

## Spatial Inequalities in Social Development among Northwest Indian States

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**ABSTRACT** The issue of regional imbalances has received attention from various researchers, policy planners and academicians. It is a global phenomenon and can be found all across the world including India. The present study intends to examine the trends and pattern of regional disparities in social development in Northwestern states of India. Based on 8 indicators, the study has been conducted with reference to three reference years, that is, 1971, 1991 and 2011. In order to examine the social development composite standard score has been computed and interpreted. Co-efficient of variation has been computed to gauge into spatial variations at individual level of social variables. Majority of the districts of Jammu and Kashmir and Rajasthan registered low level of social development. The study reveals high development in few enclaves and pockets of the region. Although, regional disparities are declining but some districts are still socially backward.

### INTRODUCTION

Spatial inequalities in development is a universal phenomenon at any level. These remain prevalent in all countries of the world. Spatial disparities represent the co-existence of relatively developed and depressed or backward regions in any area. Some particular areas enjoy benefits of concentrated developmental activities due to the factors such as development of markets, favourable geographical conditions, structured government policies along with other social, economic and political reasons. The concept of development evolved mainly during the II World War based on newly originated theoretical foundations guided by international institutions such as International Monetary Fund (IMF), United Nations (UN) and World Bank (WB). The theories of Kuznets (1955) and Williamson (1965) claim that spatial inequalities increase initially in the process of development and follow decline subsequently.

Kuznets discussed that very few people benefit from the early stage of development and the inequalities increase. But during later stages, the shift from agrarian activities to other activities takes place and these spatial inequalities get reduced. Williamson stated that the industrializa-

tion was driven by discovery and utilization of natural resources. Therefore, the economic prosperity in the industrialization process is also unequally distributed on space, so the spatial inequalities rise in the process. But, at later stage of development attractive employment opportunities in developed regions attract workers from other regions which result in depressing the wages in destination regions and increasing the wages in home/depressed regions. Thus, a natural convergence process starts, possibly encouraged by government policies, the regional inequalities experience falls. Barrios and Strobel (2009) analysed that growth is accelerated in the leading regions and in result, the regional inequalities increase. The other lagged regions follow the leading regions with the available technological capabilities and natural resources. The study reveals that the spatial inequalities follow the trend of increase, peak and decrease.

Different regions of a country grow with different rates resulting in disparities which result into various socio-economic problems. India has been progressing from underdeveloped to developing country with gaining high capabilities in terms of social, economic and overall development. However, the benefits of socio-economic development remain confined to small areas

of certain social, economic, political or strategic significance. This trend results into regional disparities. Various studies by Rao (1968); Myrdal (1974); Dholakia (2003); Rai and Bhatia (2004); Mustaqim et al. (2006); Sahol and Kaur (2006); Kurian (2007); Mohanty (2009); Mishra and Mujoo (2013); Rajalakshmi (2013); Ganaie et al. (2014); Ghosh and Chakma (2014); Nayak (2014); Singh (2014); Asif (2015); Sadaf and Munir (2015); Mustaqim and Asif (2016); Radhika et al. (2016); Savita and Rajeshwari (2016); and Sharma (2017), analysed the issue of regional disparities in India. These studies have mainly investigated the disparities in infrastructure, health and education sectors at the district or sub-district level. Initially, the concept of development was confined to economic variables but later on it has expanded in various other dimensions and social development received an epochal attention. The concept of social development is people-centric. Emphasizing on social development, Copenhagen declaration laid stress on full participation of people in society to promote social progress, justice and betterment of human conditions and integration of economic, cultural and social policies. Various social issues like poverty, unemployment, illiteracy, health and issues related to safe and just societies were discussed. It was observed that social development is about improving the well-being of every individual in society; so, everyone can reach his/her full potential. International Consortium for Social Development (ICSD) defined the social development as an approach to “expand capacity to individuals and communities, promote world peace and social justice, improve access to healthcare and education, overcome discrimination against women and minorities to create sustainable income and economic structures” (ICSD 2012: 13). Health and development are the two important sectors of societal well-being and are the key source of human capital formation (NCERT- Indian Economic Development 2006: 83-84). These are the two key sectors of creating human capital, which lead to social development in particular and overall, in general.

