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Disparities in Infrastructural Development in Ranchi

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Abstract: ***Infrastructure is the foundation for the development of any country; Infrastructural facilities are the wheels of development which plays a decisive role in determining the overall productivity and development of country's economy as well as the quality of life of the citizens. This paper highlights the intra-district disparities in infrastructural facilities in Ranchi district using seven indicators viz. education, health, financial services, transport and communication and public utilities. An attempt has been made to examine the spatial disparities in infrastructural and rural development across the district, considering block as a unit of analysis, using simple multivariate method to construct a composite infrastructure development index (IDI) by combining various infrastructural facilities at the block level. The paper concludes suggesting suitable policies for developing the backward areas which would further aid in enhancing the levels of socio-economic development of Jharkhand.***

Keywords: Disparities, Infrastructural facilities, development

1. Introduction

The word development report published in 1994 by the World Bank under the title "Infrastructure for development" rightly mentions that the adequacy of infrastructure helps determine one country's success and another's failure in diversifying production, expanding trade, coping with population growth, reducing poverty and improving environmental conditions." (World Bank)

The dictionary meaning of infrastructure is the underlying foundation or basic framework. The infrastructural facilities in terms of a country refer to the basic framework that aids in sustainable economic and social development.

The pioneering discussion on relationship between infrastructure and economic development was put forward by A.O. Hirschman (1958). He differentiated between direct productive activities (DPA) and social overhead capital (SOC). He commented that, "the enlarged availability of electric power and transportation facilities are essential pre-conditions for economic development practically everywhere". According to him "investment in social overhead capital is advocated not because of its direct effect on final output but it permits and in fact invites direct productive activities. [1]. These ideas were further carried forward by Rostow (1969) in his theory of 'Stages of growth'[2], Paul Rosenstein Rodan (1943) and R. Nurkse (1953) in their version of 'Balanced Growth'[3] and more recently by Aschauer (1990)[4] and Munnell (1990).[5]

During the first eighteen years of planning (1950- 1969) around 78% of the total plan outlay was devoted to infrastructural development in the area of agriculture, power, irrigation, transportation and communication and social services like education and health. It is because of such paramount significance being vested upon infrastructural development in the economic planning, decisive steps have been taken in the physical availability of such facilities in India. However, the performance in terms of Efficiency, quality of these facilities is not uniform across the entire region. Disparities exist along all the hierarchical levels of Administration from state to block level which is reflected in both inter and intra forms. Disparities in economic development can be explained in terms of varying level of infrastructural facilities to people in different regions. Improvement in infrastructural services is essential for enhancing efficacy of the productive process and for raising productivity of any economic entity.

2. Objectives

1) To find out the intra-district disparities in infrastructural development in Ranchi.
2) To find out role of infrastructural facilities in aiding development.

3. Literature Review

From the relevant literature it has been observed that there are some studies pertaining to the level of infrastructural facilities and development. The role of sound infrastructural facilities towards growth of output, generating employment and enhancing the overall productivity of an economy has been highlighted by several scholars (Looney and Friedriksen1981; Hardy &Hudson 1981). [6]. Bhatia (1999)[7] constructed an index of rural infrastructure and his study revealed that the index ofinfrastructure significantly influences per capital yield of food grains in the state. Majumdar. R [8], constructed a district level availability index which ventures into a district level analysis of infrastructural facilities in India. Studies concerning the inter-state disparities on the level of economic development and infrastructural facilities, e.g. Rao [9], Elhance and Lakshmanan [10], are only a few to name. Sarkar (1994) [11], has adopted principal component method to compute the infrastructure index. CMIE [12], obtained infrastructure index as a weighted average of various components of infrastructural facilities. The 10^{th} and 11^{th} finance Commissions have used the index of infrastructure as one of the criteria for devolution of funds to states. Nagar and

Basu [13], computed the infrastructure development index for seventeen major Indian states through principal component analysis. Patra and Acharya[14], presented an inter-state analysis on economic growth and regional disparity consequent upon infrastructural development.

4. Research Methodology

The present study is based on secondary data derived from District census handbook, District statistical handbook, and economic survey reports of the state, District level household and facility survey of Jharkhand.

The collected data and information have been analyzed to fulfill the above-mentioned objective using Wroclaw Taxonomic method developed by Floreket.al (1952) [15], for calculating a composite infrastructural development index.

