International Journal of Applied Business and Economic Research

ISSN : 0972-7302

available at http: www.serialsjournals.com

Volume 15 • Number 21 (Part 2) • 2017

Regional Disparities in the Levels of Demographic Development in Punjab: A Block Level Study

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ABSTRACT

Various aspects of demography have cause and effect relationship with development in two ways. Firstly, human resources are the factors of production as workers and potent consumers for various goods and services. Secondly, they are the exclusive recipients of the benefits of the entire development process. Therefore, the main concern of the development planning should be improvement in the quality of human resources. The present study is an attempt in this direction that tries to analyze the patterns of the regional disparities in the levels of demographic development at block level in Punjab, Considering this, three indicators have been selected to identify the spatial patterns of regional disparities in Punjab: (1) literates as per cent of total population; (2) sex-ratio, and (3) families having person abroad as per cent of total families. The Human Development Index technique has been used to work out the deprivations score of each development block and convert it into a development score. The development scores of each development block on three indicators have been summed up to calculate the block's composite development index. Correlation analysis has also been adopted to estimate the relationships among different variables of demographic development.

Keywords: Punjab, development block, regional disparities, Composite Index, demographic development.

1. INTRODUCTION

Regional disparities in an area has a great bearing on its development process. It has been recognized both as a factor and a consequence of development. It has to be viewed also as one of its dimensions since the demographic pattern and trends are inseparable from overall process of socio-economic development. The priorities in any regional development scheme can be fixed only in the light of prevailing demographic situation. Although the importance of demography has always been recognized yet the concept of

demographic development remained an ambiguous one. It has been a popular notion that development of any region would ultimately improve the quality of a population. But present realization is that demographic development is a component of development process and should be analyzed as one of its dimensions similar to agricultural, industrial and social development.

Rai, S.C. and Bhatia, V.K. (2004) estimated the status of development of different districts of Assam based on optimum combination of 48 demographic development indicators covering agricultural sector, industrial sector and infrastructural facilities. They found that overall socio-economic was positively associated with agricultural development and infrastructural facilities. They further elaborated that literacy level has not influenced the status of development in agricultural, industrial and overall socio-economic development. They observed wide regional disparities in the levels of development in different districts of the state. Pana, V. and Pana, I. (2010) studied selected demographic indicators like population distribution, population density, population growth, life expectancy, literacy and urbanization of selected developed and developing countries. They concluded that there are no predetermined models in achieving the demographic issues of sustainable development as they vary in developed countries with small population and developing countries with large populations. Singh, R. (2015) examined regional disparities in the levels of demographic development in the post reform India on the basis of four indicators; population above poverty line, female literacy, rural non-agricultural workers and urbanization and concluded that inter-state disparities had widened whereas intra-state disparities had declined. Kumar, M. and Kumar, R. (2015) examined regional disparities in Human Development Index in India and found that gaps between states declined in terms of literacy rate, general enrolment ratio and life expectancy at birth. They also observed that gaps also declined between the rural and urban segments within the states. Das, B. (2016) analyzed demographic disparities among the districts of Assam and found wide range of disparity in respect of demographic development indicators both within and among the districts. Rasool, R.S. et al. (2016) assessed disparities in the level of literacy in Jammu and Kashmir and found that Rajouri, Jammu, Kathua, Poonch, Udhampur, Baramula and Srinagar districts were the highly developed as compared to other districts of the state. Borah, S. and Borah, M. (2017) evaluated demographic disparities of two communities in Assam. They found wide range of disparity in respect of demographic indicators among the districts. They observed that crude birth rate, total fertility rate and child women ratio for Muslim community was higher than Hindu community.

Some more studies both empirical and theoretical by Indian scholars can be listed. An overall review of the literature relating to regional disparities in the levels of demographic development in India indicates that most of them:

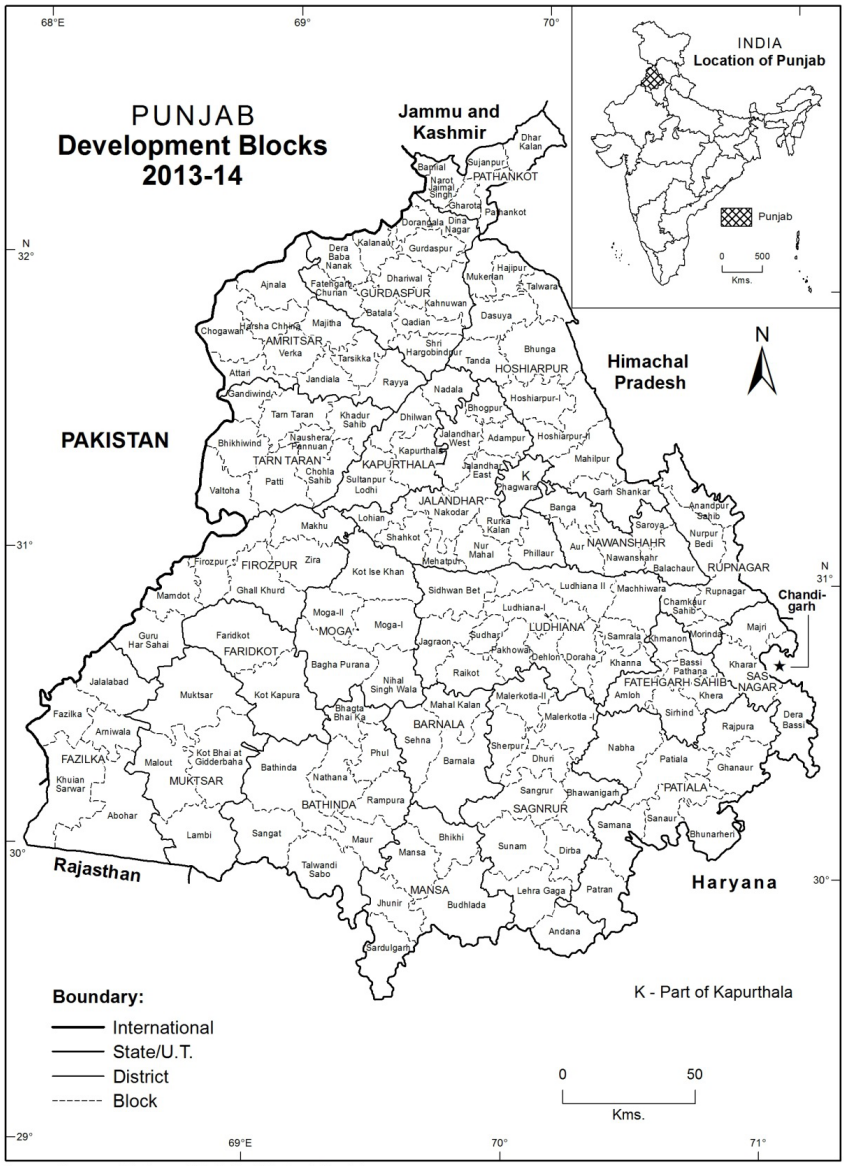
- dealt with regional disparities at national level,
- placed exclusive emphasis on overall development level and paid little attention to individual dimensions of demographic development,
- were undertaken by economists and a few were carried by geographers,
- lacked in comprehensive conceptual framework, consistent with their empirical exercise, and
- gave no attention on regional disparities at micro-level enumeration unit such as 'development block'.

All this calls for a systematic research on regional disparities within a state. Such exercises are to be accomplished with a sound conceptualization and systematic methodology. The present study intends to fill a research vacuous highlighted above. The thrust focus and significance of this study lies in the fact that it has been attempted to analyze and synthesize the patterns of regional disparities in the levels of demographic development at 'development block' level for the entire state of Punjab.

In geographic parlance, the demographic performance can be measured at development block level in terms of quality of population as manifest in its literacy rates, gender equality is reflected by sex-ratio and level of economic dynamism is suggested by families having person abroad as per cent of total families. Population dynamics, such as birth rate, death rate and migration also indicate development level of an area. But data on these counts are generally not available for small units like development blocks. Hence these could not be adopted as indicators.

2. DATA BASE AND METHODOLOGY

The present study is based on secondary sources of data obtained from block-at-a-glance district wise and village directories which are available in the office of Economic Adviser, Government of Punjab. The development block has been selected as the basic unit of study. It was done so to find out regional disparities in the level of demographic development at the local level. In 2013-14 there were 146 development blocks in Punjab (Map 1). In order to find out regional disparities at block level, three indicators have been taken into account. The composite index technique has been applied on the guidelines of Human Development Index to find out the regional disparities in the levels of demographic development in Punjab. The technique included five steps exercise. Firstly all the development blocks were arranged in order of their 1 to 146 rank in respect of each indicator belonging to demographic development. They were further grouped into four quartiles and quartile rank of each development block was mapped. These maps represented disparities in respect of three indicators of demographic development. Secondly, deprivation score of each development block was worked out. Thirdly, deprivation scores were converted into development scores. Fourthly, the development score of each development block on six indicators were summed up to arrive at the block's composite index. Lastly, development blocks were once again grouped into four quartiles and mapped. This map gave a cumulative picture of demographic development in various parts of the state.



Source: Census of India and Statistical Abstract, Punjab.

Map 1

Deprivation score of a development block on a specific indicator was calculated by using the following formula:

$$\text{Deprivation score} = \frac{\text{Statistic for the top ranking block} - \text{Statistic for the specific block}}{\text{Statistic for the top ranking block} - \text{Statistic for the bottom ranking block}}$$

Development score = 1 – Deprivation Score

Composite index = Summation of development scores on the six indicators dived by six

The case of Rurka Kalan block illustrates the working of the technique:

1. For the indicator literates as per cent of total population, deprivation and development scores were:

$$\text{Deprivation score} = \frac{83 - 81}{83 - 37} = 0.04$$

Here 83 is the highest statistic for top ranking block Adampur, 37 per cent for bottom ranking block Nabha, and 81 per cent for the block Rurka Kalan.