The social dimensions of development primarily received attention in 1980s, which reflected in World Development Report (WDR) of 1991 compiled by the World Bank. It asserted that the

challenge of development is to improve the quality of life especially in the world’s poor countries. It encompasses ends in themselves, better education, high standard of health and nutrition, less poverty, a clearer environment, more equality of opportunity and a richer cultural life (WDR 1991:4). The concept of social development is inclusive of economic development but differs from it in the sense. It emphasized the development in totality of society in its economic, political, social and cultural aspects (Gore 1973 quoted by Nahar 2014:6). Historically, the development pattern in India has been uneven and irregular due to interplay of physical, economic, cultural and political factors and processes. However, it was during the British regime which served to accentuate the regional disparities in socio-economic development. The basic purpose of British government was to foster the colonial interests, hence developed only those areas which were potentially suitable to them as per their economic, political, cultural and global needs. However, the regional development has always been the part of Indian Planning process. But some factors such as uneven distribution of natural resources, mobility of capital, migration, governance, nature of political will and government policies led to spatial inequalities in social sphere in India. The regional disparities in the north-western part of India are the fulcrum of peculiar physical landscape, historical processes and variations in the socio-political and economic aspects. The present study is an attempt to trace the variations in the level of social development among north-western states of India at district level based on eight variables between 1971 and 2011. The study may be helpful in assessing the inter-district development disparities in social development in the study area.

### Objectives

The present study aims to fulfil the following two objectives:

- i) To study the level of social development and classify the districts as per levels of development.
- ii) To examine the trend of disparities in social development in Northwestern states of India.

### Study Area

The Northwest region of India is selected for the present study. According to Census of India (2011), it covers an area of about 6, 67,327 km<sup>2</sup> and population of 17,0047,793 persons. It covers about one-fifth (20.30%) of the total geographical area of country and about 14 percent of the total population of India. Geographically, the study area is located between 23° 30' N to 37° 06' N latitude and 69° 30' E to 81° 10' E longitude. In the northern part, the study area shares the boundary with Afghanistan and Pakistan. In the north-east, it demarcates the boundary with China and Nepal. In the south-east, it shares the boundary with Madhya Pradesh and Gujarat state lies in the south-west of the study area.

### METHODOLOGY

The present study is entirely based on secondary data collected from Directorate of Census Operations, Directorate of Economics and Statistics and Department of Health and Family Welfare of different states (Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Haryana, Punjab, Rajasthan) and union territories (New Delhi and Chandigarh), for the years 1971, 1991 and 2011. The spatial disparities in the levels of social development have been examined at district level in the study area.

The level and pattern of disparities in social development in the study area have been examined with respect to 8 indicators namely (X1) total literacy rate, (X2) female literacy rate, (X3) male literacy rate, (X4) urbanization, (X5) sex ratio, (X6) total health institutes/10000 persons, (X7) total institutional beds/10000 persons, (X8) student-teacher ratio (number of students per teacher).

In order to examine the disparity in social development at district level, z-scores have been computed using the following formula

$$Z = \left( \frac{x_i - \bar{x}}{\sigma} \right)$$

Where; **Z** represents the Z-score.

***x<sub>i</sub>*** represents the original value of the *i*th observation.

***x*** denotes the Mean value of variables

***σ*** represents the standard deviation from the mean value

Further, composite z-scores are calculated by summing up the Z scores of all the indicators and divided by the number of indicators using the following formula:

$$CSS = \frac{\sum z_{ij}}{n}$$

Where; **CSS** means the composite standard score

***z<sub>ij</sub>*** denotes the z-score of all indicators *j* of district *i*

***n*** means total number of indicators

To examine the trend of spatial disparities in social development, the composite standard score has been classified into following three categories:

Category	Composite Score
High development	More Than 1.00
Moderate Development	0.00 to 1.00
Low Development	Less Than 0.00

Besides, to find out temporal variation at the level of individual indicator, the co-efficient of variation (C.V.) has been calculated by applying following formula:

$$C.V. = \frac{\sigma}{\bar{x}} \times 100$$

Where; C.V. means co-efficient of variation  
***σ*** represents the standard deviation from the mean value

***x*** denotes the mean value of variables

Karl Pearson's co-efficient of correlation method has also been used to show the relationship between social variables in the study area, using the following formula:

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{(\sum X)^2 - \frac{(\sum X)^2}{N}} \sqrt{(\sum Y)^2 - \frac{(\sum Y)^2}{N}}}$$

Choropleth technique has been used in preparing the maps and to show the spatio-temporal variations in the level of development during the study period. Line and bar graphs have also been prepared to show the behaviour of social development in the study area.

