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INTER DISTRICTS REGIONAL DISPARITIES IN INFRASTRUCTURAL DEVELOPMENT IN HARYANA: A WAY FORWARD

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Abstract: *Infrastructure plays a pivotal role- often decisive role in determining the overall productivity and development of a country's economy, as well as the quality of life of its citizens. Infrastructure is a key driver of economic growth and it has the potential to fuel the economy. The present paper is an attempt to measure the inter districts regional disparities in infrastructural development in Haryana. The extent of inter-districts industrial disparities has been measured by using the principal component analysis method. The analysis provided interesting insight into the issue. The study found that the regional disparities in the industrial development in the state of Haryana are increasing over time. It is evidenced by increasing value of coefficient of variation of the constructed indices PCA Method. Further, developed and moderately developed category values of indices indicate that major development in the state is concentrating on or near NCR regions. Regional Disparities hinder the national development of the country. Overall development of the states can bring the better future and prospects. Identification of the lagers and the concerned area is very vital for the removal of disparities and a well developed planning and strategy can remove the disparities. Resource transfer is an important weapon to fight against the regional disparities. Investment in infrastructure is an important driving force to achieve rapid and sustained economic growth. This proves the unbalanced infrastructural development in the state and is a serious issue of concern and requires immediate attention of policy makers.*

Keywords: *Infrastructural development, Regional disparities, Principal Component Analysis, Haryana*

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INTRODUCTION:

In any modern society, infrastructure plays a pivotal role- often decisive role in determining the overall productivity and development of a country's economy, as well as the quality of life of its citizens. Infrastructure is a key driver of economic growth and it has the potential to fuel the economy. Inadequate and inefficient infrastructure can prevent the economy from realizing its full growth potential regardless of the progress on other fronts. World Development Report 1994 published 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, or improving environmental conditions" .The term "infrastructure" refers to the technical structures that support a society, such as roads, railways, schools, hospitals, houses, electricity, postal, bank services and other amenities. Generally infrastructure defines as "a set of facilities through which goods and services are provided to the public." Infrastructural development shows the quality of life of people in a region or country. The development of a region depends upon the development of agriculture and industry but such a development cannot take place without simultaneous development of infrastructure (Naseer,2004). Regional disparities hinder the national development. Overall development of the states can bring the better future and prospects. Identification of the lagers and the concerned area is very vital for the removal of disparities. A well developed planning and strategy can remove the disparities. Resource transfer is an important weapon to fight against the regional disparities.

The present study made an attempt to analyze the level of inter-district disparity and relative position in infrastructure level on the basis of composite score in Haryana across 21 districts of Haryana. These regional disparities could lead to serious complication in the domain of economy as well as polity of the state. The issues of concern are that the regionally skewed distribution of organized economic activities can cause further social disharmony in the state. If these disparities are allowed unabated, it could lead to serious social and political discontent in the state.

The objective of the paper is also to reveal that our state government has taken various short term and long term measures for improving infrastructure facilities in metalled roads, banking, and health facility. Roads are basic means of communication for the development

of any economy. Haryana state has an efficient network of roads but there are inter district disparities from the point of view of metalled road facilities in Haryana. In addition to enhancing the availability it has also instead other measures for the improvement in operational efficiency. Health institutions are also increased by state government to provide the better health facilities to the people in rural and urban areas and reduce these disparities. But Infrastructural disparities do exist in the total length of metalled road and villages connected with metalled road, health services, and insufficient increase in number of hospital per million populations. Public health services are largely in accessible of poor quality with long waiting period. Regional disparity shows that in some district health service increase rapidly and on the other hand some districts are backward in these facilities.

Various dimensions of economic and social disparities of Haryana have aggravated in the recent period. Infrastructural indicators of development shows the disparities exist in the state total road length, no. of hospitals, no. of banks and post office their deposits and credits. Although successful attempt have been made to reduce the disparity w.r.t various indicator. A part from massive development in background districts of Haryana, efforts should be done to reduce regional disparities in Haryana in term of various indicators.

