Block Level Analysis of Regional Disparities in Educational Development in Punjab

Anil Behl, Ripudaman Singh

Abstract: ***Educational development is equally vital component of the development process, as is the component of economic development. Both reciprocate each other as economic development works with in an educational support and educational development gets stimulated by economic growth. Various researchers see association of both in conceptual terms and others discourse these as distinguishable and should be looked in to distinctly for identifying in consistency amongst each other. Nonetheless one thing is very clear that educational development is significantly correlated to socio-economic development. Thus in order to reduce regional disparities in the educational development, geographers must identify disparities in the educational patterns, which is a prerequisite for regional planning. Present study analysis regional disparities in the level of educational institutional development at block level in Punjab. Indicators representing data on the distribution of primary, middle and high/senior secondary schools have been taken for investigation. These indicators were correlated to area and population. The development block has been chosen as the basic unit of study. UNDP's technique has been used to work out the deprivation and development scores of each block for data analysis and to discern regional disparities in educational development in Punjab***

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Index Terms: Development blocks, educational development, regional disparities, socio-economic development, Punjab.

I. INTRODUCTION

Education portrays a significant role in improving the quality of life. It helps in providing knowledge, cultivating skills, instilling values and building attitude and outlook; all are vital to the processes of development. However, in-spite of this significance, studies related to regional disparities in the levels of educational development writhed neglect on the part of social scientists as well as geographers because of notional and theoretical glitches. Primarily, the concern is of how to do regionalization and concurrently, educational characteristics of an area are ever-changing. Additional challenge includes measuring changes in the levels of educational development quantitatively. Changes occurring in administrative boundaries over time are another concern.

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These changes in administrative boundaries need to be taken care of while regionalizing any area on the basis of educational changes. Moreover, the identification of suitable indicators representing educational change in the region is a difficult task. Data availability and its comparability over different periods of time for designated areal divisions is challenging indeed. Furthermore, the selection of appropriate statistical technique and its cartographic representation causes a major challenge in doing educational development research.

Among the few works, which have been reviewed for present study include the impact of school infrastructure and educational inequalities.)[5] examined the impact of school infrastructure in South Africa and concluded that infrastructure in formerly white legacy schools had relatively lavish classrooms, well equipped laboratories and irrigated sports fields as compared to formerly black areas. It is found that schools with better infrastructure led to improvement and better performance of students in their respective)[4] analyzed the role of school infrastructure at primary and upper-primary levels in the PaschimMedinipur district of West Bengal. It's found that educational infrastructure was not so distributed among all the blocks of the district. Some blocks viz., north-central and south-eastern parts were having good educational facilities, whereas, north-western and south-western were lacking. It is suggested that identification of regional disparities in educational infrastructure and providing suitable remedial treatment at the micro level in the educational system, would ultimately have great impact on educational development at macro levels. Educational realization and educational disparities in socio-economically as well as educationally backward states in India have been studies by [2]It found that attainment of education was lower and the level of disparity was higher among all the states. Existences of huge gender disparities in educational attainment among the states of Bihar and Rajasthan have also been found. Results were very distraught for the underprivileged and socially marginal groups. It stressed that attention should be given to enhance the educational attainment of women belonging to socially marginal groups, in rural areas for achieving the Right to Education Act.[1] further examined the changes in educational inequality among rural and urban sectors between years 1993 and 2009. It has been observed that large educational

Inequalities accounted for intra-sector inequality. Furthermore, these have been narrowed in intra-sector inequality and increased in inter-sectors during the study period)[8] has studied infrastructural facilities among secondary level schools of Assam with focusing on Sivasagar district and found that infrastructural facilities in government secondary schools were additionally adequate as compare to private schools, opposing the normal trend in reversed scenario.

For the state of [6,9] investigated the state of primary education and found that number of primary schools have increased from 13,074 in 2001 to 15, 738 in 2011,but the number of students have declined during this period. Numbers of primary school teachers have also decreased during the year 2011, because of excess retirements of senior teachers and non-recruitment of new teachers on the place of retired teachers. ,[7] have depicted that educationally backward blocks in Punjab are distributed along international border as well as border areas along Rajasthan and Haryana owing to their peripheral location and lesser educational infrastructure. Overall there is dearth of literature on regional disparities in educational development in Punjab and this study has been undertaken to bridge that gap.