### OBSERVATIONS AND DISCUSSION

In order to maintain homogeneity in the administrative units and bring out the comparative picture of regional disparities in social development the districts of 1971 have been taken as base districts and

the newly carved out districts of census year 1991 and 2011 have been merged in the districts of base year by using following methodology:

- i) If the newly created districts in 1991 and 2011 were fully carved out from a single district, these were merged with the parent district of 1971.
- ii) If the newly created district has been carved out from multiple parent districts, the district accounting for more than 50 percent administrative area of the new district is considered as parent district for merging purpose.

On the basis of composite index, the districts of northwestern states of India have been divided into three categories of level of development. Higher value of composite index shows higher level of development and vice-versa.

#### Areas of High Development (>1.00)

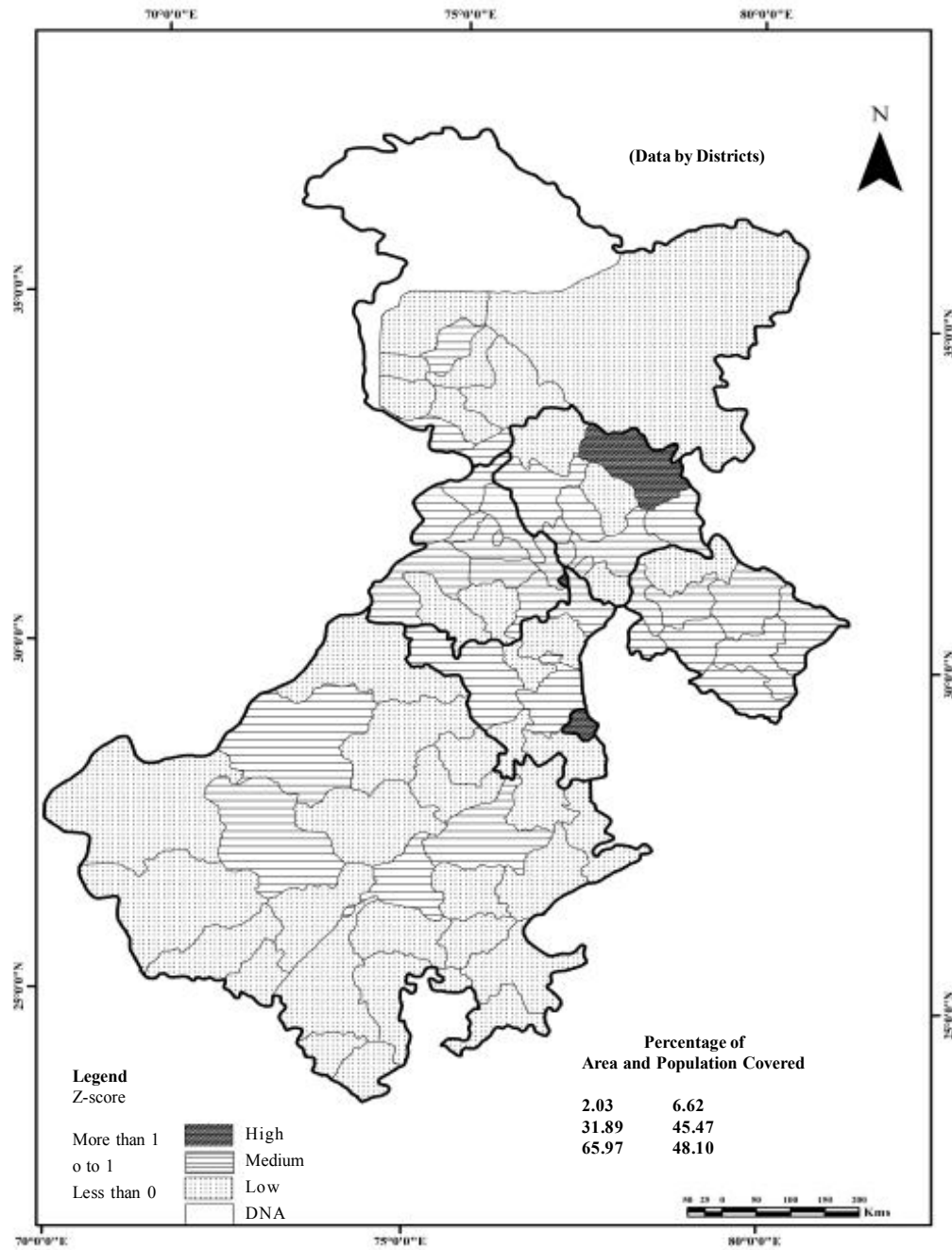
The districts having composite index value more than 1.00 have been taken as the areas of high social development. Lahul and Spiti (Himachal Pradesh), Chandigarh and Delhi were the only three districts with 2.03 percent of total area and 6.62 percent of total population witnessing high level of development in 1971. In 1991, Ladakh district of study area was the only district registering high level of development. Figure 3 exhibits that Chandigarh and Delhi registered the high level of development in 2011 covering about one-tenth of total population. Better socio-economic conditions, earlier availability of healthcare services, small size of population and other government initiatives have resulted into high level of development in the district of Lahul & Spiti in 1971. Lahul & Spiti has performed visibly well in health sector which is evident from 5.93 and 5.64 Z-score values in availability of healthcare institutes and health institutional beds per size of population. Chandigarh and Delhi witnessed high level of development mainly due to better conditions in education and urbanisation sectors. Availability of basic learning institutions, high level of education, and employability contributed to high level of development in Chandigarh and Delhi in 1971. Due to statistical fallacy, Ladakh district in Jammu & Kashmir registered the high level of development in 1991. Because, the data for the reference year (1991) were avail-

