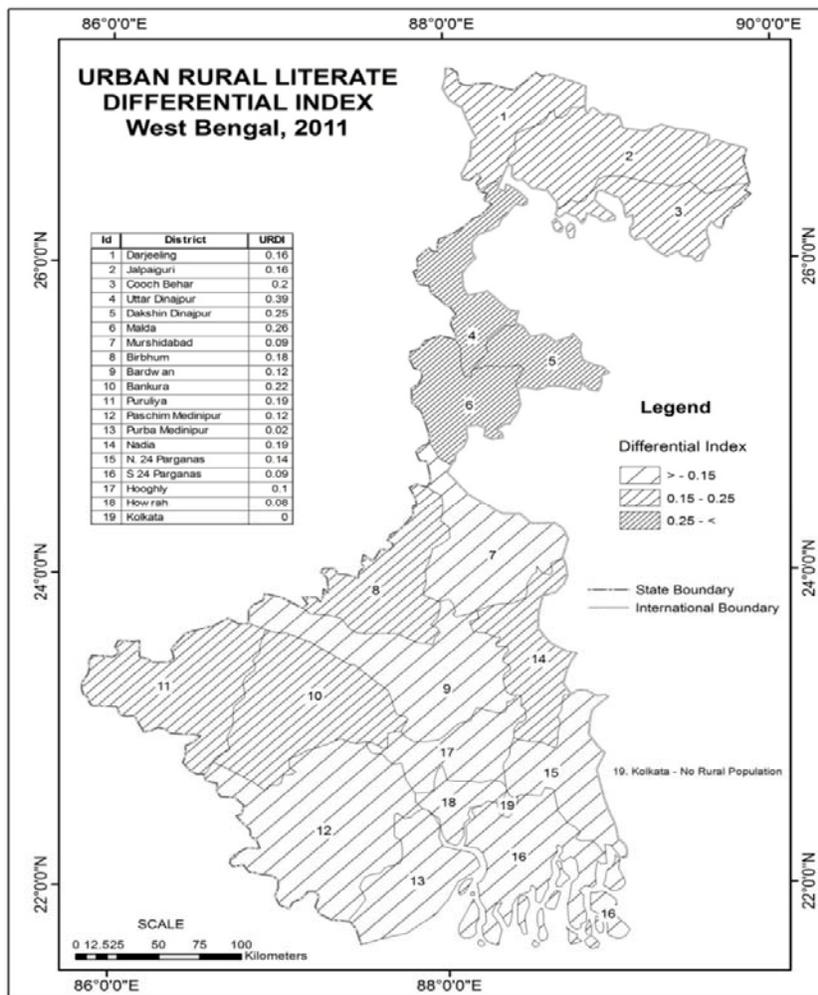
the help of differential index according to which the districts are categorized as following-

Category	Districts
High	Uttar Dinajpur, Dakshin Dinajpur and Malda
Moderate	Darjeeling, Jalpaiguri, Cooch Behar, Birbhum, Bankura, Puruliya and Nadia.
Low	Murshidabad, Burdwan, Pashim Medinipur, Purba Medinipur, North 24 Parganas, South 24 Parganas, Hooghly and Howrah.

Source: Computed by the author.

Choropleth map (Map No. 2) has also been drawn to show the spatial variation of urban and rural literate differentials. Difference in urban and rural areas is usually due to the availability and accessibility of educational institution together with the factors like income level, public awareness etc. Usually in urban areas these factors are seen more than the rural areas thus having more literate population than the rural Areas. The districts like Uttar Dinajpur, Dakshin Dinajpur and Malda has urban-rural differential index is higher because in these districts the urban areas have much more accessibility to different levels of educational institutions and moreover the infrastructural and economic conditions like road, public transport, employment high income groups are mainly concentrated in urban pockets. As a result rural regions are deprived from educational facilities. Moderate urban –rural differentials are found in

Darjeeling, Jalpaiguri, Cooch Behar, Birbhum, Bankura, Puruliya and Nadia districts where as a whole urbanization is lesser than other districts. As a result there is lesser difference in the scenario of education between the urban and rural counterparts. Low differentials are mainly concentrated in the districts lying in south and south – eastern part of West Bengal comprising the districts of Murshidabad, Burdwan, Pashim Medinipur, Purba Medinipur, North 24 Parganas, South 24 Parganas, Hooghly and Howrah. Most of these districts have high level of urbanization and are agriculturally developed areas. As a result the number of literate population in rural areas of these districts are higher due to the availability of educational facilities, prevalence of good transport networks, occurrences of public transport vehicles, employment opportunities, high standard of living etc.



Source: Computed by the author

Map 2: Urban – Rural Literate Differential Index

**5.3 Rural Male-Female Differential Index:** Male-female differential literacy is seen in most all the states of India. On the basis of this differential index the districts are been categorised as high, moderate and low. In West Bengal such difference is most prevalent in two districts namely Bankura and Puruliya. These two states are the least developed state of West Bengal where level of urbanization and rural