II. METHODOLOGY

Education is imparted at block level chiefly through educational institutions, viz., primary, middle and high/senior secondary schools. Their distribution, with respect to area, people and settlement components, are some of the chief indicators of educational development at block level. With this background, an attempt has been made in the present study to analyze levels of regional disparities in educational development at block level in the state of Punjab. For this purpose, nine indicators of educational institutional development),[6] have been selected, which are as follows:

(i) Primary schools per hundred square kilometers of area
(ii) Primary schools per lakh of population
(iii) Primary schools as per cent of total inhabited villages
(iv) Middle schools per hundred square kilometers of area
(v) Middle schools per lakh of population
(vi) Middle schools as per cent of total inhabited villages
(vii) High/senior secondary schools per hundred square kilometers of area
(viii) High/senior secondary schools per lakh of population
(ix) High/senior secondary schools as per cent of total inhabited villages

The present study is based on block wise data obtained from block-at-a glance and village directories published by the).[6] The technique applied here is UNDP's Human Development indexing. The technique has two steps: firstly, the deprivation score of each development block is worked out and secondly, deprivation score converted into development score. These scores for every development block on nine indicators were averaged to arrive at the development block's composite index.

Deprivation scores of all the development blocks for every indicator were computed on as expressed through following equation:

$$\text{Deprivation score} = \frac{\textit{value of the block at top position} - \textit{value of the specific block}}{\textit{value of the block at top position} - \textit{Value of the block at bottom position}}$$

Development score = 1- deprivation score

Composite index = summation of development scores for all the nine indicators divided by nine

Example of Dhar Kalan development block demonstrates the technique:

For the indicator of primary schools per hundred square kilometers of area, deprivation and development scores were:

$$\text{Deprivation score} = \frac{64.52 - 23.55}{64.52 - 8.07} = 0.72$$

Here 64.52 is the highest value for the block at top position (Dorangla),8.07 for the block at bottom position (Khuian Sarwar) and 23.55 for Dhar Kalan block.

Development score= 1-0.72=0.28

Similarly, development scores for all the nine indicators for Dhar Kalan block were calculated as 0.28, 0.66, 1, 0.44, 0.68, 1, 0.27, 0.71 and 0.52 respectively, and overall composite index was derived as:

Composite index = summation of nine development scores divided by nine

$$= \frac{5.56}{9} = 0.61$$

Composite index for Dhar Kalan block was 0.61, which was highest for any development block in Punjab and the lowest value for Sangat block was 0.17 merely. The average for Punjab derived as 0.34. For comparability of the development blocks, all the development blocks were standardized and normalized with the state average being 100. The value of composite index for Punjab (0.34) was normalized as 100 and all development blocks were standardized with reference to this value. Therefore, the final scores for Dhar Kalan and Sangat blocks have beencomputed as 177 and 50 respectively. Final scores of development blocks were grouped into four quartiles and mapped, which gave a cumulative picture of the levels of

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educational institutional development for thedifferentregions of Punjab.

III. PATTERNS OF EDUCATIONAL DEVELOPMENT

Educational institutional development for the different regionsof Punjab has been discerned through the analysis of distributional patterns primary, middle and high/secondary schools at block levels through the analysis of above mentioned indicators and thus deriving the composite index depicting the scenario of educational development in Punjab.