INFRASTUCTURAL INDICATORS:

To analyze the infrastructure development of Haryana these ten indicators have been taken.

INFRASTRUCTURAL INDICATORS	COMPONENT VALUES
Metalled road length per 100 Sq. Kms of total geographical area	0.018981853
Metalled road length per lakh of population	-0.162839869
Percentage of villages connected by roads	-0.038016102
Registered motor vehicles per 100 Sq.Kms of total geographical area	0.17430531
No. of tourist spots in Haryana	0.146881489
No. of Hospitals per five lakh of population	-0.100560009
Population served Commercial bank in number	0.166771553
Deposits per capita in Rupees	0.174122101
Credit per capita in Rupees	0.175790407
No. of Post office per lakh of population	-0.124471564
% of Variance	**51.3**

OBJECTIVE OF THE STUDY:

Main objectives of the paper are as follows:-

1. To analyze the level of inter-district disparity and relative position in level of infrastructure development on the basis of composite score in Haryana.

2. To examine the programmes launched by government for infrastructural development in Haryana.

DATA SOURCE:

The data used in this study is secondary in nature. It has been collected from Statistical Abstract of Haryana(2013-14), issued by Economic and Statistical Adviser, Planning Department, Government of Haryana ,Economic Survey of Haryana (Various issues).

RESEARCH METHODOLOGY:

The dimensions' of infrastructural development have been analyzed with the help of ten indicators. The study has carried out on the year 2013-14 at district level. The Principal Component Analysis Method has been used to analyze the data because it gives mathematical weightage in a purely objective manner and provides solution to the problem of multicollinerity and assesses the relative levels of development. The data regarding all the selected indicators is subjected to this method to derive composite scores of individual districts in terms of the levels of development. The technique involves transformation of the original data set into a new set consisting of general components, the number of which equals to the number of variables in the original data set. It is generally seen that the first few components explain a greater part of the total variance in the original data set. Further, the correlation coefficient of each of the component with the variables in the original data set – i.e., the component loadings can be meaningful interpreted only in the case of first few components. The loadings of the selected components (correlation coefficient between the component and the original values and interpreted very much in a similar way) are used as weights of the standardized values of the given variables for working out component scores corresponding to each of the observation.

"PCA describes the variation of a set of *correlated* multivariate data (X's) in terms of a set of *uncorrelated* variables (Y's), known as principal components. Each Y is a linear combination of the original variables X.

$$Yij = \sum_{j=1}^{m} X\,i\,j\,f\,i\,j$$

Where, Yij is the standardized values of observation 'i' on the variable 'j'; Fij is the loading of variable 'j' on the component 'J'; Yij is the score of observation 'i' on component j; and summation is overall 'm' variables. The Yij's (between -1 to 1) are the weights of each X variable contributing to the new Yi". (Y H Chan, Principal component and factor analysis). To calculate the overall score we convert the raw score to a Z-score. SPSS will do this by using Analyze - Descriptive - Descriptive Statistics - Save Standardized Values. Then we do the sum of Z-score and found the component scores for the variables. (Jeromy Anglin:- Psychology and Statistics "Calculating Composite Scores of Ability and Other Tests in SPSS"). A high and positive score indicate that a particular district is more developed than others with lower scores.

