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Inter-District Disparity in Agriculture and Infrastructure Development in Uttar Pradesh: A Factor Analysis Approach

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Abstract

Agriculture is the largest and most important sector of the Indian economy which is directly linked with the infrastructure facility. It plays a prominent role in providing food to the nation, employment to the people, raw materials to the industrial sector and surplus for national economic development. A good infrastructure facility is helpful in accessing market of agricultural product and raw material from form to non-form sector and huge employment opportunity to masses. However, what is worse is the growth of agriculture is not satisfactory and it varies across the region. On the other hand, the problem of disparity is crucial in larger states, in comparison to smaller state, and it is very intricate in a state like Uttar Pradesh, which is one of the most populous states of India. The factor analysis shows that high concentration exists in western region in both agriculture as well as infrastructure sectors. The region, Bundelkhand, is very backward in terms of agricultural development and infrastructure except two districts Jhansi and Jalaun are high developed in infrastructure. This empirical evidence indicates that there is a very high degree of correlation between infrastructure facility and agricultural development.

Keywords: Agriculture; Infrastructure; Disparity; Factor analysis; Co-relation.

Introduction

The Indian economy has recently grown at historically unprecedented rates and is now one of the fastest growing economies in the world. The share of service sector and manufacturing has also been increasing rapidly in the course of the country's economic growth but the share of agricultural output has declined drastically. The high transformation of Indian economy has achieved high growth and it has announced itself as one of the second best growing and superpower economies after China. But what is worse is, the growth of India is not inclusive in nature. There is a strong indication that the improvement in the growth of income might have not been distributed well and club to some certain pockets of the states and has remained impoverished in spite of their overall growth. On the other hand, regions are very different at desperate level such as economic, sector (agriculture, industry, services), social status, religion, urban-rural, caste and others.

Agriculture is the largest and most important sector of Indian economy which is directly associates with infrastructure facility. It plays a prominent role in providing food to the nation, employment to the people, raw materials to the industrial sector and surplus for national economic development. The agricultural sector directly accounts for more than two-fifth of the gross domestic product (GDP). It is also responsible for the growth of industry, trade, transport, banking services which in turn influence the growth of GDP. A good infrastructure facility is helpful in accessing market of agricultural product and raw material from form to non-form sector. It also generates huge employment and full capacity of agricultural output. But what is shocking in the era of globalization and rapid economic growth, is the share of agriculture sector has declined drastically and there has been increasing inter-district disparity in agriculture and infrastructure facility.

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Here, it is important to notice that scholars have not widely discussed the disparity which exists at inter-district level within a state. States are divided on the basis of homogenous units but there is great dearth of findings to show that regions are not similar across the districts. The study on disparity at individual level would be appropriate for estimating the gap across the regions but lack of data unavailability and some other constraints makes it impossible to find out necessary information at more disaggregate level. Similarly, the problem of disparity is crucial in larger states in comparison to smaller states, and it is very intricate in a state like Uttar Pradesh, which is one of the most populous states of India. The state is divided into four well- defined regions, administratively, and there exists massive disparity within and between the regions. Therefore, disparity in Uttar Pradesh is generating serious problem and it has become a challenging task for the economy and policy makers.

This paper is an attempt to measure the inter-district disparity in agricultural and infrastructure sector in the state economy of Uttar Pradesh for the year 2000-01. The paper also tries to identify the level and status of backward and advanced regions on the basis of their index value and also seeks how all the indicators of agriculture and infrastructure are co-related to each other which have widened the regional disparity. Further, this paper seeks to know how infrastructure facility has influenced agricultural productivity. The paper is divided into three sections the first section deals with brief literature review which supports the present write-up. The second section focuses on methodology and data-set; the third section gives result and discussions, and some suggestions and conclusions.

Section I: Brief Literature Review

The literature on regional disparity is very vast and varied. It can be classified on a number of bases such as the unit of discussion-nation, state or district; methodology used (using multivariate analysis for developing composite indices or resorting to simple rank analysis etc.); coverage (including all the important sectors of the economy or concentrating on few sectors only); results and findings (showing increase or otherwise in the extent of disparity) etc. Since we are attempting to discuss inter-district disparity we concentrate only on those works related to this.