Base of the educational system depends upon the functioning of Primary schools, which furnish the need of children in 6 to 11 years' age group, and falling within approachable distance by walk from their homes. Frequency of primary schools per hundred Square kilometers of area varied from 64.52 in Dorangla block to 8.07 in KhuianSarwar block. As per 2011 census data, there were 28 primary schools for every 100 square Kilometers of area in the state. The density of primary schools is found relatively high in the northern and eastern blocks of the state, including northern Majha, the Bist Doab and northeastern Malwa which have higher number of primary schools per hundred square kilometers of area. The density of these schools gradually declines towards the south and southwestern parts of the state where the average was found to be around 12 primary schools per hundred square kilometers of area. The spatial patterns of primary schools are markedly correlated to literacy rates and levels of demographic development of the state.[3]

A dissimilar patternhas been observed with respect to number of primary schools per lakh of population. The state average found to be 7.78, whereas, figure for Talwarablock was above 14. A reverse associationis found between density of primary schools and density of population. Blocks with high density of population like Ludhiana, Jalandhar, Amritsar, Gurdaspur and Pathankot are found with comparatively less number of primary schools.

In terms of share of inhabited villages having primary schools depicts a clustered pattern. The Malwa region has shown higher percentage of inhabited villages with schools. Size of villages herefound to be relatively large and most havingamplenumber of children to support a primary school. Contrast to it, Doabaand Kandi regions have small sized villages and measured lower on the scale.

Middle schools make a link between primary and high/senior schools' education system, which usually cater to 10-14 age group children. According to 2011 census data, few more than 6 middle schools for every hundred square kilometers of area and about 2 middle schools for ten thousand of population have been registered. Their prevalence is roughly found to be one fifth of primary schools with respect to area and population. The density of middle schools is found to be high in northeastern Malwa, the upper Bari Doab and Bist Doab, where the number middle schools ranges from 5.52 to 14.93 per hundred square kilometers of area. In all otherparts of the state the density of middle schools is found between 1.08 to 5.41 per hundred square kilometers of area. Distribution of middle schools per lakh of population showed a patchy distributional Pattern. The southwest and southern Malwaare having high density of middle schools and these are found to be low in blocks having high density of population, like Ludhiana, Jalandhar, Amritsar, Patiala, Gurdaspur and Pathankot. Inverse relationship has been found between large size of villages and density of population.

High and Senior secondary schools denote the completion of first phase of educational attainment. So these should be located in some central places, where children can easily reach. Government norms describe that there should beone high/senior secondary school within five kilometers radius of every village. As per data, in 2013-14 there were 6.43 high/senior secondary schools per hundred square kilometers of area in the state. The density of such schools is comparatively found to be high in Bist Doab, where figures were as high as 16.19 high/senior secondary schools for every hundred square kilometers of area. The density of such schools declined towards the south and southwest. In Fazilka only 1.69 high/senior secondary schools per hundred square kilometers of area are noted.

A dissimilar pattern is observed in terms of distribution of high/senior secondary schools per lakh of population. The state average was found to be 16.31 whereas, figure for Sidhwan Bet blockhas beennoted above 28.65. Density of high/senior secondary schools in the state is found to be high in northern Malwa, and Bist Doab, whereas comparatively low densities are observed in blocks along international border and southeastern Malwa region.

The composite picture of educational institutional development (Map 1) displays striking levels of regional disparities among educational development in the state. Higher values for composite educational development are found in Doaba and its surrounding corners towards Chandigarh-Mohali and Batala-Gurdaspur. Not even a single block from Tarn Taran, Bathinda, Mansa, Patiala Sangrur, Abohar, Faridkot, Firozpur, and Amritsar districts has been notedfor high educational institutional density. Highest levels of education development are found in Bist Doab, north and northeastern Malwa and northwestern Bari Doab regions. Table 1 depicts the blocks found in the high level of educational institutional development.

Table 1: Blocks at high level of educational development in Punjab

District	Development block(s)
Fatehgarh Sahib	KheraKhamano, BassiPathana, Sirhind, Amloh
Gurdaspur	Batala, Dera Baba Nanak, Dina Nagar, DhariwalDorangla, Kalanpur, FatehgarhChurian, Gurdaspur
Hoshiarpur	Talwara, Hajipur, Tanda, Mukerian, Hoshianrpur-I, Garhshankar
Jalandhar	Jalandhar East, SultanpurLodhi, Bhogpur,
Kaputhala	Phagwara
Ludhiana	Sudhar, Samrala, Dehlon
Moga	Moga-I
Pathankot	Dhar Kalan, Gharota
RupNagar	Anandpur Sahib, Morinda, NurpurBediRupNagar, Chamkaur sahib
S.A.S. Nagar	Majri, Kharar
S.B.S. Nagar	Nawanshahar, Banga, Aur