$$\text{Development score} = 1 - 0.04 = 0.96$$

2. For the indicator sex-ratio, deprivation and development scores were:

$$\text{Deprivation score} = \frac{998 - 953}{998 - 703} = 0.15$$

Here 998 is the highest statistic for top ranking block Talwara, 703 for the bottom ranking block Pathankot, and 953 for the block Rurka Kalan.

$$\text{Development score} = 1 - 0.15 = 0.85$$

3. For the indicator families having person abroad as per cent of total families, deprivation and development scores were:

$$\text{Deprivation score} = \frac{17.88 - 17.88}{17.88 - 0.01} = 0.00$$

Here 17.88 is the highest statistic for top ranking block Rurka Kalan, 0.01 per cent for the bottom ranking block Khuian Sarwar, and 17.88 for the block Rurka Kalan.

$$\text{Development score} = 1 - 0.00 = 1.00$$

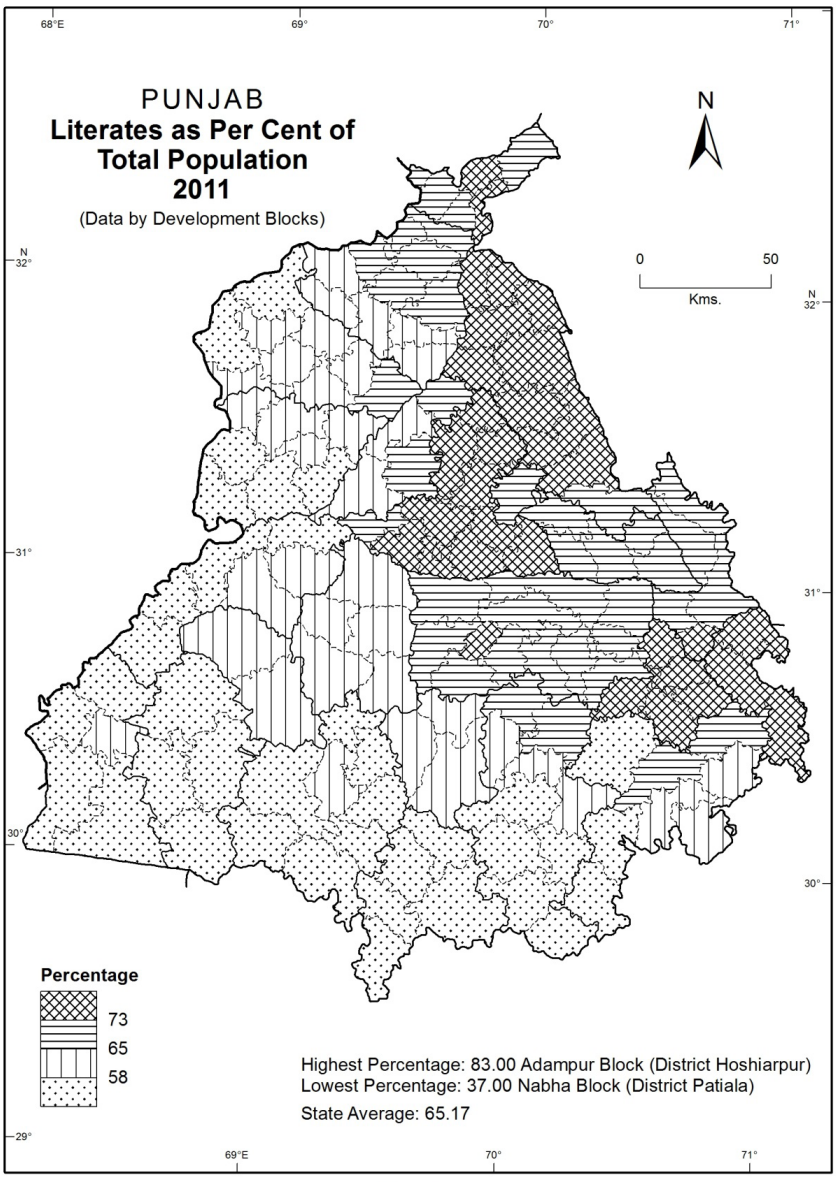
$$\text{Composite index} = \text{Summation of } 0.96, 0.85 \text{ and } 1.00 \text{ divided by } 3 = 0.93$$

The composite index for Rurka Kalan was 0.93, the highest for any block in Punjab, the lowest for Talwandi Sabo block was just 0.19 only and the figure for Punjab was 0.47. To manage comparability of the development blocks all the development blocks were generalized with the state average as 100. The composite index of Punjab (0.47) was given the score of 100 and all the development blocks were generalized with respect to this figure. Thus, final scores for Rurka Kalan and Talwandi Sabo blocks were worked out as 196 and 42 respectively. To assess the regional disparities in the levels of demographic development, composite development indices were computed for all the 146 blocks in Punjab. Final scores of development blocks were once again grouped into four quartiles and mapped. This map (Map 5) gave a cumulative picture of the level of demographic development in various parts of Punjab. The following paragraphs provide a detailed description about the patterns of demographic development at block level in Punjab.