A number of studies have been conducted dealing with the issue of disparity and level of development at the sub-state level. These studies have used a number of development indicators. The important studies include the one by Iyenger and Sudershan, (1982), which used multivariate data for the two developed regions- Karnataka and Andhra Pradesh- to find out the level of development in various social and economic indicators; Shaban & Bhole (1999) for the state of Maharashtra using Principle Component Analysis (PCA) and 62 indicators (72 variables) to measure the level of development of districts for the benchmark years 1972-73, 1982-83 and 1988-89. Shastri (1988) has examined the regional disparity for the state of Rajasthan which covers a period of 23 years (1961-1984). The study delineates the 'developed' and 'underdeveloped' districts and, within the districts, the 'developed' and 'underdeveloped' sectors which require the attention of policymakers. Wang X (2007) developed a composite index using various social and economic indicators for Chinese economy and tried to find out the level of inter-province disparity. Debapriya and Mohanty (2008) tried to identify the inter-district disparity in the levels of development for the state of Orissa in two significant sectors health and education and related 16 sub-indicators using Principal Component Index.

Among the studies that do not use multivariate analysis, a prominent one related to Uttar Pradesh is that by Diwakar (2009). The study examines the regional disparity at disaggregate level, using district as a unit for the state of Uttar Pradesh, and finds that no district in the Eastern and Bundelkhand regions was in the most developed category.

At the same time, many districts in the Western and Central regions were also on the lower rungs. Lori McDoudall (2000) sees the level of gender disparity in literacy attainment in Uttar Pradesh during 1951-1991. The study reveals significant regional variations in female achievement and gender gap. Devesh Kapur et.al (2010) identified the causes and extent of disparities in caste, particularly for dalit community, to capture the social practices and conditions of living in the society.

A brief review of literature creates two impressions first, there is in general, shortage of studies discussing how inter-district disparity has evolved in Uttar Pradesh over a period of time and how the launching of new reforms has affected this disparity; and second, what is the extent of disparity in agricultural and infrastructure development among different districts and regions in Uttar Pradesh. It is precisely these two gaps that the present write- up attempts to bridge.

As far as Uttar Pradesh State is concerned, there are very few studies dealing with the problem of backward region development. Even here, comprehensive analysis on the overall developmental issues is limited. Most of the studies are concerned with particular aspects such as industrial development, command area development, education and agriculture. In the following section, a brief review of some of the important studies has been presented in the light of research issues raised.

Section II: Methodology and Database

To find out the extent of disparity, it is necessary to measure the disparity. Normally, economists are concerned with the growth and development of the economy. While growth indicators are generally macro-economic parameters, development indicators take into account the social aspect and are broader in concept. The choice of the most appropriate method depends on the type of data available, the nature of the problem and the objective of the study. For the same, one has to choose a set of indicators and decide about the weight to be assigned to each indicator. Further, as different indicators of development would give a different order of ranking, it becomes necessary to combine the indicators in a suitable way so as to develop an integrated index of regional disparities. The size and nature of regional disparity ultimately depends on the chosen set of indicators, assigned weight and the method of combing them. [This study based on Principal Component Analysis and suggests a way of combining various indicators and helps in deciding the weights objectively. Various indices are based on various indicators, and further divided into two different sectors agriculture and infrastructure.

The present work is based on secondary data. Available secondary data sources are Economic Census 1990 & 1998 of U.P. and District Statistical Diaries, Data from Planning Commission, and U.P. Agricultural Department Report. The study covers a period of 2000-01 for which most of the information is available. As given above, for the methodological issue and data constraint, the present paper develops suitable indicators to determine the growth of the economy of UP. All these indicators are different and heterogeneous across the district of economy. The selection of data is based completely on the availability of data. Thus, the paper develops two broad development indicators of growth indices which are based on different sub-indicators at district level.

