

## Original Research Article

# Dynamics of Socio–Economic Development of Districts of Western Uttar Pradesh, India

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## ABSTRACT

Development process of any system is dynamic in nature and depends on large number of parameter. This study attempted to capture latest dynamics of development of districts of Western Uttar Pradesh in respect of three dimensions-Agriculture, Social, and Infrastructure. Techniques adopted by Narain *et al.*, (1991) have been used in addition to principal component and factor analysis. Ranking seems to very close to ground reality and provides useful information for further planning and corrective measures for future development of Western Uttar Pradesh's district. The composite indices (C.I) of development in respects of 18 developmental indicators for the total 26 districts of Western Uttar Pradesh have been estimated for the year 2011-12. The district Muzzfarnagar was showed a higher level of development (C.I = 0.81) in agriculture development as compared to social development in Districts Hathrus (C.I = 1.32) and infrastructure development Districts G.B Nagar (C.I =0.17). District G.B Nagar secured First position in the Agricultural development and Second Position Infrastructural development (C.I =0.82) and (C.I = 0.92).

### Keywords

Composite index, Developmental indicator, Factor analysis, Principal component analysis, Socio-economic

## Introduction

Development is a dynamic concept and needs continuous evaluation. Socio-economic development is one of the most important concerns in developing countries. Since some regions are economically developed but backward socially, whereas some other are developed socially and remain backward economically-such scenario exists in Western Uttar Pradesh. Socio-economic development is to improve the quality of life of people by creation of appropriate infrastructure, among others for industry, agriculture, and environments.

Economic planning of the country is aimed at bringing about maximum regional development and reduction in regional disparities in the pace of development. Programmes of development have been taken up in the country in a planned way through various five year micro-level. During the *six, seventh* and *eight* plans, the previous programmes of development were carried on presently plans. The green revolution in the agriculture sector and commendable progress on the industrial front has certainly increased the overall total

production, but there is no indication that these achievements have been able to reduce substantially the regional inequalities in the level of development. Although resource transfers are being executed in backward region of country, it has been observed that avoidable regional disparities exist in terms of socio-economic development and are not declining over time.

Since independence, the country has implemented various five year plans and few annual plans for enhancing the quality of life of people by providing basic necessities for effective improvement in their social and economic well-being various area development programmes were launched during the *fifth plan*, with one of the aims to reduce regional disparities at developments programmes covering agriculture, employment generation, population control, literacy, health, environment, provision of basic amenities etc. are in the process of development. As result of six decades of planned development and policies, overall improvement in the economic condition has taken place. The structure of national and state economics has been changed significantly. The socio-economic condition of the masses has considerably been improved. The literacy level, housing condition, quality of life have gone up. But the level of development has not been uniform at any level. The Inter and Intra-differences in the economic structure have become more sharp and noticeable. Consequently, certain areas went ahead leaving other lagged behind. The green revolution in the agriculture sector has enhanced the crop productivities and commendable progress in the industrial front has increased the quantum of manufactured goods. The structure of the economy has undergone certain changes. But a regional disparity has also been aggravated here which opens up a vista of research.

For focusing the attention of scientists, planners, policy makers and administrators on the regional disparities of socio economic development in the country, a seminar was organized jointly by the Planning Commission, Government of India and State Planning Institute, Government of Uttar Pradesh from April 22 to 24, 1982. Realizing the seriousness and importance of the problems of estimation of level of development, the Indian Society of Agricultural Statistics conducted a series of research studies in this direction. It is now felt that repetitive studies are necessary to quickly assess the dynamics and alert the concerned persons on time for taking corrective measures. It is now felt that a wider study covering Districts of Western Uttar Pradesh could be very informative. Therefore, the present investigation has been proposed with the objectives to find out general profile, development index and disparities by way of tabular analysis and suitable statistical techniques regarding Agriculture and Infrastructure Western Uttar Pradesh.

## **Materials and Methods**

### **Development indicator**

Each district faces situational factors of development unique to it as well as common administrative and financial factors. Factors common to all the districts have been taken as the indicators of development.

The composite indices of development for different districts have been obtained by using the data on the following development indicators:- Percentage of net area irrigated, average productivity of food grains (q/h), per capita consumption of electricity (kw/h), gross value of agricultural produce per hectare of net area sown, cropping intensity in percentage, number of private tube well,

number of registered factories per lacks population, percentage of electrified villages, percentage of literacy rate, number of post office per lacks population, number of telephone connection per lacks population, number of cooperative bank, number of primary school per lacks population, number of junior high school per lacks population, number of intermediate college per lacks population, number of commercial bank, canals irrigation of net area in hectare. A total of seventeen development indicators have been include in the analysis. These indicators are the major interacting component of development. Out of these seventeen indicators six indicators are directly concerned with agriculture development and the rest eleven indicators describe the availability of social and infrastructural facilities in the districts.