able for a single variable among all 8 variables of social development. On the basis of available data of total health institutes per 10000 population, the composite index of Ladakh has been taken into consideration and that resulted into the high level of social development. In 2011, Delhi and Chandigarh witnessed high level of development. Relatively better conditions in literacy (both male and female), adequate availability of health institutional beds, appropriate student-teacher ratio and more importantly higher urban population have contributed to high level of development in these areas in 2011.

#### Areas of Moderate Development (0.00 to 1.00)

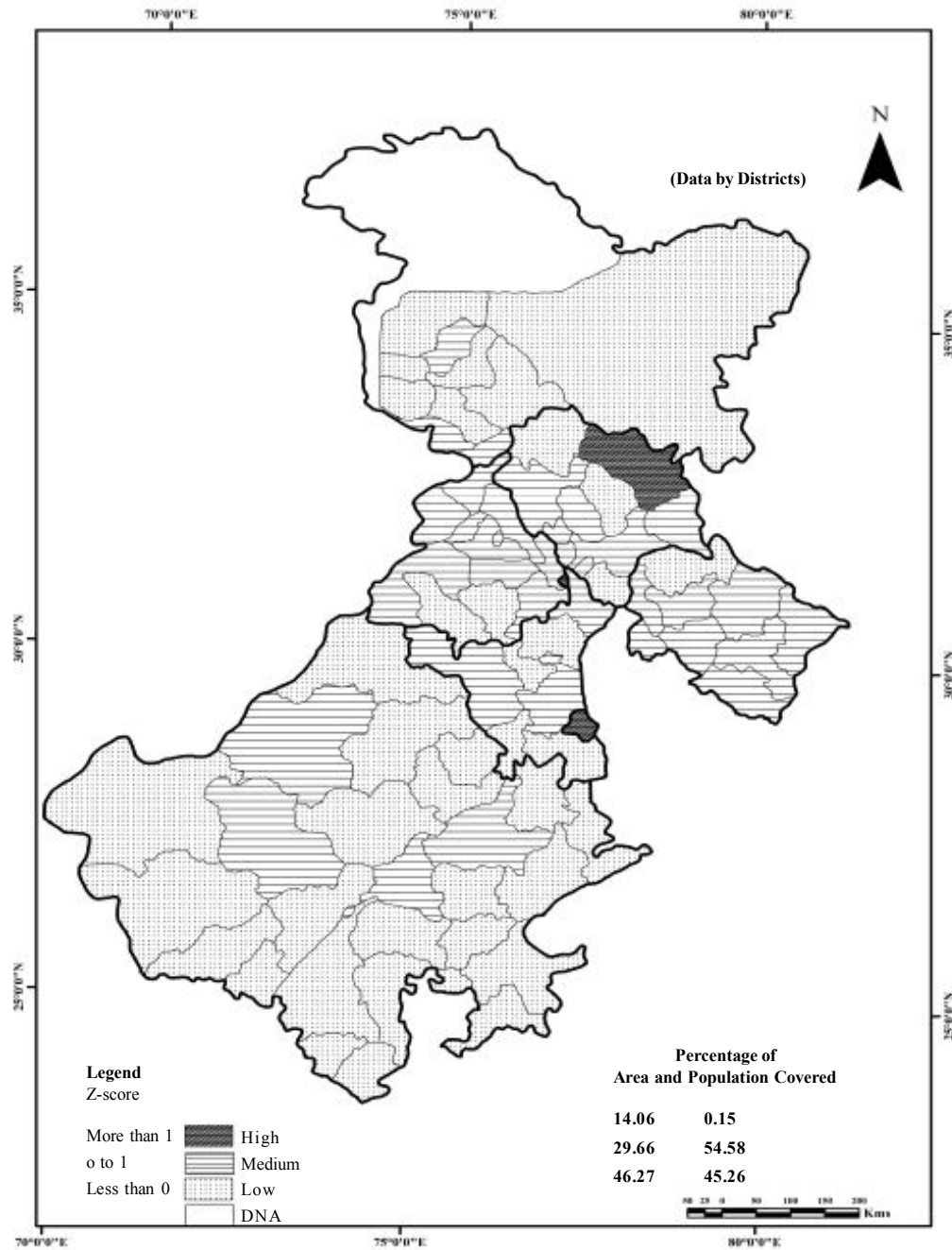
Figure 1 exhibits that mainly central and northern parts of study area witnessed moderate level of development in 1971. Entire state of Utrakhand, Himachal Pradesh (excluding Chamba, Kullu and Lahul & Spiti) and Punjab (excluding Bathinda and Sangrur) observed moderate level of development in the study area. Kaithal, Jind, Mahendergarh and Gurgaon districts of Haryana along with Ajmer, Jaipur, Jodhpur and Bikaner districts of Rajasthan also witnessed moderate level of development in 1971. In 1991, the spatial pattern experiencing moderate level of development remained almost unchanged. The entire states of Jammu & Kashmir, Himachal Pradesh, Utrakhand and Haryana registered moderate level of development barring some districts in each state (Fig. 2). The northern part of Punjab stretching from Patiala district in south-east up to Amritsar district in north-west part along with Chandigarh, Delhi, Ajmer and Jaipur also registered moderate level of development.