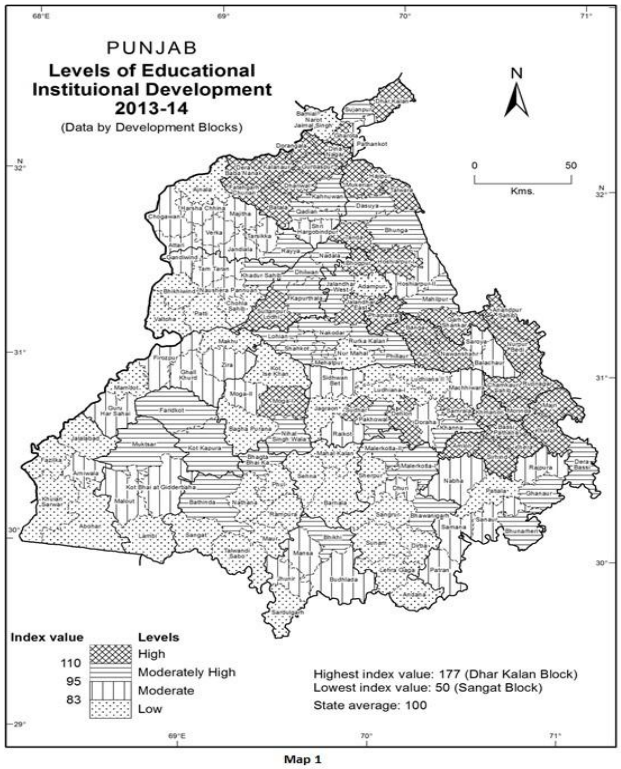
Tables 2, 3 and 4 depict the distribution of blocks with moderately high, moderate and low levels of educational institutional development in Punjab.

Table-2: Blocks at moderately high level of educational development in Punjab

District	Development block(s)
Amsitsar	Rayya
Bathinda	Bhagta Bhai ka, Bathinda
Faridkot	Kotkapura, Faridkot
Gurdaspur	Kahnuwan,Qadian
Hoshiarpur	Dasuya, Bhunga, Mahilpur
Jalandhar	Nakodar, Mehatpur, Shahkot, LohianRurka Kalan, Phillaur, Jalandhar West
Kapurthala	Kapurthala, Nadala, Dhilwan
Ludhiana	Khanna, Pakhowal,
Mansa	Bhikhi
Moga	Nihal Singh Wala
Muktsar	Muktsar
Pathankot	Sujjanpur
Patiala	Bhunerheri, Ghanaur,
S.A.S. Nagar	DeraBassi
Sangrur	Malerkotla-I, Melerkotla-II, Bhawanigarh
Tarn Taran	Khadur Sahib

Table-3:Blocks at moderate level of educational development in Punjab

S. No.	Name of the distract	Name of the development block(s)
1.	Abohar	Arniwala
2.	Amritsar	Tarsika, Jandiala, Verka, Majitha, Attari, HarshaChinna,
3.	Firozpur	GhallKhurd, Guru HarSahai, Firozpur, Zira
4.	Gurdaspur	Sri Hargobindpur
5.	Hoshiarpur	Hoshiarpur-II
6.	Ludhiana	Sidhwan Bet, Raikot, Doraha, Machhiwara,
7.	Mansa	Mansa,
8.	Moga	Moga-II
9.	Muktsar	Malont, Gidderbaha
10.	Pathankot	Pathankot
11.	Patiala	Sanaur, Patran, Rajpura, Nabha, Samana
12.	S.B.S. Nagar	Saroya, Balachaur,
13.	Sangrur	Dhuri
14.	Tarn Taran	NaushehraPanuan, Tarn Taran, Gandiwind, Valtoha