Each of the sub-indicators represents a certain field of development, and together they contribute the overall index of agricultural and infrastructure sector. The study computes composite indices for agriculture; this index system focuses on the relative position of each district. For the better understanding and reliability Principal Component Analysis was used to give weight to the indices. The values of the selected indicators for all the 70 districts of the state were collected and tabulated. Then the tabulated data was transformed into X_{id}'s, where X_{id} stands for the value of the 'i'th development indicator in the 'd'th district. Similarly, 'd'th runs from 1 to 70 representing

the 70 districts of the state. The growth factor or the coefficients of the 'i'th factor, denoted as 'Y_{id}; and the values of the growth coefficients for the sector were computed using the following formula:[for positive indicators (greater numbers reflect higher level of development), the scores are calculated using the following equation:

$$Yid = \frac{(\text{Xid} - \text{Min Xid})}{Max\,Xid - Min\,Xid}$$

Where Min X_{id} and Max X_{id} represent respectively the minimum and maximum of X_{i1}, X_{i2},

X_{in} stands for the individual indicators. It would be evident that the scaled values of 'Yid's vary between '0' to '1'.

For negative indicators (smaller numbers reflect a higher level of development), the following equation is used:

$$Yid = \frac{\text{Max Xid} - \text{Xid}}{Max\,Xid - Min\,Xid}$$

Where Min Xid and Max Xid represent respectively the minimum and maximum of X_{i1}, X_{i2}, X_{in} represent the individual indicators as mentioned above.

Now the measure of the stage of sectoral development of the 'dth' district (Y_d) is assumed to be a weighted linear function of Y_{id}'s, which is constructed as follows:

$Y_d = W_1Y_{1d} + W_1Y_2 + \ldots\ldots\ldots\ldots + W_mY_md$,

Where $0<W_i<1$ and $\sum_{i=1}^{m} = 1$ and W_1 to W_m are the weights of the Y_id's. The weights W_i vary inversely as the variation in the respective sectoral components of Composite Development Index of the District subject to the condition:

Such that,

$$Wi = \frac{K}{\sqrt{Variance\ (yi)}}$$

Here, '(yi)' represent Sectoral Composite Index.

The overall district index of development, Y_d, also varies from 'o' to '1'. The choice of weights in this manner ensures that large variation in any one of the sectoral indicators will not unduly dominate the contribution of the rest and distort the inter-district comparison.

List of Indicators:

Agriculture:

X1: Per capita food-grain production

X2: Distribution of total fertilizer per hectare of gross area sown

X3: Percentage of gross irrigated area to gross sown area

X4: Percentage of area under commercial crops to gross sown area

X5: Cropping intensity

X6: Percentage of net area sown to total reporting area

X7: Percentage of net area sown to cultivable land

X8: District-wise percentage distribution of government tube-wells

X9: Percentage of barren and uncultivable land to total reporting area

X10: Percentage of net irrigated area to net sown area

X11: Percentage of area irrigated by government tube-wells to net irrigated area

Infrastructure:

X12: Percentage of villages with electricity to total number of villages inhabited

X13: Per capita consumption of electricity

X14: Number of telephone connections per lakh of population

X15: Number of post offices per lakh of population

X16: Percentage of domestic electricity consumption to total consumption

X17: Percentage of electricity consumption in agriculture sector to total consumption

Section III: Result and Discussions

Co-relation Co-efficient in Agriculture

As far as inter-district disparity in agriculture is concerned, Table 1 shows that there is a strong and high correlation among number of sub-indicators which simultaneously affect the agricultural growth and output of the state economy. The factor analysis results shows the correlation matrix of the original set of eleven agricultural development indicators, which accounts for the inter-district variations among the variables in descending order of magnitude (i.e., the first factor accounts for the largest proportion of the total variance, the second factor accounts for remaining variance and so on). Co-efficient of co-relation analysis has been attempted to see the degree of relationship among various indicators of agricultural development. Table 1 reveals a co-relation matrix and inter-relationship of various indicators related to agricultural development which shows positive and significant correlation of X2 (Distribution of total fertilizer per hectare of gross area sown) with X3(Percentage of gross irrigated area to gross area sown), X4 (Percentage of area under commercial crops to gross area sown) and X5 (Crop intensity). It means that the area that is well fertilized, also irrigated properly, the rising distribution of total fertilizer increases the percentage of area under commercial crops. It is also interesting that distribution of fertilizer increases crop intensity which positively affects the total agricultural output of the state economy. It has been seen that there is a very strong relationship between X3 and X10 and X5 with X10. It is clear that rising percentage of gross irrigated area to gross area sown, increasing the percentage of net irrigated area sown to net area sown. Similarly, it is evident that rising crop intensity is the result of rising percentage of net irrigated area sown to net sown area. This component analysis shows that various indicators of agricultural development are positively and significantly associated with each other. On the other hand a number of agricultural indicators are negatively associated with each other, but that is very negligible in the above result.