RESULT AND DISCUSSION:

The composite indices of development have been obtained for different districts for infrastructural development. The districts have been ranked on the basis of infrastructural developmental indices. The composite indices of development along with rank of districts are given in table

Table-1.1

Total Composite Score and Ranking Status of Infrastructure Development Indicators

Districts	Composite Score	Rank
Ambala	2.92803	2
Panchkula	1.3795	9
Yamunanagar	1.92784	8
Kurukshetra	2.69391	4
Kaithal	-0.41652	16
Karnal	2.56606	5
Panipat	0.87954	12
Sonipat	0.38086	13
Rohtak	-1.87917	18
Jhajjar	-0.05699	14
Faridabad	2.41284	6
Palwal	-4.93751	20
Gurgaon	11.58085	1
Mewat	-7.59262	21

Rewari	1.19133	10
Mahendragarh	-4.17066	19
Bhiwani	2.19322	7
Jind	-0.89889	17
Hisar	2.78224	3
Fatehabad	-0.33383	15
Sirsa	0.92671	11

Source:-Calculates by author (See tables in Annexure)

Table 1.1 reveals the scores of each component with overall scores for the 10 observations. The scores of individual components indicate the direction and extent to which an observation is associated with the respective components. The aggregate score of each indicator indicate the relative position of each of the observation. In some cases, the scores work out to be positive, while in the remaining others they are negative. A high and positive score indicate that a particular district is more developed than others with lower scores. It may be seen from the table that in case of agricultural development, the district of Gurgaon is ranked first and district of Mewat is ranked last. The composite indices of development vary from 11.58 to -7.59. The district Ambala is placed on second rank as it has the highest metalled road length per square kms of total geographical area. Tourist spots are essential as they carry the picture of our culture and hospitality. Faridabad has highest tourist spots in Haryana followed by Panchkula but Mewat and Mahendergarh has no tourist spot. Bhiwani has 1st rank in terms of hospital per five lakh population followed by yamunanagar, kurukshetra,jhajjar,jind,hisar, fatehbad and sirsa and ambala, kaithal ,karnal etc. by on the other hand, Mewat has lowest beds per lakh population followed by Palwal Banking facilities are the base of development of infrastructure, and helps to improve other facilities. Commercial Banks are highest in gurgaon while it is lowest in Mewat followed by Palwal . Post Offices per lakh population are highest in Fatehabad district post offices per lakh population followed by Bhiwani, Jhajjar and Rewari ; while lowest are noticed in Faridabad followed by Mewat. No doubt, certain regions are more conducive to fetch overall prosperity to the people of those regions in comparison of other regions. A concerted effort is paramount in order to enhance the overall economy of all the districts. In fact Haryana is a relatively small state and therefore much attention is not paid pertaining to the sensitive issue of regional disparities. However, the analysis demonstrates the issue cannot be ignored any further.

Table-1.2

Relative Position of Infrastructure Development Indicators in Haryana

To indicate the comparative level of disparities in infrastructural development, the overall scores have been categorized into following three categories (as given in table1.1):- Accordingly, the state has been divided into three regions (i) Highly Developed Region (ii) Moderate developed Region (iii) Low developed Region.

Category Overall Score	Infrastructural Indicators
High (Above 4)	Gurgaon
Moderate (0-4)	Ambala, Hisar, Kurukshetra, Karnal, Faridabad, Bhiwani, Yamunanagar, Panchkula, Rewari, Sirsa, Panipat, Sonipat
Low (below 0)	Jhajjar, Fatehbad, Kaithal,Jind, Rohtak, Palwal, Mewat

Source- Calculated from Table(1.1)

Areas of High Composite Development Index (>4)-: This category involves one district named Gurgaon which have CDI above4,; this district has the better facilities of roads, banking, tourist place, hospitals as a result it is on the top among these districts. It is Located near the National Capital Region of Delhi, this upcoming district houses numerous multinational companies and as a result, has plenty of tourist-friendly malls, hotels and restaurants. It has highest in population served Commercial bank in number , deposits per capita in Rupees and Credit per capita in Rupees.