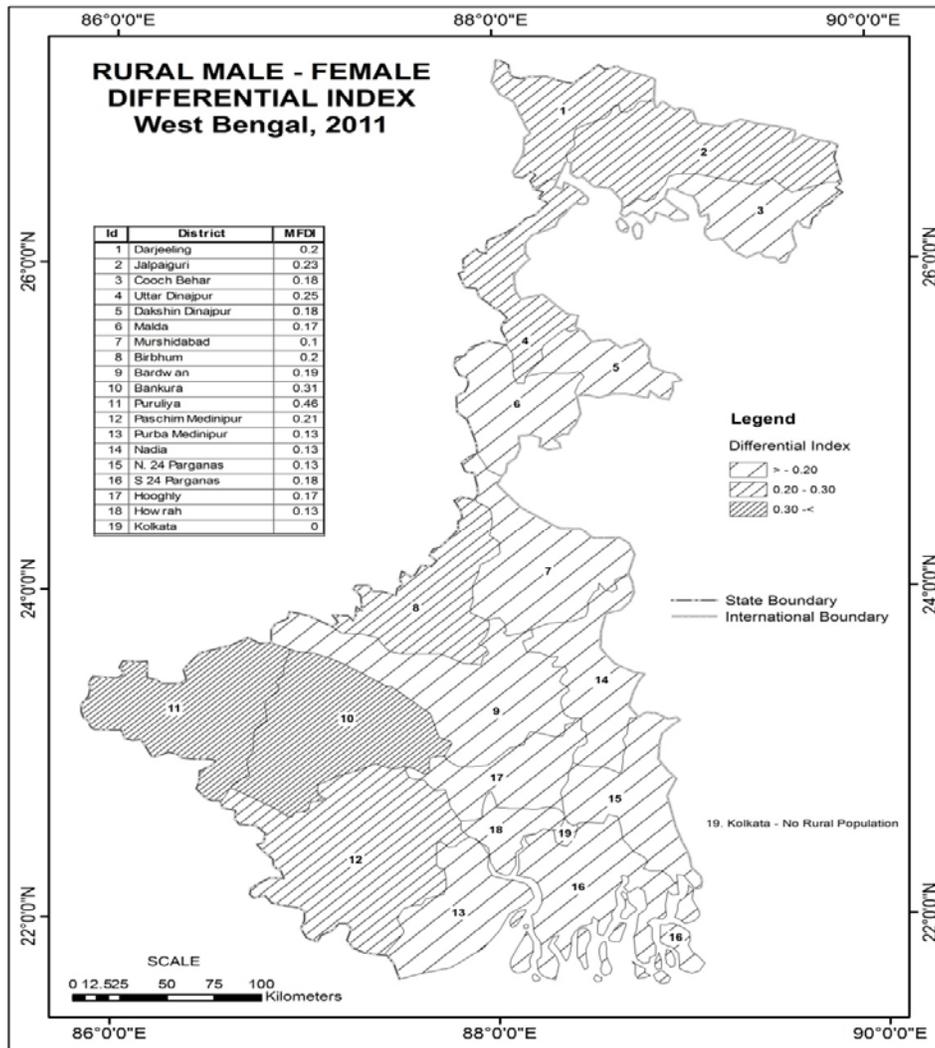
development is very low. Moreover the concentration of tribal population is also higher in these districts. Lack of educational institutions, poor accessibility, poverty level, low standard of living, low employment opportunities, public awareness together with cultural factors have led to higher difference of literacy rate between male and female population in the rural areas.

Category	Districts
High	Bankura and Puruliya
Moderate	Darjeeling, Jalpaiguri, Uttar Dinajpur, Birbhum and Paschim Medinipur
Low	Cooch Behar, Dakshin Dinajpur, Malda, Murshidabad, Burdwan, Nadia, Hooghly, North 24 Parganas, South 24 Parganas, Howrah, Purba Medinipur

Source: Computed by the author

Moderate differentials are seen in the districts of Darjeeling, Jalpaiguri, Uttar Dinajpur, Birbhum and Paschim Medinipur. Low differentials are seen in most of the districts like Cooch Behar, Dakshin Dinajpur, Malda, Murshidabad, Burdwan, Nadia, Hooghly, North 24 Parganas, South 24 Parganas, Howrah, Purba Medinipur. In these districts the difference is low due to adequate availability of educational institutions, good transport networks, more employment opportunities, moderate to high standard of living, public awareness etc. which has contributed in higher level of

education among the females also. Moreover these districts have either higher level of urbanization or high agricultural productivity which in turn has facilitated infrastructural development like building of schools, road etc. together with employment opportunities, income generation, higher nutrition level, higher standard of living which altogether has increased the literacy level among the female population. Choropleth map (Map No. 3) has been drawn to illustrate the differentials visually.



Source: Computed by the author

Map 3: Rural Male-Female Literate Differential Index

**6. Conclusion**

From the above analysis it is clear that rural areas of West Bengal lack in literacy rate which might be a reasons behind their low socio-economic development. In order to solve the problem more emphasis should be given in establishing more schools, development of roads and transport networks, employment opportunities, improvement of women health and nutrition, free education, financial assistance etc. Several plans like Sarba Shiksha Abhijan, Midday meal etc has been implemented especially in the rural areas to encourage the number of students going to school together with the establishment of female education centres, vocational training institutes, adults literacy campaign, etc. However together with government initiative people’s participation and awareness is also important in this regard.

**7. References**

1. Adhikari A, Kamle M. Spatial Pattern of Education and Development in West Bengal Annals of National Association of Geographers 2010; 30(2):55-67.
2. Ali Alamtar. Literacy in Uttar Pradesh: Spatial Dimension, National Geographical Journal of India. 2009; 55(1):99-110.

3. Bhadra Debasree. Gender Disparity in Literacy Rate: A Case Study of Birbhum District Newsletter of Women’s Studies Centre, Lady Brabourne College. 2015, 26-29.
4. Mondal A, Roy D. Education Index of Birbhum District at Block Level: A Critical Study, IRJSS. 2014; 3(5).
5. Nandi P, Saha P. Educational Institutes of Birbhum District and its impact on Literacy, ILEE, 2010; 33(2).
6. Statistical Handbook of West Bengal, Bureau of Applied Economics and Statistics. 2011,
7. West Bengal- A Census View, Directorate of Census Operation. 2011.