Co-relation Co-efficient in Infrastructure

In addition, there is a strong indication shown in Table 6, that reveals positive but not high degree of co-relation in number of infrastructural indicators which include X14 (number of telephone connection per lakh of population) with X12 (percentage of electrified villages to total number of villages inhabited) and X13 (Per capita consumption of electricity). The evidence shows that the rising electricity facility in villages and per capita electricity consumption increased telephone facility. On the other hand, X15 was also positively associated with X16 and X17, meaning that electricity consumption in domestic sector and agriculture sector both increased the post office facility to the population.

Thus, the result shows that agriculture and infrastructural facility are inter-related. An adequate and better infrastructure like telephone connection, electricity facility, post office services and all these communication and information facilities make one familiar with market conditions, new information about technology, irrigation facility and other related agricultural input and advertisement concerned with food-grains and agricultural development programmes provided by government and local institutions.

Identification of Level of Development of District

Agriculture

It is very interesting to identify the level of development of various districts of state on the basis of their attainment of agricultural development index. Table 2 indicates that western region is the most developed in agricultural sector and major districts of the region show better attainment in this sector. In addition, some districts of eastern region keep their position as very highly developed,

but they are few. It is also very surprising to see that no district of central and Bundelkhand region of the state, retained a high position in agricultural development. The evidence shows that eastern region is high developed and only one district (Lucknow) in central region, but no district of Bundelkhand and western region, their position is high in agricultural development. Almost all the region touches their position in moderate except Bundelkhand. The result shows that major district, their position in agricultural development is low, concerned to eastern region except some district of central and one district of western (Eatawa). It can be observed that all the district of Bundelkhand and major district of eastern region which condition is very low in the performance of agricultural development.

Infrastructure

The level of development in infrastructure of various districts of Uttar Pradesh is also very interesting. Most of districts of western region, hold high position is very high in infrastructural development. Besides western region major districts of eastern region, which position is also very high. It has been seen that only two district (Lucknow, Kanpur Nagar) of central region and two districts (Jalaun, Jhansi) of Bundelkhand, they keep their position in very high developed. The result shows illusive facts that all the districts of western region which position in infrastructure development is high and no district of other region and similarly all the districts of eastern region which are developed moderately. On the other hand, the result indicates that almost all the districts of eastern and some districts of western followed by central region they keep low performance in infrastructure development. It is also clear that some districts of western followed by eastern region which position is very low in infrastructure development.

The empirical result shows that there is a very strong association between agricultural development and infrastructure facility. The districts which were very high developed in infrastructure were also very highly developed in agricultural development during the period 2000-01. The Principal Component Analysis shows that western region is very developed in both the sectors as against Bundelkhand region which is very backward in agricultural development, except some districts, and also very backward in infrastructure facility. The reason for poor development in agriculture is not only poor infrastructure but other social and economic problems in Bundelkhand region, like financial assistance, banking facility, climate, irrigation facility, center-state transfer, public policy and other.

Cluster of Districts in Agriculture and Infrastructure

Table 7 reveals a very broad picture of analysis of cluster of districts situated across the state. It a very high concentration has existed in very high development in agriculture development with very high development in infrastructure facility. On the other hand next concentration exists in very low development in agricultural development with low infrastructure development. This result clears that infrastructure facilities are highly co-related to agricultural development in the state. In the first condition, very high development in agriculture and a very high development in infrastructure, almost all the districts of western region should a very good performance. Same way, the second condition shows that almost all the districts of Bundelkhand are very low developed in agriculture and also low in infrastructure.

Factor Loadings

Agriculture and Infrastructure

Table 4 clearly reveals factor loadings for the year 2000-01, Communality value of all the variables of agricultural development varied between 0.5034 and 1.0942. Factor 1 explained about 50.34 percent of total variation Factor 2 explained 26.02 percent, and

Factor-3 only 16.42 percent, and total variation explained was 9278 percent. First factor loads heavily on X10, X3, X5, and X2. Second factor loads heavily on X6, X7, X9, X8 and third factor loads on X11 and X2. The third component is ignored in view of the lower percentage of variance explained by it. Similarly, in infrastructure development, first factor explained 50.39 percent, second factor explained 49.96 percent and third factor explained 42.96 percent, and the total variation explained was 75.22 percent.