Figure 3 portrays that the distribution pattern in the category of moderate level of development remained same but the number and share of the districts changed during next two decades. The study reveals that in 1971, about 44 percent of the total districts registered moderate level of development. It has significantly increased to 47.36 percent in 2011. But locationally, the districts have not remained the same during the study period. The districts have changed with the passage of time. The districts have not progressed with uniform pace of development. The available technological capabilities and natural resources effected the level of development. The

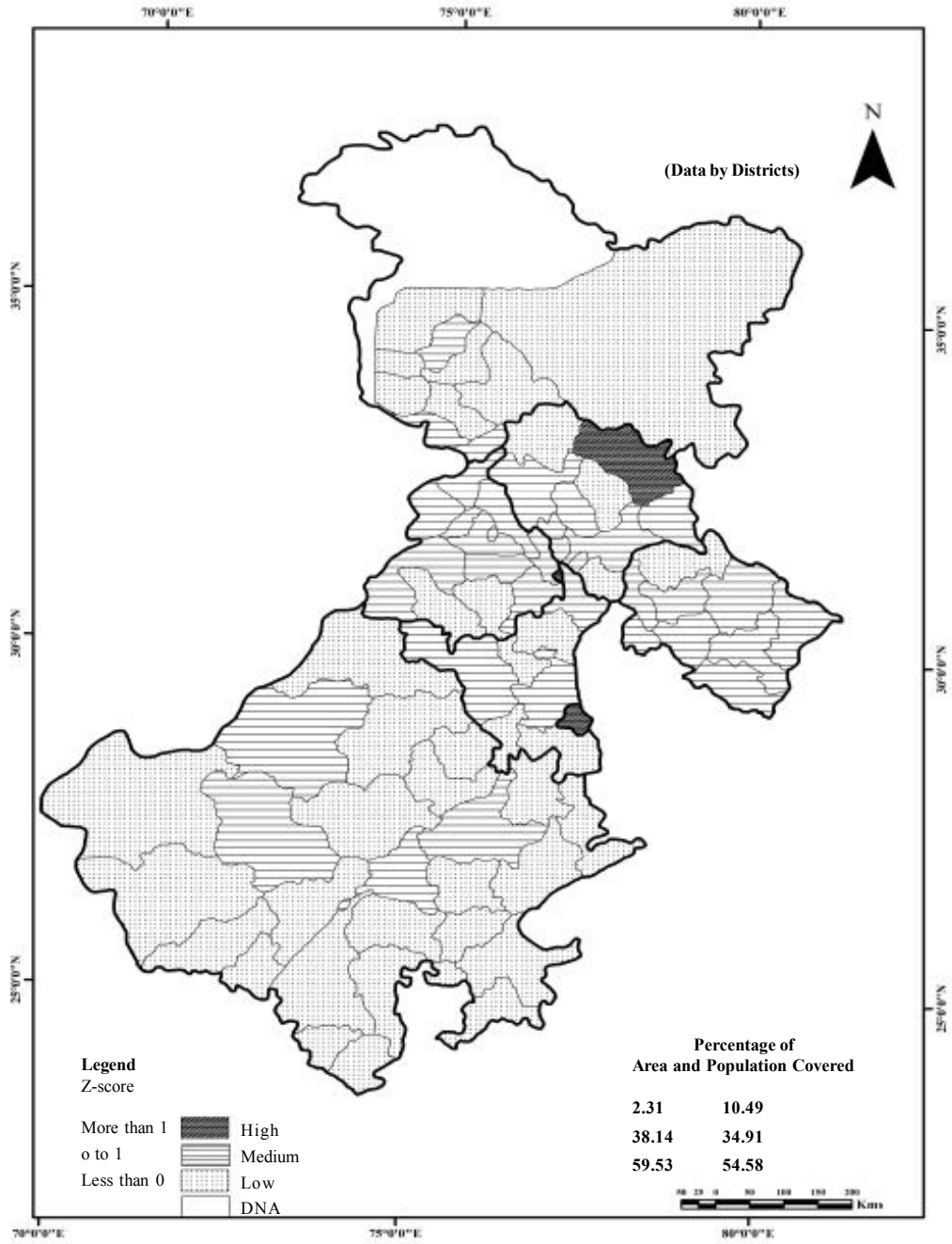


**Fig. 1. Northwest India: Levels of Social Development 1971**

Source: Prepared by Authors Based on Census of India Data



**Fig. 2. Northwest India: Levels of Social Development 1991**  
*Source:* Prepared by Authors Based on Census of India Data



**Fig. 3. Northwest India: Levels of Social Development 2011**  
*Source:* Prepared by Authors Based on Census of India Data

study reveals that the areas of moderate level of development were mainly concentrated in the central and northern parts of the study area.

#### **Areas of low Development (<0.00)**

The study reveals that almost entire state of Rajasthan (excluding Ajmer) and Jammu & Kashmir (excluding Ladakh and Jammu districts) registered low level of development. Some southern and central-eastern parts of Haryana along with Bathinda district of Punjab and Chamba district of Himachal Pradesh observed low level of development in 1971. The study reveals that the whole state of Rajasthan (excluding Jaipur and Ajmer) along with south-western stretch of Punjab in a contiguously observed low level of development. Some individual isolated districts distributed in Himachal Pradesh, Haryana and Uttrakhand registered low level of development