**Method of analysis**

**Method of estimation of composite index of development by prem narain *et al.*,**

Let  $[X_{ij}]$  be data matrix giving the values of the variables of  $i^{th}$  district. Where  $i = 1, 2, \dots, n$  (number of districts) and  $j = 1, 2, \dots, k$  (number of indicators).

For combined analysis  $[X_{ij}]$  is transferred to  $[Z_{ij}]$  the matrix of standardized indicators as follows

$$Z_{ij} = \frac{X_{ij} - \bar{X}_j}{S_j} \quad (1)$$

Where,  $S_j$  = Standard deviation of  $j^{th}$  indicator,  $\bar{X}_j$  = mean of the  $j^{th}$  indicator

From  $[Z_{ij}]$ , identify the best value of each indicator. Let it be denoted as  $Z_{oj}$ . The best value will be either the maximum value or

the minimum value of the indicator depending upon the direction of the impact of indicator on the level of development. For obtaining the pattern of development  $C_i$  of  $i^{th}$  districts, first calculate  $P_{ij}$  as follows

$$P_{ij} = (Z_{ij} - Z_{oj})^2 \quad (2)$$

Pattern of development is given by

$$C_i = \left[ \sum_{j=1}^k P_{ij} / (CV)_j \right]^{1/2} \quad (3)$$

Where,  $(CV)_j$  = Coefficient of variation in  $X_{ij}$  for  $j^{th}$  indicator.

Composite index of development ( $D_i$ ) is given by

$$D_i = C_i / C \text{ for } i = 1, 2, \dots, n$$

Smaller value of  $D_i$  will indicate high level of development and higher value of  $D_i$  will indicate low level of development.

**Principal Component Analysis**

Principal component analysis (PCA) is a mathematical procedure that uses orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components. The number of principal components is less than or equal to the number of original variables. This transformation is defined in such a way that the first principal component has the largest possible variance (that is, accounts for as much of the variability in the data as possible), and each succeeding component in turn has the highest variance possible under the constraint that it be orthogonal to (i.e., uncorrelated with) the preceding components. Principal components are guaranteed to be independent if the data set

is jointly normally distributed. PCA is sensitive to the relative scaling of the original variables.

## **Results and Discussion**

### **Level of development**

The composite indices of development have been worked out for different districts of Western Uttar Pradesh separately for agricultural system, socio system and industrial system. The districts have been ranked on the basis of developmental indices. The composite indices of development along with the district rank are presented in table1.the result of the composite indices shows that the district Muzzafarnagar was the most development district in agriculture system followed by the district G.B Nagar, Meerut. While in socio development district Hathrus was top most development district followed by the districts Etah, Bulandshar. On the basis of infrastructure G.B Nagar showed a high development among the district under the study. District Badaun was the most backward district in all the three dimensions – agriculture, infrastructural system.

### **Agriculture development**

The results show that Muzzafarnagar, G.B Nagar, Meerut and Saharanpur are in top 5 position in year 2011-12. When study was carried out for entire Uttar Pradesh by Narain *et al.*, its rank However this year it has improved from Rank Bulandshar, Hapur and Aligrah district was in top 5 year 1995 but for last few years its position has slipped down considerably.

### **Social development**

The result show that Hathrus, Etah and Bulandshar are in top 5 district since year

2011-12. Besides these are in top 5 position by most of the methods used in current study. The districts, viz, Mainpuri, Amroha are showing improvement in ranking as evaluated by the method in 2012. Ghaziabad, Rampur are listed in 5 most backward districts by most of the methods use in current study.

Firozabad and Moradabad have improved their position since 1995 as evaluated by the methods.

### **Industrial development**

The result show that G.B Nagar, Ghaziabad, Meerut and Hapur are in top 5 districts since year 2011-12 by principal component analysis and factor analysis in current study. Saharanpur and Moradabad were in top 5 districts in year 1995 but as per observation in year 2008 and year 2012 these districts have come down in the ranking based on Industrial development. Badaun, Etah, Pilibhit and Kashganj are listed in 5 most backward districts.

### **Improvement required in low development districts**

It is quite important and useful to examine the extent of improvement needed in various developmental indicators for the low developed districts. This will help the administrators and planners to readjust the resources bringing about uniform regional development.