Let (Xij) be the data matrix, i=1, 2….n (number of unit) and j=1, 2…..k (number of indicators)
(Xij) are transformed to (Zij)
$(Zij) = (Xij - \overline{Xj})/sj$

Where Xij= mean of the jth indicator, sj= standard deviation of the jth indicator and (Zij) is the matrix of standardized indicators.

From (Zij), identity the best value of each indicator, maximum value or minimum value depending upon the direction of the impact of indicator on the development. For obtaining the pattern of development ***Ci*** of the *ith* district, first calculate square of the deviation of an individual value of a transformed variable from the best value. In other words calculate ***Pij*** as
Pij= (Zij- Zij) ^{2}
For each *i* and *j*, pattern of development is given by:
Ci = $[\sum_j^k = 1$ Pij/ (C.V.)j$]^{1/2}$
Where Pij= pattern of development, Zoj= Best value for indicator and (C.V) j is the co-efficient of variation of the jth indicator in Xij
Di (Composite index) = Ci/C
Where C= (Mean value of Ci + 3 * (standard deviation of Ci)

5. Study Area

Ranchi, the state capital of Jharkhand lies at an intersection of 22° 52'- 23° 45' north latitude and 84° 45'-85° 50' east longitude in the southern part of Chotanagpur plateau. It is bounded on the north by the towns of Kanke and Patratu; on the south by towns of Nagri and Namkum; on the east by Angara, Ormanjhi and on the west by Ratu settlement. The district has a total area of 5097 sq.km. It accommodates a total population of 29, 14,253 of which urban and rural constitutes 56% and 44% respectively. The district is divided into two administrative divisions. -Ranchi and Bunduand has18 blocks. The blocks constitute a total of 305 panchayats and 1311 villages.

6. Results and Discussion

A region cannot be easily labeled as having inadequate or adequate infrastructure. There are various indicator of infrastructure development which is significant in their respective terms. A region may lack in one or more of the infrastructural facilities and at the same time is adequate in others. A number of indicators when analyzed individually do not provide an integrated picture of reality. Hence, there is a need for building up of a composite index of development based on optimum combination of several indicators. A total of thirteen indicators in the areas of education, health, financial services, transport and communication and public utilities have been taken for the analysis. These indicators may not form an all-inclusive list, but these are the major interacting components of development. The fourteen selected indicators are listed below.

1) No. of primary schools per 1000 persons.
2) No. of secondary schools per 1000 persons.
3) No of primary health centers per 10000 persons.
4) No of hospitals and dispensaries per 10000 persons.
5) Percentage of villages having banking facilities.
6) Percentage of villages having access to post office.
7) Percentage of villages having Agricultural credit societies.
8) Percentage of villages approachable by pucca roads.
9) Percentage of households having pucca house.
10) Percentage of villages having access to safe drinking water.
11) Percentage of electrified villages.
12) Percentage of villages having telephone connection
13) Percentage of villages having transportation facilities.
14) Percentage of villages having LPG connection.

Table 1: Ranchi: Composite index of development (C.I)

Blocks	Composite Index (C.I)
BURMU	0.57
KHELARI	0.61
KANKE	0.85
ORMANJHI	0.52
ANGARA	0.43
RAHE	0.73
SILLI	0.92
SONAHATU	0.72
NAMKUM	0.61
RATU	0.62
NAGRI	0.44
MANDAR	0.64
CHANHO	0.58
BERO	0.59
ITKI	0.50
LAPUNG	0.57
BUNDU	0.73
TAMAR-I	0.66

Table I, reports the composite infrastructure development index along with their respective ranks of 18 blocks of Ranchi District. It shows the disparities between the blocks in different indicators. The composite index varies from 0.43-0.92. Angara has the distinction of being at top with an index

score of 0.43 while Silli ranks lowest with a score of 0.92. In terms of primary schools per thousand populations Lapung, Bundu, Tamar-I have the good score while in secondary schools Khelari and Nagri ranks well. The number of secondary schools is less across all the blocks with Sonahatuand Bundu at the lowest score. The primary health care centers across the districts are few in the number with a total absence in Bundu. Rahe has only 1.69% of village having access to post office whereas; Angara has 35.37%, thus occupying first position. Banking facilities are the base of development of infrastructure and helps to improve other facilities. Villages having banking facilities are highest in Khelari, Itki, Nagri, Angara and Ormanjhi while it is lowest in Bundu, Tamar, and Burmu.