in 1991. The share of the districts with low level of development was 51.31 percent in 1991 and reduced to about 48.68 percent in 2011. Figure 3 portrays that almost same geographical locations witnessed low level of development in 2011. Almost entire state of Rajasthan (excluding Ajmer, Sikar and Jhunjhunun), south-western part of Haryana and majority of the districts of Jammu & Kashmir (excluding Ladakh, Punch, Jammu and Kathua) witnessed low level of development. Karnal and Jind districts of Haryana, Chamba and Sirmour districts of Himachal Pradesh along with Hardwar district of Uttrakhand observed low level of development. Low performance in education sector (literacy rates) due to inadequate availability of schooling facility, lack of transportation and communication, economic backwardness and pre-dominance of primary activities and wide gender gap due to patriarchal society, favouritism against females, desire to have a male child, sex selective abortion could be some of the reasons leading to low level of social development in the study area. Apart from the above reasons less urbanisation, engagement of more males in agricultural activities, scattered distribution of population resulting into less population density and negligible industrial development also resulted into low development in the study area during the study period. During 1990, majority of the districts of Jammu & Kashmir witnessing low level of de-

velopment have moved up to moderate category due to statistical fallacy, as mentioned earlier. In 2011, the districts of Jammu & Kashmir again observed low level of development. Both populations share and the share of districts in low category of developed districts has increased during 1991 and 2011. However, the number of districts witnessing low level of development has changed with time but the spatial location of the districts remained in same areas.