3. LITERACY

Ability to read and write holds a key to social changes for development. It helps the acquisition of new ideas, skills and attitudes. It also fosters that for economic growth a literate worker is more productive and more responsive to new technology and modes of production. According to an estimate about 30 to 40 percent literacy is essential for economic growth. Some opined that at least one-third population should be literate to achieve industrial modernization.

In 2011, average literacy rate in Punjab for rural areas was 65.17 per cent. Although size of the state is quite small yet there were remarkable regional disparities in the literacy rates at development block level (Map 2). These ranged between 83 per cent in Adampur development block in Jalandhar district to as low a rate as 37 per cent in Nabha development block in Patiala district. Markedly, Bist Doab region and development blocks covering the whole of S.A.S. Nagar and Fatehgarh Sahib districts near the state capital of Chandigarh had the most literates as per 2011 census. These areas are known for emigration, political awareness and advanced prospect.



Map 2

On the contrary, the southern region of the state, covering development blocks of Patiala, Sangrur, Mansa, Bathinda, Sri Muktsar Sahib, Faridkot and Fazilka districts is the least literate. This region was part of erstwhile princely states which paid little consideration for the uplift of educational facilities and the literacy rate was barely half of the areas described above. Literacy rates in south and southwestern Malwa

were disapprobatory low before independence but the condition has now improved substantially due to implementation of new education policies of state and central governments.

The upper Bari Doab and western parts of Malwa region come in between the two in ordinates described above. There were development blocks of very low literacy as in Anjala, Chogwan, Bhikhialind, Valtoha, Patti Firozpur, Mamdot, Guru Har Sahai, Jalalabad, Fazilka and Khuian Sarwar. All these development blocks are located along international border with Pakistan.

Although advancement in literacy and economic development is general, yet it is not always positively correlated to each other. For example, the foothill dissected zone of Pathankot, Hoshiarpur, Rupnagar and S.A.S. Nagar districts was high on the literacy scale, is economically backward as compared to southern region of Punjab which is economically advanced but is the most backward in literacy. This highlighted that economic and social advancement may not compulsorily go hand in hand. But for complete and balanced development of an area, however, the two must be progressed simultaneously.

4. SEX RATIO

Sex ratio is defined as the number of females per thousand males and plays an important role in a society at a given point of time. It is an important demographic indicator related to population biological characteristics. The concern of sex ratio has been quite interesting in Punjab. Punjab is unquestionably a male dominated society. There were 895 females per thousand males in 2011. This means a deficit of 105 females to reach the balance point. Comparatively, this figure was better in rural Punjab. In the year 2011, there were 903 females per 1000 males in the state. Inter- development block comparison in Punjab revealed that sex ratio was remarkably high in Bist Doab region of the state. The highest sex ratio was recorded 998 in Talwara development block in Hoshiarpur district and the lowest sex ratio was 703 in Pathankot development block.

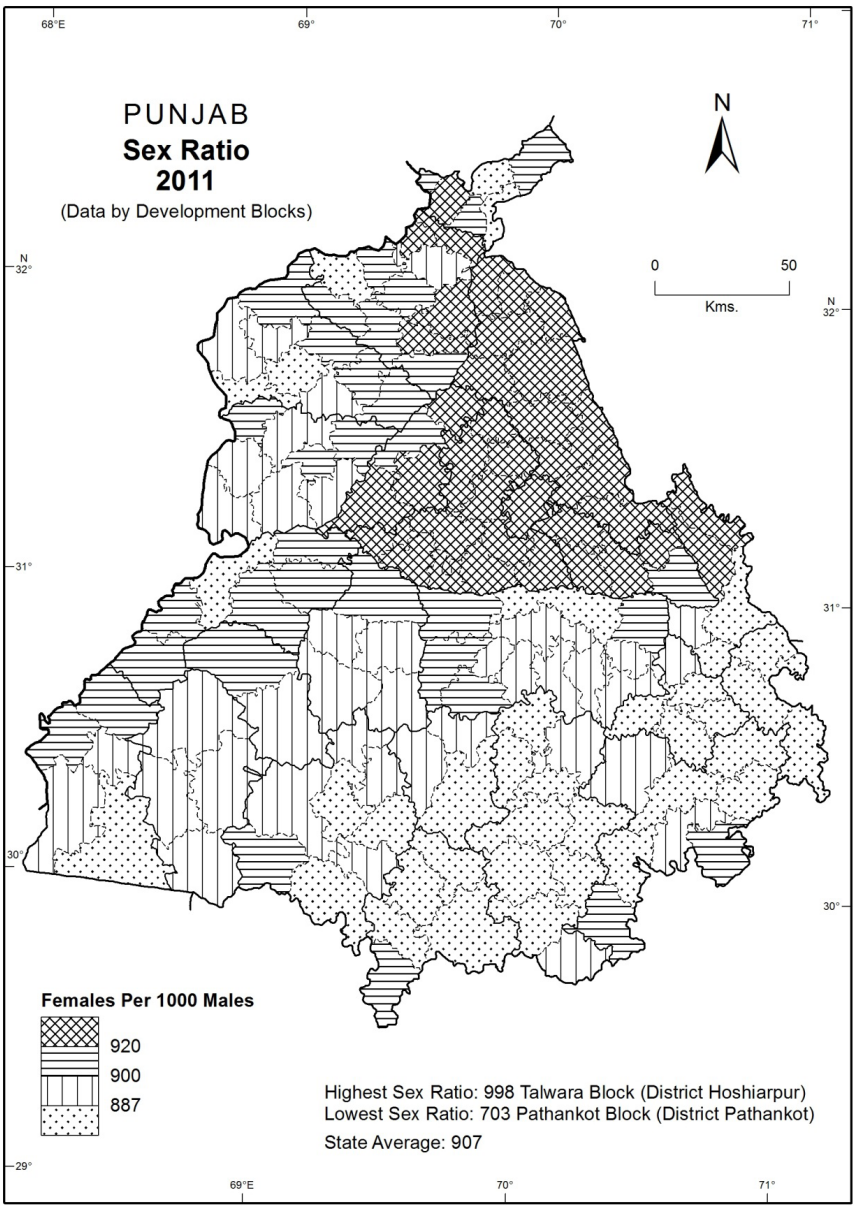
Sex ratio and literacy rates are remarkably related to each other. Map 3 representing sex ratio at development block level exhibited distinct regional variations. This pattern was in conformity with literacy rate but was broadly opposite to the levels of agricultural development in the state.