Section-III: Summary and Conclusions

The analysis brings into sharp focus the spatial pattern of variation in the levels of agriculture and infrastructure. The study showed that development in Uttar Pradesh in both the agriculture and infrastructure sectors has polarized in western region except some districts of central followed by eastern region in 2000-01. The position of Bundelkhand is very low in both the sectors indicating that bad infrastructure is responsible for lower development of agriculture sector. The central followed by eastern region improved their position but very slowly. The study clears that inter-district disparity in Uttar Pradesh has widened during the new reform period. It can thus be concluded that we are facing several bottlenecks in our development process, and without improving the condition of infrastructure facility, agricultural sector will not be able to tackle this problem. So there is a need to allocate resources towards backward areas. The study also highlights the fact that policy should not be formulated on the basis of aggregate, but a specific planning strategy should be prepared for the backward districts so as to enable them to come into the mainstream within a short time period.

Table 1. Co-relation matrix of various indicators of agricultural development

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
X1	1										
X2	-0.24	1									
X3	0.03	0.64*	1								
X4	-0.26	0.50*	0.52*	1							
X5	0.25	0.41*	0.53*	0.16	1						
X6	0.16	0.34	0.29	0.27	0.18	1					
X7	-0.03	-0.06	-0.40	-0.28	-0.08	0.39	1				
X8	-0.13	0.26	0.10	-0.01	0.13	0.28	0.25	1			
X9	0.02	-0.16	-0.05	-0.20	-0.27	-0.28	-0.40	-0.29	1		
X10	0.13	0.61*	0.88*	0.43	0.65*	0.35	-0.33	0.03	-.07	1	
X11	-0.30	0.35	-0.11	-0.15	-0.08	0.07	0.25	0.31	-.07	-0.13	1

Source: Computed by Author

Here * represent high and positive correlation

Table 2. Status of development of various districts in agricultural attainment

Development Status	Districts
Very High	Saharanpur, Muzzafar Nagar, Bijnor, Moradabad, Rampur, Jyotba Phule, Meerut, Baghpat, Ghaziabad, Barabanki, Bulandsahar, Aligarh, Hathras, Mathura, Firozabad, Eath, Mainpuri, Budaun, Bareilly, Pilibhit, Shahjahanpur, Deoria, Mau, Farrukhabad, Kannauj, Faizabad, Ambedkar Nagar, Ghazipur, Varanasi, Sant Ravidas Nagar
High	Allahabad, Basti, Gorakhpur, Azamgarh, Chandauli, Lucknow
Moderate	G.B. Nagar, Agra, Kheri, Hardoi, Unnao, Kushinagar, Ballia, Jaunpur, Auraiya
Low	Etawah, Sitapur, Rae Bareilly, Pratapgarh, Sultanpur, Maharajganj,
Very Low	Jalaun, Jhansi, Lalitpur, Hamirpur, Mahoba, Banda, Chitrakoot, Bahraich, Shrawasti, Balrampur, Gonda, Siddarth Nagar, Santkabir Nagar, Mirzapur, Sonebhadra, Fatehpur, Kausambi, Kanpur Dehat, Kanpur Nagar

Table 3. Status of development of various districts in infrastructure development

Development Status	Districts
Very High	Saharanpur, Muzzafar Nagar, Moradabad, Rampur, Jyotba Phule, Meerut, Baghpat, Ghaziabad, Hathras, Mathura, Firozabad, Bareilly, Varanasi, Lucknow, Allahabad, Sonebhadra, Kanpur Nagar, G.B. Nagar, Agra, Jalaun, Jhansi,
High	Bijnor, Bulandsahar, Aligarh, Mainpuri, Farrukhabad, Kannauj,
Moderate	Gorakhpur, Mau, Chandauli,
Low	Eath, Shahjahanpur, Etawah, Auraiya Kheri, Sitapur, Hardoi, Unnao, Rae Bareilly, Kanpur Dehat, Barabanki, Lalitpur, Hamirpur, Mahoba, Banda, Chitrakoot, Pratapgarh, Sultanpur, Faizabad, Ambedkar Nagar, Bahraich, Shrawasti, Balrampur, Gonda, Siddarth Nagar, Santkabir Nagar, Basti, Maharajganj, Kushinagar, Deoria, Azamgarh, Jaunpur, Ghazipur, Sant Ravidas Nagar,
Very Low	Budaun, Pilibhit, Fatehpur, Kausambi, Ballia, Mirzapur,