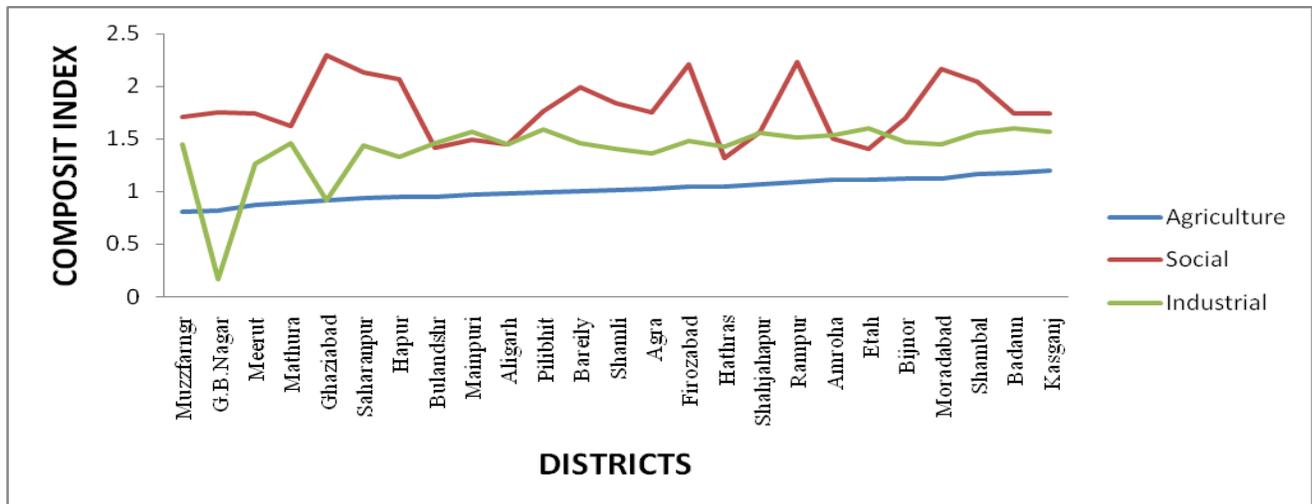
### **District Badaun**

The district is low developed in agriculture sector. District Badaun has minimum gross value of agriculture produce. It has also minimum value of cropping intensity. The above result indicates that Badaun is at lowest level of development.

**Table.1** Composite index (C.I.) and Rank of development in Western U.P.

Districts	Agriculture		Social		Industrial	
	C.I	Rank	C.I	Rank	C.I	Rank
Muzzfarngr	0.81	1	1.71	10	1.45	10
G.B.Nagar	0.82	2	1.76	15	0.17	1
Meerut	0.88	3	1.74	13	1.26	3
Mathura	0.90	4	1.62	8	1.46	12
Ghaziabad	0.92	5	2.30	25	0.92	2
Saharanpur	0.94	6	2.14	21	1.44	8
Hapur	0.95	7	2.07	20	1.33	4
Bulandshr	0.95	8	1.42	3	1.46	13
Mainpuri	0.97	9	1.49	5	1.57	21
Aligarh	0.98	10	1.45	4	1.45	11
Pilibhit	0.99	11	1.77	16	1.59	23
Bareily	1.00	12	2.00	18	1.46	14
Shamli	1.02	13	1.84	17	1.40	6
Agra	1.03	14	1.76	14	1.36	5
Firozabad	1.05	15	2.21	23	1.48	16
Hathras	1.05	16	1.32	1	1.43	7
Shahjhapur	1.07	17	1.57	7	1.56	20
Rampur	1.09	18	2.24	24	1.51	17
Amroha	1.11	19	1.50	6	1.54	18
Etah	1.11	20	1.41	2	1.60	24
Bijnor	1.12	21	1.70	9	1.47	15
Moradabad	1.12	22	2.17	22	1.45	9
Shambal	1.17	23	2.05	19	1.56	19
Badaun	1.18	24	1.74	12	1.60	25
Kasganj	1.20	25	1.74	11	1.57	22

**Fig.1** Composit Index of Districts in Western U.P.



Improvement are needed to enhance the agriculture produce per hectare of net area sown, irrigation potential and also popularizing the use of manure and fertilizer. Developmental programmes should be taken in the district.

### **District Rampur**

This district is low developed in social and industrial sector. District Rampur has minimum number of telephone connection per lack of population, minimum number of commercial bank cooperative bank and minimum literacy rate. The district has also minimum number of inter schools per lack population. The above results indicate that districts Rampur is at lowest level of development in social and industrial sectors.

### **District Kasganj**

This district is low middle level developed in social and industrial sector. Educational banking and industrial facilities should be improved in this district.

It was observed that there are wide disparities in the level of socio- economic development of Western Uttar Pradesh. The districts Muzzfarnagar, G.B Nagar, Meerut, Ghazibad and Hathrus were classified as the most development districts according to our classification. Three districts viz; Badaun, Kasganj and Rampur were found to be very poorly developed with respect to overall development. Out of three most backward districts two i.e Badaun and Rampur were the least developed in view of agriculture, social and infrastructural fronts. Badaun was very poor in all the three sectors of agriculture, social and infrastructure. To attain uniform development in the Western Uttar Pradesh individual indicator need to be

examined for making them at par with their values in the developed districts. Such information may help the planners and administrators to readjust the resources allocation and priorities target in the Western Uttar Pradesh.

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