Areas of Medium Composite Development Index (0-4)-: This category involves 12 districts which have CDI between 0 and 4. These districts are Ambala, Hisar, Kurukshetra, Karnal, Faridabad, Bhiwani, Yamunanagar, Panchkula, Rewari, Sirsa, Panipat, Sonipat. Ambala has the highest metalled road length per square kms of total geographical area and Faridabad has highest in registered motor vehicles per 100 Sq.Kms of total geographical area. The main cause of this is that these districts have high population density; Faridabad is the most populated district in the state. Kaithal has good road density and road length, while it has low infrastructure facilities of hospital bed, banks. Bhiwani district has good infrastructure of school, medical and post office, while has less infrastructure of road. Sonipat, Fatehabad, Karnal and Sirsa districts present an almost average picture of all infrastructure facilities.

Areas of Low Composite Development Index (<0):-There are 8 districts in this category which have CDI below 0. This category involves Jhajjar, Fatehbad, Kaithal, Jind, Rohtak, Mahendergarh, Palwal, Mewat. Mewat district is at the bottom in the list of infrastructure facility in the district. It has almost lowest value of all infrastructure indicators. Mewat's

neighboring district Palwal also has low infrastructure level. It has only one indicator of high value that is villages connected by roads . Jind, and Mahendragarh districts are also have low level of infrastructure but better than the other districts in this category.

Overall Development-: Out of 21 districts one districts are classified as overall developed districts, while twelve districts are moderate and left all the indicators are in low developed districts. The results of the principle component analysis during 2013-14 indicate the Gurgaon district is highly developed because of banking development. On the other hand Ambala and Panchkula districts are moderate in all the infrastructural indicators. The district Ambala has the highest metalled road lengthper square kms of total geographical area and Faridabad has highest in registered motor vehicles per 100 Sq.Kms of total geographical area. As regard of this all the districts are in category of low developed due to many socio economic indicator in the analysis which affect the value of one variable to the other. Thus government needs to make concerted efforts to spread development in all districts, particularly in backward districts of the state.

Programmes launched by government for infrastructural development in Haryana

Infrastructure development is the base of economic development. The crucial role of infrastructure in economic development is well known to planners (Rives and Heaney 1995). D.A. Aschauer found in his study that there is a positive and statistically significant correlation between investment in infrastructure and economic performance. The lack of infrastructure is the main constraint to economic progress (Pardhan, 2004). People in backward regions have lack economic opportunities. They are deprived of fruits of development efforts and often carry a deep sense of frustration (Patra, 2010).Investment in infrastructure is an important driving force to achieve rapid and sustained economic growth.

- Haryana Roadways, a State Government Undertaking, is the principal service provider for passenger transport in the State. It has a fleet of approximate 3500 buses being operated by 24 depots, each headed by a General Manager, and 13 sub-depots functioning under the depot concerned. These services are being provided to every part of the State as well as to important destinations in the neighboring States. Haryana Roadways has undertaken a series of new initiatives to provide better services to its clients. New Volvo AC bus services 'Saarthi' have been introduced on Chandigarh-Delhi-Gurgaon, Chandigarh-Delhi-Faridabad routes. Some of the trips are

also touching the Indira Gandhi International (IGI) Airport and the domestic Airport Delhi. Ten such buses are already in operation.

- **Aam Adami Ki Khas Bus**

  A new 'Haryana Gaurav' Bus service has been introduced, popularly known as 'Aam Adami Ki Khas Bus', providing the latest facilities like Deluxe type 2x2 seats, FM Radio, Mobile Charger, Pneumatically Operated Door, Tined Glasses & Curtains etc at ordinary bus fare. This bus over time would become the main stay of Haryana Roadways for its distinct operations. About 200 buses are already in operation on different routes.

- **Haryana Uday**

  'Haryana Uday' CNG bus services have been launched in the National Capital Region of Delhi. 300 buses are already in operation on different routes within the NCR of the state. The Centre govt. planned to connect all villages in the country by road. In the first phase, 30,000 km of road will be constructed. It is necessary to have better connectivity for the all-round development and progress of society. The Centre has made budgetary provision for the road construction.