Table 4. Factor loading of agricultural sector for principal component analysis

Variables	Principal Component			Communalities
	I	II	III	
X1	0.1442	0.1477	-0.4913	0.5034
X2	0.6596	0.1396	0.5121	0.7636
X3	0.8974	-0.0166	-0.0077	0.9278
X4	0.4302	0.0473	-0.0197	1.0188
X5	0.6638	0.0333	-0.0714	1.0725
X6	0.3033	0.7494	0.0136	1.0927
X7	-0.367	0.6336	0.1914	1.0942
X8	0.0842	0.2455	0.3645	1.0843
X9	0.0585	0.3497	0.0623	1.0675
X10	0.9478	0.0518	-0.0668	1.0416
X11	-0.0841	0.1294	0.7052	1
Variance Explained	**50.34**	**26.02**	**16.42**	**92.78 (Total)**

Table 5. Factors loading of infrastructure sector for principal component analysis

Variables	Principal Component			Communalities
	I	II	III	
X12	0.2996	0.4442	-0.0938	0.7041
X13	0.2418	0.0882	0.554	0.6268
X14	0.5634	0.1078	0.2571	0.6049
X15	-0.413	-0.1174	-0.202	0.7749
X16	-0.0935	-0.5622	-0.135	0.657
X17	-0.1361	0.3233	-0.3532	0.7522
Variance Explained	**50.39**	**49.46**	**42.96**	**75.22(Total)**

Table 6. Co-relation matrix of various indicators of infrastructure development

	X12	X13	X14	X15	X16	X17
X12	1					
X13	-0.005	1				
X14	0.22	0.32	1			
X15	-0.12	-0.24	-0.41	1		
X16	-0.33	-0.25	-0.09	0.28	1	
X17	0.12	-0.27	-0.16	0.21	-0.17	1

Table 7. Cluster of districts in agriculture and infrastructure in 2000-01

	Infrastructure				
Agriculture	**VH**	**H**	**A**	**L**	**VL**
VH	Saharanpur, Bijnor, Muzzafar Nagar,Bulandsahar, Moradabad, Rampur,Aligarh, Jyotba Phule, Meerut,Mainpuri, Baghpat, Ghaziabad,Farrukhabad, Hathras, Mathura,Kannauj, Firozabad, Bareilly, Varanasi,		Mau	Eath, Shahjahanpur,Budaun, Barabanki, Faizabad,Pilibhit, Ambedkar Nagar, Deoria, Ghazipur, Sant Ravidas Nagar,	
H	Allahabad, Lucknow	----------	Gorakhpur, Chandauli	Basti, Azamgarh	----------
A	G.B. Nagar, Agra	--------	------	Kheri, Hardoi, Unnao,Ballia Kushi Nagar, Jaunpur, Aauriya	
L		--------	-----	Etawah, Sitapur, Rae-------- Bareilly, Pratapgarh, Sultanpur, Maharajganj,	
VL	Sonebhadra, Jalaun,--------- Jhansi, Kanpur Nagar		----------	Kanpur Dehat, Barabanki,Mirzapur, Lalitpur, Hamirpur,Fatehpur, Mahoba, Banda,Kaushambi Chitrakoot, Bahraich, Shrawasti, Balrampur, Gonda, Siddarth Nagar, Santkabir Nagar,	

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Table 8. Level of development of various districts of Uttar Pradesh in agriculture Sector