5. EMIGRATION

The emigration is an equilibrium process which reduces regional disparities at different stages of socio-economic development. It is a process which is as old as human civilization in which social life changes with the change in place of residence. Emigration affects an individual's life, household, society, significant impact on the region and ultimately add up to national economy. Emigration clearly makes demographic and socio-economic effects on the donor and recipient population. Emigration has taken from Punjab to various countries e.g., U.K U.S.A, Canada, Australia, Singapore and East African countries. These migrants sent back not only money to their families but also brought innovative ideas, new farming techniques and new business skills from abroad that played a significant role in the socio-economic development in Punjab. Now a days, large number of people from Punjab have dream to settle in overseas lands.

There were significant regional inequalities in the number of families having person abroad as per cent of total families at development block level in Punjab. This percentage ranged from the lowest of 0.01

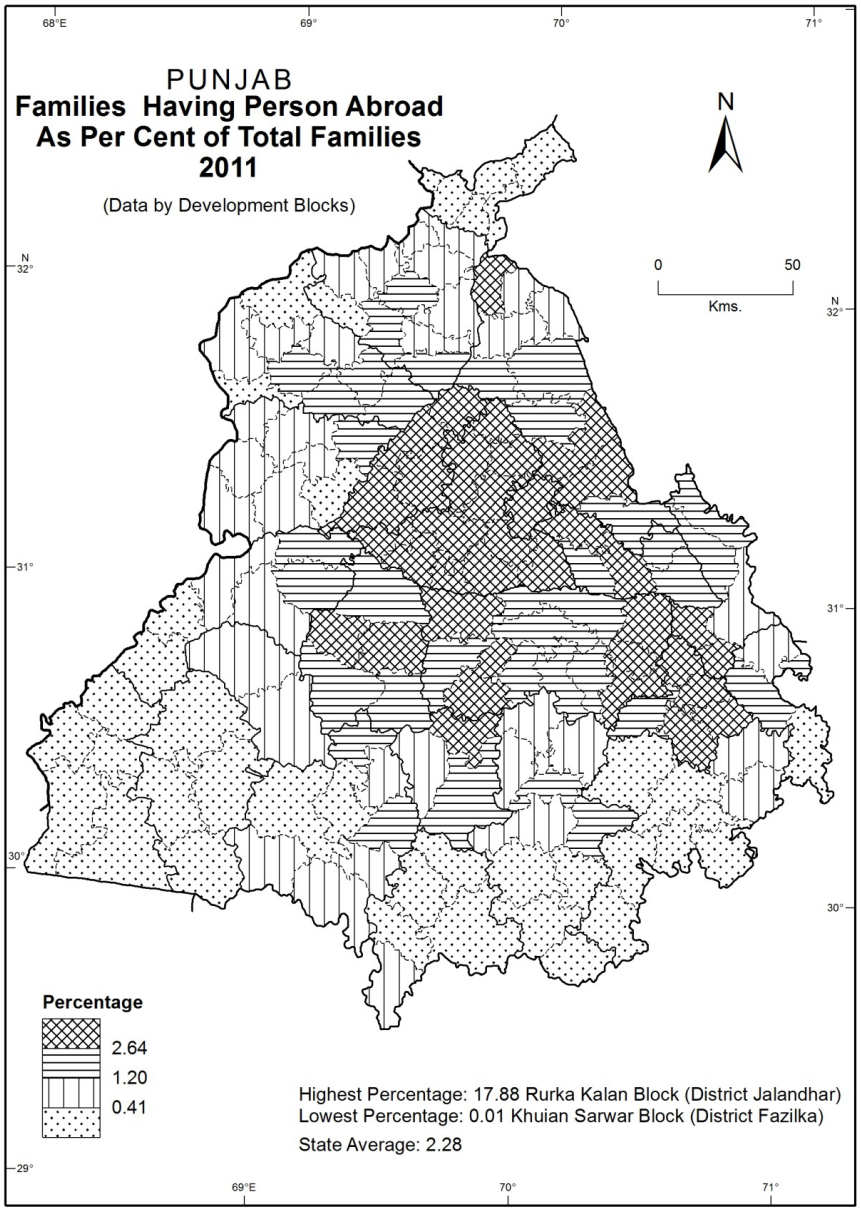
per cent in Khuian Sarwar block in Fazilka district to the highest of 17.88 per cent in Rurka Kalan block in Jalandhar district. Map 4 clearly revealed the maximum outmigration from Doaba region in Punjab that had more population pressure on land.