Map 1

Table-4:Blocks at low level of educational development in Punjab

District	Development block(s)
Abohar	Abohar, KhuianSarwar, Jalalabad fazilka
Amritsar	Chogawan, Ajnala
Barnala	Sehna, Mahal Kalan, Barnala
Bathinda	Nathana, Rampura, Phul, Maur,Tawandi Sabo, Sangat
Firozpur	Mamdot, Makhu
Jalandhar	Adampur, Nur Mahal,
Ludhiana	Ludhiana-I, Jagraon, Ludhiana-II,

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Mansa	Sardulgarh
Moga	Baghapurana, KotIse Khan
Muktsar	Lambi
Pathankot	NarotJaimal Singh, Bamial
Patiala	Patiala
Sangrur	Sangrur, Sherpur, Lehragaga, Sunam, Andana at Moonak, Dirba
Tarn Taran	Bhikhiwind, Chola Sahib, Patti,

Striking feature in the levels of educational institutional development found is that most backward blocks like Nur Mahal, Ludhinana-1, Machihwara, Balachaur and Saroyaare surrounded by the most developed blocks like Chamkaur Sahib, Sudhar, Samrala, Delhon, Khamano, Rupnagar, NurpurBedi, Garhshankar, Nawhanshahar, Banga, Phagwara and Jalandhar East. Another notable feature in the level of educational development was that blocks along international border and borders with Rajasthan and Haryana have lower levels of educational institutional development (Map 1).

Different indicators of educational institutional development shows varying degree of regional disparity in the state. The disparity has been found to be most acute in villages having high/senior secondary schools as percent of total inhabited villages, middle schools per hundred square kilometers of area and high/senior secondary schools per hundred square kilometers of area. It was of moderate degree in villages having middle schools as percent of total inhabited villages, middle schools per lakh population, and primary schools per hundred square kilometers of area (Table 5). It is found to be of lowest order in villages having primary schools as per cent of total inhabited villages, primary schools per lakh of population and high/senior secondary schools per lakh of population.

Table 5: Regional Disparities in Educational Development in Punjab

S. No.	Indicator	Value of the block at		State Average	Disparity Index*
		Top	Bottom		
1.	Primary schools per hundred square kilometers of area	64.52	8.07	28.16	2.00
2.	Primary schools per lakh of population	128.72	27.22	70.48	1.44
3.	Villages having primary schools as percent of total inhabited villages	181.58	66.67	101.77	1.12
4.	Middle Schools per hundred square Kilometers of area	14.93	1.08	6.03	2.29
5.	Middle Schools per lakh of population	55.26	7.04	23.16	2.08
6.	Villages having Middle schools as percent of total inhabited villages	55.26	7.04	23.16	2.08
7.	High/Senior secondary schools per hundred square kilometers of area	16.19	1.7	6.43	2.25
8.	High/senior secondary schools per lakh of population	28.65	5.64	16.31	1.41
9.	Villages having high/senior secondary schools as percent of total inhabited villages	75.56	6.56	28.10	2.45

*Disparity Index is calculated by the formula: value of the development block at top position minus value of the development block at bottom position divided by the state average value.

IV. MAIN FINDINGS

Overall picture of educational institutional development displaysthat northern, northeastern and eastern parts of the state have highest levels of development. In spatial terms southeastern Malwa region lacked in primary, middle and high/senior secondary schools per hundred square kilometers of area, whereas their high densities are observed in BistBoab, northern half of Bari Doab and northeastern Malwa regions. In contrast, thoroughlydissimilar patterns observed for primary, middle and high/senior secondary schools as percent of total inhabited villages, which is significantly higher in southeastern and southern Malwa region due to relatively large size of villages as compared to different parts of the state. Perversely, upper Bari Doab, Bist Doab and northeastern Malwa regions, where village size is small, are found to be lower on the scale. However, number of primary, middle and high/senior secondary schools per ten thousand of population presented aninconsistent distributional pattern. Regional disparities in educational developmentare found to be at lower level in the state when discerned through aggregate scores of educational facilities.Nevertheless, there exist these educational disparities in the patterns of distribution of primary, middle and high/senior secondary schools within the state. Western and southern blocks should be given top priority which have registered low levels of educational institutional development.

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