District	Index	Rank	District	Index	Rank	District	Index	Rank	District	Index	Rank	District	Index	Rank
Saharanpur	2.15	6	Agra	1.579	40	Hardoi	1.55	45	Chitrakoot	0.25	70	Mahrajganj	1.51	47
Muzaffarnagar	2.36	1	Firozabad	1.768	27	Unnao	1.55	44	Pratapgarh	1.46	50	Gorakhpur	1.69	33
Bijnor	1.88	18	Etah	1.797	23	Lucknow	1.69	32	Kaushambi	1.19	57	Kushinagar	1.57	42
Moradabad	2.07	10	Mainpuri	1.796	24	Rae Bareli	1.5	48	Allahabad	1.65	36	Deoria	1.84	20
Rampur	2.09	9	Budaun	1.909	15	Kanpur Dehat	1.26	56	Faizabad	1.9	16	Azamgarh	1.68	35
Jyotiba Phule	2.17	5	Bareilly	1.932	14	Kanpur Nagar	1.43	52	AmbedkarNagar	2.01	12	Mau	1.74	28
Meerut	2.28	2	Pilibhit	1.9	17	Fatehpur	1.38	53	Sultanpur	1.52	46	Ballia	1.57	41
Baghpat	2.28	3	Shahjahnpur	2.046	11	Barabanki	1.83	21	Bahraich	0.93	62	Jaunpur	1.62	37
Ghaziabad	2.23	4	Farrukhabad	1.736	29	Jalaun	0.85	64	Shrawasti	0.98	60	Ghazipur	1.82	22
G.B.Nagar	1.55	43	Kannauj	1.783	25	Jhansi	0.84	65	Balrampur	0.97	61	Chandauli	1.7	31
Bulandshahr	2.13	7	Etawah	1.453	51	Lalitpur	0.9	63	Gonda	1.33	55	Varanasi	2.1	8
Aligarh	1.95	13	Auraiya	1.6	39	Hamirpur	0.64	68	Siddharth Nagar	1.18	58	Sant Ravidas	1.73	30
Hathras	1.88	19	Kheri	1.618	38	Mahoba	0.68	67	Basti	1.68	34	Mirzapur	1.13	59
Mathura	1.77	26	Sitapur	1.473	49	Banda	0.69	66	Sant Kabi	1.38	54	Sonbhadra	0.42	69

Table 9. Level of development of various districts of Uttar Pradesh in infrastructure sector

District	Index	Rank	District	Index	Rank	District	Index	Rank	District	Index	Rank	District	Index	Rank
Saharanpur	0.244	9	Agra	0.314	5	Hardoi	-0.11	50	Chitrakoot	-0.128	55	Mahrajgan	-0.1	48
Muzaffarnagar	0.233	10	Firozabad	0.148	18	Unnao	-0.05	43	Pratapgarh	-0.128	56	Gorakhpur	0.038	28
Bijnor	0.052	27	Etah	-0.07	45	Lucknow	0.58	2	Kaushambi	-0.024	37	Kushinagar	-0.16	61
Moradabad	0.208	14	Mainpuri	0.064	24	Rae Bareli	0.001	32	Allahabad	0.2219	12	Deoria	-0.14	58
Rampur	0.1	21	Budaun	-0.03	40	Kanpur Dehat	-0.18	63	Faizabad	-0.127	54	Azamgarh	-0	34
Jyotiba Phule	0.11	20	Bareilly	0.18	16	Kanpur Nagar	0.418	4	Ambedkar Nagar	-0.119	52	Mau	0.03	29
Meerut	0.307	7	Pilibhit	-0.03	39	Fatehpur	-0.02	36	Sultanpur	-0.038	42	Ballia	-0.01	35
Baghpat	0.154	17	Shahjahanpur	-0.12	51	Barabanki	-0.23	68	Bahraich	-0.106	49	Jaunpur	3E-04	33
Ghaziabad	0.551	3	Farrukhabad	0.063	25	Jalaun	0.223	11	Shrawasti	-0.248	69	Ghazipur	-0.07	46
G.B.Nagar	0.69	1	Kannauj	0.074	22	Jhansi	0.134	19	Balrampur	-0.181	65	Chandauli	0.012	30
Bulandshahr	0.071	23	Etawah	-0.05	44	Lalitpur	-0.21	67	Gonda	-0.179	64	Varanasi	0.195	15
Aligarh	0.062	26	Auraiya	-0.13	57	Hamirpur	-0.17	62	Siddharth Nagar	-0.035	41	Sant Ravidas	-0.12	53
Hathras	0.31	6	Kheri	0.002	31	Mahoba	-0.18	66	Basti	-0.429	70	Mirzapur	-0.03	38
Mathura	0.249	8	Sitapur	-0.15	59	Banda	-0.1	47	Sant Kabir Nagar	-0.155	60	Sonbhadra	0.213	13