Agriculture credit societies show a total absence in Itki and Rahe. Transportation facilities are prerequisite factor for development and roads are known as lifeline of an area or country. Mandar (97%) and Nagri (93.18%) have highest percentage of village having pucca roads while Khelari has the least (28.57%). Safe drinking water facility has a full coverage in almost all the blocks with Kanke, Ormanjhi, Sonahatu and Silli yet to achieve the 100% coverage.

Electricity is not evenly available in all the blocks. The percentage of electrified villages in Lapung (5.13), Namkum (5.43), Rahe (5.08), Silli (5.32), Bundu (6.9), and Tamar (6.25) is far below the average (28.40).LPG connection has the highest coverage in Khelari (16.8%), Kanke (14.55%), Nagri (13%) whereas it has the lowest coverage in Sonahatu (0.47%), Rahe (0.56%) and Lapung (0.69%).

7. Stages of Development

A simple ranking of districts based on the composite indices would be sufficient for classificatory purposes. A suitable fractile classification of the districts from the assumed distribution of the mean of the composite indices will provide a meaningful characterization of different stages of development. For relative comparison of different blocks with respect to infrastructural development, it appears quite appropriate to assume that the blocks having composite indices less than or equal to (Mean –SD) are highly developed and are classified in stage- IV of development and the districts having composite indices greater than or equal to (Mean+SD) are low developed and are classified in stage-I of development. In the same way, districts with composite indices lying between (Mean) and (Mean-SD) are high middle level developed classified in stage-III and districts having composite indices in between (Mean) and (Mean+SD) are low middle level developed, classified in stage-II

An important policy issue in block level analysis is to identify those contiguous districts exhibiting similar development profiles so that they can be classified into districts at different levels of developments. Table 2 represents the number of blocks lying in different stages of infrastructural development.

Table 2: Ranchi: Composite index and development stages

Blocks	Composite Index	Development Stages
ANGARA	0.43	IV (HIGH DEVELOPED)
NAGRI	0.44	IV (HIGH DEVELOPED)
ITKI	0.50	IV (HIGH DEVELOPED)
ORMANJHI	0.52	III (HIGH MID DEVELOPED)
LAPUNG	0.57	III (HIGH MID DEVELOPED)
BURMU	0.57	III (HIGH MID DEVELOPED)
CHANHO	0.58	III (HIGH MID DEVELOPED)
BERO	0.59	III (HIGH MID DEVELOPED)
NAMKUM	0.61	III (HIGH MID DEVELOPED)
KHELARI	0.61	III (HIGH MID DEVELOPED)
RATU	0.62	III (HIGH MID DEVELOPED)
MANDAR	0.64	II (LOW MID DEVELOPED)
TAMAR-I	0.66	II (LOW MID DEVELOPED)
SONAHATU	0.72	II (LOW MID DEVELOPED)
RAHE	0.73	II (LOW MID DEVELOPED)
BUNDU	0.73	II (LOW MID DEVELOPED)
KANKE	0.85	I (LEAST DEVELOPED)
SILLI	0.92	I (LEAST DEVELOPED)

Out of 18 blocks, 3 blocks are in high stage of development whereas 2 blocks are in the stage of least developed represented by Kanke and Silli. The relative shares of number of blocks in the second and third stage of development are 8 and 5respectively.

Table 3: Ranchi: Number of Blocks, percentage area and population under different stages of development

Stages of Development	Number of Districts	Area (%)	Population (%)
High	3	13.09	13.76
High middle	8	42.50	39.62
Low middle	5	31.15	27.42
Least developed	2	13.26	19.19

Table 3, represents the area and population share of blocks categorized under different stages of development. The highly developed blocks cover an area of 13.09% and houses 13.76% of population. The least developed blocks, Kanke and Silli covers an area of 13.26% and a population share of 19.19%. The high and low mid developed blocks representing 13 blocks covers an area of 42.50 and 31.15% and accommodates 39.62 and 27.42% respectively.

8. Conclusion

It can be concluded that there exist disparities in infrastructural development within and among the blocks in Ranchi. Improvement in basic infrastructural facilities like health, education power, and transport in low developed blocks is a pre-requisite to improve the quality of life of the people and usher in sustainable social economic development of the district. This will require concerted efforts on the part of state government. Government should not only focus on infrastructure development but also focus on equivalent development of all the blocks. All these need careful study and only then proper policies can be framed so that development does not remain confined to assorted pockets but spread far and wide. Proper identification of necessary projects, smooth

and quick completion of construction, proper operation and management of services and regular maintenance would help the economy to have an efficient infrastructure on which to build up the 'super structure' and to fulfill the objectives of balanced regional development.

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