Map 3

6. LEVELS OF DEMOGRAPHIC DEVELOPMENT

The spatial patterns of regional disparities in the levels of demographic development can be discerned from Map 5, representing the composite index of demographic development level. The number of development blocks having values above the state average was 69 for literacy, 59 for sex ratio and 45 for families having person abroad (Table 1 and Table 2). It represented that the distribution of families having person abroad was the most distorted, among the three indicators of demographic development.



Map 4

Table 1
Punjab: Blocks above State Average on Select Indicators, 2011

Indicator	*State average*	*Development blocks above state average*	*Per cent in total*
Literacy	65.17 %	69	47.26
Sex ratio	907	59	40.41
Families having person abroad	2.28 %	45	30.82

Source: Calculated from the ranks of the different blocks in respect of various indicators of demographic development.

In terms of overall demographic development, 146 development blocks of Punjab clearly brought a two-fold division of the state; the northern and the southern zones of Punjab. Out of 36 highly developed

blocks in first quartile, 28 were concentrated in the northern zone and out of 37 lowly developed blocks in the fourth quartile, 30 development blocks were in the second zone of southern Punjab.

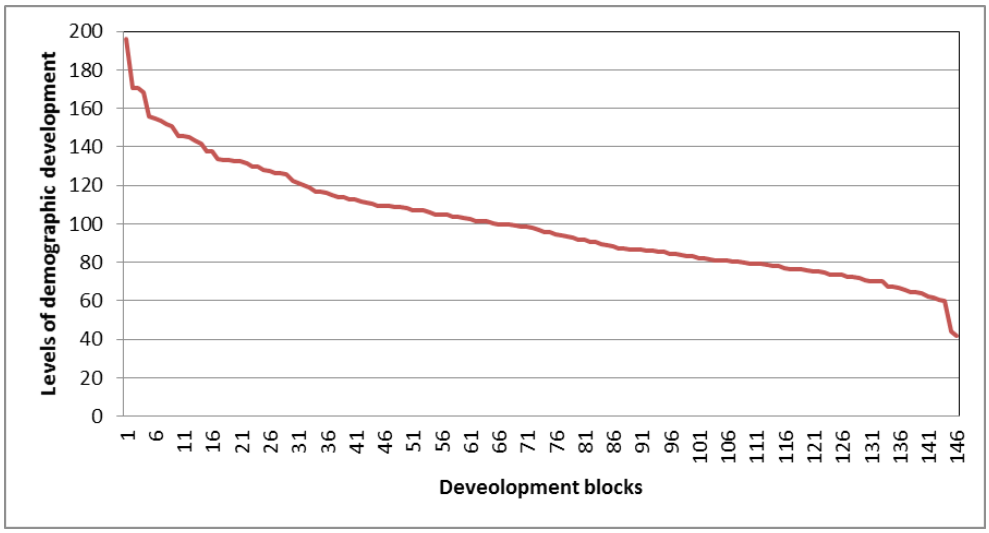


Figure 1: Punjab: Distribution of Blocks by Level of Demographic Development, 2011

Table 2
Punjab: Development Blocks at High Level of Demographic Development

S.No.	*Name of the district*	*Name of the development block(s)*
1	Fatehgarh sahib	Khamano, Bassi Pathana, Khera,
2	Hoshiarpur	Mahilpur, Mukerian, Hoshiarpur-I, Hoshiarpur-II, Talwara, Hajipur, Garhshankar, Dasuya, Tanda, Bhunga,
3	Jalandhar	Jalandhar East, Rurka Kalan, Phillaur, Adampur, Nur Mahal, Jalandhar West, Bhogpur, Mehatpur, Shahkot, Lohian, Nakodar
4	Kapurthala	Phagwara, Kapurthala, Nadala
5	Ludhiana	Sudhar, Raikot
6	Moga	Moga-I
7	Rupnagar	Anandpur Sahib, Morinda
8	S.B.S. Nagar	Banga, Nawanshahar, Aur, Saroya