The present study corroborates the theory of Kuznets which finds that regional inequality increases during the early stage of development and decreases as the economy matures. Myrdal (1957), Williamson (1965), Friedman (1966) and Alonso (1980) further supported similar behaviour of regional disparities conceived by Kuznets. Minocha (1983) found that the process of growth in India was confined to a few enclaves which assisted in the process of exploitation of the hinterland. With the independence, the organization has undergone some changes but the organization continues to be based in the favour of metropolitan cities and large urban centres. Similarly, the metropolitan cities and urban centres and politically potent administrative headquarters such as New Delhi, Chandigarh, Shimla and Dehradun witnessed comparatively high level of social development in the study area. Other hinterland areas (including the majority of the districts of Jammu & Kashmir along with Rajasthan) witnessed comparatively low level of social development. These areas continue to be weak in every relationship between urban environs characterised as core and rural hinterland as peripheral milieu.

#### **Regional Disparities in Social Development Variables (1971-2011)**

Different regions of a country grow with different rates resulting in disparities in socio-economic life. Given the difference and diversity in physical and human environs among the states of Northwest India, the regional disparities in social development are bound to happen. The study reveals discernible spatial disparities in social development in the study area.

Table 1 represents that the co-efficient of variation in literacy rate was 39.48 percent in 1971. It has phenomenally decreased to 15.55



**Table 1: Northwest India: Co-efficient of variation among social development variables**

Census year	Coefficient of variation (%)							
	X1	X2	X3	X4	X5	X6	X7	X8
1971	39.48	30.59	75.54	88.21	9.26	95.95	86.02	83.45
1991	15.55	10.22	24.90	30.30	6.80	75.06	76.10	72.65
2011	14.03	9.74	21.12	47.79	7.40	71.85	66.30	83.19

Source: Computed by Authors based on census of India data

(X1: Literacy Rate, X2: Male Literacy Rate, X3: Female Literacy Rate, X4: Student-Teacher Ratio, X5: Sex Ratio, X6: Urban Population (percent), X7: Health Institutes/10000 persons, X8: Institutional Beds/10000 persons)

percent in 1991 and about 14 percent in 2011. The study reveals that the pace of decrease in disparities in literacy rate was higher between 1971 and 1991 than during the next two decades. The study reveals that in 1971, the co-efficient of variation in male literacy was 30.59 percent. It witnessed about three-fold decline between 1970s and 1990s. It declined further marginally to 9.74 percent in 2011. The study reveals that regional disparity in male literacy has witnessed more than three-fold decrease during the study period. The study brings out that the regional disparity in female literacy rate has also registered more than 3.5 times decrease in the study area. In 1971, the co-efficient of variation in female literacy rate was 75.54 percent. It has decreased to about 25 percent in 1991 and about 21 percent in 2011. The study reveals that pace of decline in disparities in the female literacy rate was much higher between 1971 and 1991 than 1991 and next 20 years. It happened due to focus of government towards gender parity and just issues during 1970s and 1980s and increasing awareness in the study area. The study reveals that in 1971, the co-efficient of variation in pupil-teacher ratio was 88.2 percent. It has decreased to about 30 percent in 1991. It further increased to about 48 percent in 2011. Initially, the regional disparities in pupil-teacher ratio registered decline but after 1990s experienced increase due to increasing enrolments and resulting overcrowding class rooms and paucity of primary teachers. The universalization of primary education without adequate provision of primary level teachers also increased the regional disparities in this context.

The sex ratio among northwest states of India has witnessed fluctuating trend during the study period. It is evident from the study that in

1971, the co-efficient of variation in sex ratio was 9.26 percent. It has decreased to 6.80 percent in 1991 and increased slightly to 7.40 percent in 2011. The study reveals that among all the social variables the magnitude of spatial disparities is the least and continues to be minimum in sex ratio. Table 1 reveals that the co-efficient of variation in urbanisation was about 96 percent in 1971 and declined to about 75 percent in 1991 and about 72 percent in 2011. Thus, the study shows that during 1970s and 1980s there were notable disparities in urbanisation but declined with the passage of time. The pace of decline was more intense between 1971 and 1991 than 1991 and 2011. Table 1 reveals that regional disparities in availability of health institutions have decreased during the study period. The co-efficient of variation in availability of health institutes per size of population was about 86 percent in 1971 which declined to 66 percent in 2011. In 1971, the co-efficient of variation in availability of institutional beds per size of population was about 83 percent. It has decreased to about 72 percent in 1991 and further increased to about 83 percent during next two decades mainly due to excessive population growth and less availability of institutes in rural areas.