- The Tourism Department Haryana came into existence in the year 1966 when the State of Haryana was created as a separate State from joint Punjab.The Tourism Department makes efforts to get maximum possible Central Financial Assistance from Govt. of India for creation of tourism infrastructure. Once developed and furnished the tourist complexes are handed over to the Haryana Tourism Corporation for their maintenance and operation as an agent of the State Government. As on date, the department has set up a net work of 43 tourist complexes spreading all over the state. Emergence of Gurgaon as the third largest hub of IT industry after Bangalore and Hyderabad.

- **Kundli-Manesar–Palwal Expressway**, is a under construction 135.6 km (84.3 mi) long Expressway in the Indian state of Haryana. The 135.6 km long e-Expressway has been divided into three sections of 45 km each. Five Flyovers are being constructed at places where the expressway crosses national highways, namely, NH 1 at Kundli (Sonepat) where it starts just north of Delhi, NH 10just northwest of Bahadurgarh Jhajjar, NH 8 south of Manesar, NH 71Bsouthwest of Sohna and NH 2 south of Palwal. The completion of this project would not only provide high speed

link to Northern Haryana with its Southern Districts like Gurgaon, Faridabad and Palwal but also de-congest National Capital Territory (NCT) of Delhi as the traffic from the Northern parts of the Country destined to other regions need not pass through NCT of Delhi, thus reducing pollution tremendously.

CONCLUSION

The forgoing analysis prove that Haryana is developed part of India. But there is inter district disparities in various dimensions of infrastructural development of the state. The indicators used in the analysis indicated that some part of the state are highly developed but on the other hand, left some districts are required to be developed. The progress of infrastructural development is found to be positively related with transports roads and banking development. These disparities arise due to imbalance in facilities for banking development. If these disparities are not addressed immediately then they may generate, friction among various section of society with tragic undesirable and even violent outcome. Investing in infrastructure constitutes one of the main mechanisms to increase income, employment, productivity and Consequently, the competitiveness of an economy. Thus successful efforts have been made to reduce these disparities in various indicators through massive part of private investment done on development for backward districts in the state. Government will strive to remove disparities at various levels and will take immediate measures to ensure sustainable and balanced development in the entire region of Haryana.

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APPENDIX

INFRASTUCTURAL INDICTORS

Districts	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Ambala	79.48	111	482	30882	1	2	229	9418	4372	12
Panchkula	65.81	105	223	17170	5	1	178	15797	12982	9
Yamunanagar	67.14	98	613	27486	1	3	167	6425	3857	11
Kurukshetra	74.44	118	407	21673	3	3	171	5058	3857	12
Kaithal	73.2	158	270	29415	1	2	127	2437	3636	11
Karnal	62.5	105	422	35553	2	2	243	7653	12683	12
Panipat	66.64	70	179	26118	2	2	183	6123	7648	9
Sonipat	65.55	96	323	29282	1	2	232	8730	11767	12
Rohtak	60.46	99	146	23662	3	2	172	9049	4475	11
Jhajjar	67.18	129	247	21431	1	3	129	4455	3295	14
Faridabad	70.45	29	333	67423	8	1	256	21186	14031	5
Palwal	56.51	74		19772	1		93	2317	1499	
Gurgaon	54.93	46	271	87882	4	2	510	65777	34242	10
Mewat	60.72	84	503	13590	0	1	61	1271	640	7
Rewari	63.05	112	397	22526	2	2	131	5287	1963	14
Mahendragarh	53.98	111	367	16965	0	2	107	2709	1266	13
Bhiwani	49.77	145	437	28442	1	4	173	4501	3274	14
Jind	62.84	127	304	20725	1	3	141	3047	3626	12
Hisar	52.92	121	272	31829	2	3	214	6560	11526	13
Fatehabad	58.67	158	243	17869	1	3	122	2004	2702	15
Sirsa	42.88	142	321	25529	2	3	162	3510	4163	13

Source: Statistical Abstract of Haryana, 2013-14