Table 3
Punjab: Development Blocks at Moderately High Level of Demographic Development

S.No.	*Name of the district*	*Name of the development block(s)*
1	Amritsar	Rayya
2	Gurdaspur	Batala, Dhariwal, Dorangla, Kahnuwan, Dina Nagar, Gurdaspur, Kalanaur, Sri Hargobindpur, Qadian
3	Fatehgarh Sahib	Amloh, Sirhind
4	S.B.S. Nagar	Balachaur
5	Kaputhala	Dhilwan, Sultanpur Lodhi
6	Ludhiana	Sidhwan Bet, Samrala, Doraha, Dehlon, Pakhowal Machhiwara, Khanna, Ludhiana-I, Jagraon

(*Contd...*)

S.No.	*Name of the district*	*Name of the development block(s)*
7	S.A.S. Nagar	Kharar, Dera Bassi, Majri
8	Tarn Taran	Khadur Sahib
9	Pathankot	Narot Jaimal Singh, Bamial, Dhar Kalan, Sujanpur, Gharota
10	Patiala	Rajpura
11	Rupnagar	Rupnagar, Nurpur Bedi, Chamkaur Sahib

Another notable feature of the demographic development was that many top ranking development blocks in first quartile like Kapurthala, Jalandhar West, Jalandhar East, Phagwara, Phillaur, Khamanon, Bassi Pathana and Khera are located on the Amritsar-Delhi Railway track. This zone is characterized by very progressive agriculture and significant concentration of industry.

Yet another remarkable characteristic of the spatial pattern of the various development blocks was that monotonously some high ranking development blocks were surrounded, on two or more sides by development blocks of very low ranks (Table 3 and Table 4, 5). For example, 2nd ranking block of Phillaur had to its south Ludhiana-II block with 77th rank. Similarly, the 35th ranking development block of Raikot had adjoining to it, Mahal Kalan and Malerkotla-II development blocks with 75th and 82nd ranks respectively. Moga-I, which ranked 36th was surrounded by Moga-II, Nihal Singh Wala, Baghapurana and Kot Ise Khan blocks, with 81st, 83rd, 84th, and 87th ranks respectively. It indicated that even some high ranking blocks were not being able to diffuse demographic development beyond a few kilometers of their boundary (Table 6). Figure 1 revealed the distribution of all the blocks with reference to their demographic development level. The concavo-convex shape (S shape) of the graph shows a swift fall in the demographic development level of blocks at top, a gentle slope in the middle, and again a prompt subsidence in the demographic development scores of the relatively backward blocks. Aforementioned panorama projects a sharp contrast between the few highly demographically developed blocks and the stern low levels of demographic development at the base.

Table 4
Punjab: Development Blocks at Moderate Level of Demographic Development

S.No.	*Name of the district*	*Name of the development blocks(s)*
1	Amritsar	Jandiala, Tarsika, Majitha, Verka, Harsha Chhina,
2	Barnala	Mahal Kalan, Sehna
3	Bathinda	Rampura, Bhagta Bhai Ka
4	Fazilka	Jalalabad,
5	Firozpur	Guru Har Sahai, Ghall Khurd, Zira, Makhu, Mamdot
6	Gurdaspur	Fatehgarh Churian, Dera Baba Nanak
7	Faridkot	Faridkot, Kot Kapura
8	Ludhiana	Ludhiana-II
9	Moga	Moga-II, Baghapurana, Nihal Singh Wala, Kot Ise Khan
10	Patiala	Ghanaur, Patiala, Bhunerheri
11	Sangrur	Dhuri, Sherpur, Bhawanigarh, Malerkotla-I, Malerkotla-II
12	Tarn Taran	Tarn Taran, Naushera Pannuan, Chola Sahib, Gandiwind

Table 5
Punjab: Development Blocks at Low Level of Demographic Development

S.No.	*Name of the district*	*Name of the development blocks(s)*
1	Amritsar	Chogawan, Ajnala, Attari
2	Barnala	Barnala,
3	Bathinda	Talwandi Sabo, Bathinda, Sangat, Nathana, Phul, Maur
4	Pathankot	Pathankot
5	Fazilka	Fazilka, Arniwala, Khuian Sarwar, Abohar
6	Firozpur	Firozpur
7	Mansa	Mansa, Jhunir, Bhikhi, Sardulgarh, Budhlada,
8	Muktsar	Gidderbaha, Malout, Lambi, Muktsar
9	Patiala	Samana, Patran, Nabha, Sanaur,
10	Sangrur	Dirba, Sunam, Andana, Lehragaga, Sangrur
11	TarnTaran	Patti, Bhikhiwind, Valtoha