### **Trend of Disparities in Social Development (1971-2011)**

The level of social development varies from area to area and society to society. Disparity in social development mainly follows the two trends either the increase or decrease over period of time. The change in disparities in the levels of social development depends upon many factors. The available social science literature indicates that India has witnessed regional disparities in social development. The study reveals that in

1971, the co-efficient of variation in social development was 63.6 percent among northwest Indian states. It decreased to 38.9 percent in 1991 and 40.2 percent in 2011 (Table 2). The study reveals that the disparities in the levels of social development have decreased between 1971 and 2011. The study shows that the pace of decrease in the disparities in social development was very high between 1971 and 1991. The disparities in social development in the study area remained almost confined to about 40 percent in 2011.

**Table 2: Northwest India: Trends in co-efficient of variation in social development**

Census year	1971	1991	2011
Co-efficient of variation (%)	63.6	38.9	40.2

Source: Computed by Authors based on census of India data

The decline in the co-efficient of variation showing the levels of development could be

largely attributed to the progressive improvements in total, male and female literacy rates. Apart from the above variables, the significant improvement in urbanization and health sectors also helped in reducing the social disparities in the study area between 1971-2011.

### Relationship Among Different Sectors (1971-2011)

Table 3 reveals that education sector including total, male and female literacy rates and pupil-teacher ratio is directly correlated with moderate to high degree of correlation with the social development in the study area. The urbanisation is also positively correlated with the social development with high to moderate degree of correlation. Sex ratio and social development registered negatively low degree of correlation in 1971. But, due to improved conditions, it has witnessed the positive signs and registered the positively low degree of correlation in 1991 and

**Table 3: Northwest India: Co-efficient of correlation among social sectors (1971)**

Variables	X1	X2	X3	X4	X5
X1	1				
X2	0.67	1			
X3	-0.24	-0.41	1		
X4	0.07	-0.04	-0.07	1	
X5	0.89	0.63	-0.08	0.44	1

#### Northwest India: Co-efficient of correlation among Social Sectors (1991)

Variables	X1	X2	X3	X4	X5
X1	1				
X2	0.35	1			
X3	0.009	-0.46	1		
X4	0.26	-0.15	-0.05	1	
X5	0.61	0.21	0.07	0.59	1

#### Northwest India: Co-efficient of correlation among Social Sectors (2011)

Variables	X1	X2	X3	X4	X5
X1	1				
X2	0.39	1			
X3	0.05	-0.29	1		
X4	-0.05	-0.26	-0.14	1	
X5	0.90	0.39	0.17	0.26	1

Source: Computed by Authors based on census data

(X1: Education, X2: Urbanisation, X3: Sex-Ratio, X4: Health, X5: Social Development)

2011. The health sector has observed positive relationship with low to moderate degree of correlation with social development varying during the study period.

### CONCLUSION

The study reveals that the level of development in the northwestern region of the country differs from district to district and state to state. In 1971, the high level of development in Northwestern states of India was concentrated in few pockets. Delhi, Chandigarh and Ladakh (Jammu & Kashmir state) witnessed the high level of development. The extreme northern and southern parts of the study area were lagging behind. In 2011 also, almost the same pattern of development has been observed in Northwestern states of India. The centrally located and administratively prime centres, that is, Delhi and Chandigarh registered the high social development and bordering areas of Jammu & Kashmir and Rajasthan especially majority of the districts of Rajasthan are still lagging behind. These areas have registered the multi-sectoral social backwardness.

### RECOMMENDATIONS

The Northwestern states of India have certainly undergone visible positive social transformations during the study period. But, rural and multi-sectorally backward districts of the study area have witnessed distinct spatial disparities in the levels of social development. Thus, the Governmental plans and programmes need to focus upon minimising the regional disparities in social development in the area. There is need of balanced regional planning and social development policy. Backward areas need to be strengthened and developed on priority basis.

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