Table 6
Punjab: Indicator-wise Regional Disparities in Demographic Development

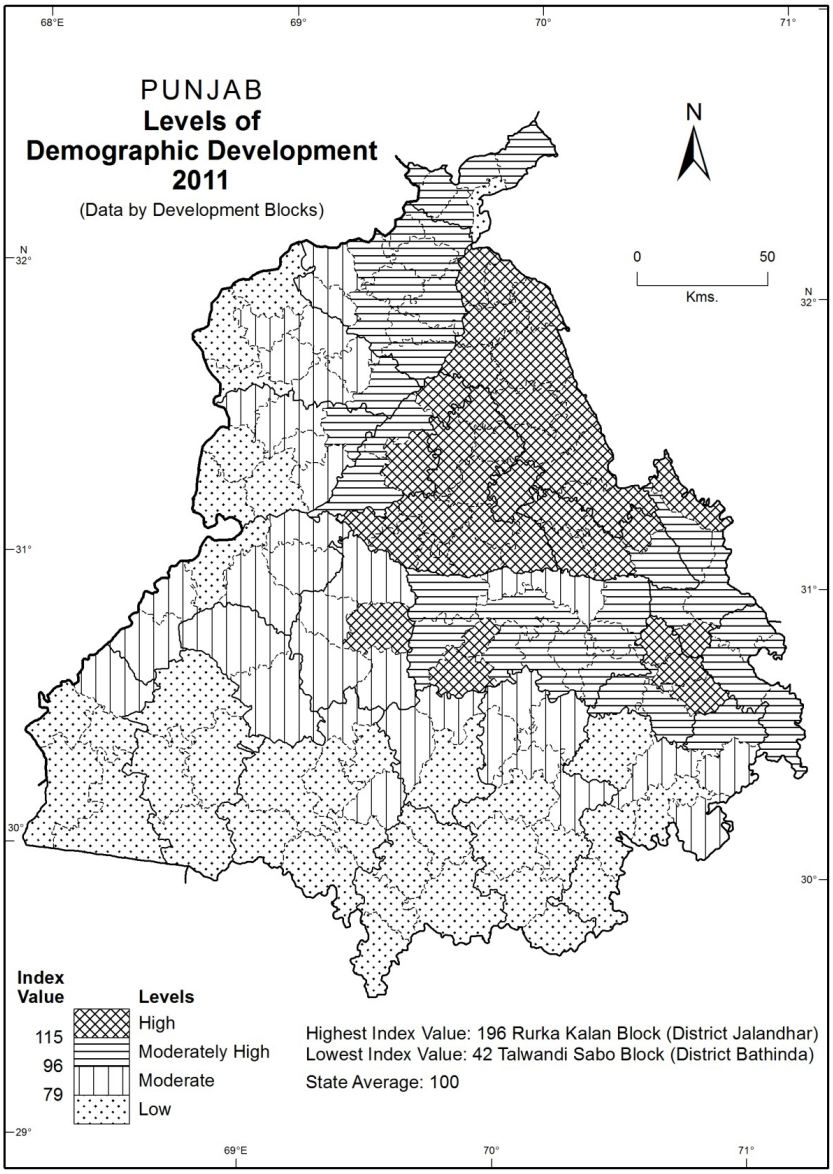
S.No.	*Indicator*	*Value of the block at*		*State average*	*Disparity index**
		Top position	*Bottom position*		
1	Literates as per cent of total population	83.00	37.00	65.17	0.70
2	Sex-ratio	998	703	907	0.32
3	Number of families having person abroad as per cent of total families	17.88	0.01	2.28	7.83

*Disparity index in case of individual indicators was 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.

The different indicators of demographic development showed varying degree of regional diversity. Regional disparity was of highest order in number of families having person abroad as per cent of total families and (Table 6). It was of moderate degree in literacy rate. It was of the lowest order in sex-ratio. The different indicators of demographic development showed varying degree of association. It follows that demographic development was mainly a function of literacy; the coefficient correlation between the two was as high as .84 (Table 7).

Table 7
Punjab: Correlation Matrix for Indicators of Demographic Development

Indicators/ overall	*Literates as per cent of total population*	*Sex ratio*	*Number of families having person abroad as per cent of total families*	*Demographic Development*
Literates as per cent of total population	1.00			
Sex ratio	0.36	1.00		
Families having person abroad as per cent of total families	0.52	0.37	1.00	
Demographic Development	0.84	0.67	0.81	1.00



Map 5

7. CONCLUDING REMARKS

The spatial pattern of demographic development of the 146 blocks of Punjab clearly divided the state into two-fold division in terms of development as measured by demographic indicators: the northern and the southern zones of Punjab. Out of 36 highly demographically developed blocks in first quartile, 28 blocks were concentrated in the Bist Doab region. Out of 37 demographically least developed blocks in the fourth quartile, 30 blocks were located in the Malwa region, 7 blocks were in Bari Doab and not even single least demographically developed block lied in Bist Doab region of Punjab. Evidently, Bist Doab is the most demographically developed region in the state. Another notable feature was that even high ranking development blocks had not been successful in expansion of diffusion of demographic development beyond a few kilometers of their boundaries. Modern development activities like transportation, industry,

health, education and services should be dispersed to cover all parts of the state and all sections of the society. Therefore, the development blocks with low levels of development should be given top priority to minimize the spatial and sectorial disparities within the state. This would also fulfill the concept of regional planning with social justice in the state.

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