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The Level of Development in Haryana

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Abstract: Inequality in the levels of development between regions/states has been an integral feature of the history of India's economic development. Uneven development has attracted the attention of researchers, planners and policy makers throughout the past. This paper is an attempt to look inter-district situation in the levels of regional development in the state of Haryana. For this purpose a composite index through Taxonomic method has been constructed for 21 districts of Haryana with the help of 34 indicators for different social, economic and demographic dimensions for the year 2011. The results clearly show that there do exist inter-district inequality with respect to different dimensions of development. In overall development scenario Mewat and Palwal come out to be the laggard districts while Ambala comes out to be the best district.

INTRODUCTION

Development is a multi-dimensional phenomenon governed by many factors in an area. In a country of large dimension, the existence of regional imbalance is an extremely important problem. The regional inequalities are the result of historical, natural, economic, geographical, climatic and even political factors. Sometimes because of adverse socio-economic conditions, the psychological impact of these inequalities might be dangerous for the regional/national harmony. In India several attempts have been made by scholars to examine the convergence/ divergence among regions using income data (Mathur, 1983, 1994; Manjit and Mitra, 1996; Dasgupta *et al.*1997; Ghosh *et al.* 1998, Mukherjee, 2004). The review of these works indicates evidence of some sort of convergence in income disparities up to 1965; thereafter due to spread of green revolution the evidences of divergence in income levels seem to exist. Recently Joshi, 1997; Kant, 1998; Rao, 1999; Bhide, 2000; Krishna, 2001; Ghosh and Narayana, 2005; Kumar, 2005; Majumdar, 2005; Nayyar, 2005; Nagaraj and Krishnamurthy, 2007 have observed that regional disparity in India has widened during 1990s.

It was in the Third Five Year Plan (1961-66) that a separate chapter was devoted to Balanced Regional Development. Policies for the development of backward area, at the centre and the state levels, identification of backward areas and indicators of development for different sector etc., all efforts were made after the recommendation of the Pandey committee, Chakraborty committee and National Council for Development of Backward Areas(NCDBA). 12th five year plan (2012-17) has also focussed on more sustainable and inclusive growth. It has been more than 50 years since regional inequalities have got attention of governments, despite of several efforts to bring equalities within regions; the inequalities still seems to exist. This paper is an attempt to look at the regional inequalities in different dimensions of development, social, economic and demographic in the state of Haryana. Haryana is an agricultural state which also experienced 'green revolution' which ultimately leads to rise in per capita income many folds but it also led to inequalities among various districts.

Objectives

The objectives of the study are:

1) To examine inter-district level of regional development in different dimensions, social, economic and demographic.
2) To find out inter-district variations in the components of development
3) To find out correlations between different dimensions which lead to regional inequalities?

Methodology

I. The Data

As the study relied upon secondary data, the required information is collected from the Statistical Abstract of Haryana for different districts for year 2011. The district is considered as the region.

II. The Methods

The inter-district variability in components of development is estimated by standard deviation and co-efficient of variation for 2011 census year.

For the construction of composite index, Wroclaw's Taxonomy Method has been used which is as follows:
First calculate standardised values using Z score

$$Z = (X - \bar{X}) / S.D.$$

Where Z= Z Score
X= Actual Observation
$\bar{X}$ =Mean of respective indicator
S.D. = Standard Deviation of respective indicator

From the standardised values, an 'ideal' district for each indicator is identified by taking the highest standardised value of that indicator. From the highest standardised values, deviations of the values for each district are taken for all indicators. Then the pattern of development of each district is determined for each dimension: social, economic and demographic through the following formula

$$Pio = \sqrt{\sum_{P=1}^{K} (Zip - Zop)2}$$

Where Pio = Pattern of the development of the i-th district
Zip = the standard value of the i-th district and k-th indicator
Zop = the highest standardised value of the k-th indicator

The last step is to compute the composite index of the level of development of each district. It is calculated through the following formula :

$$Di = Pio / Po$$

Where D = Composite index of the level of development of the i-th district
$Po = P + 2\bar{\sigma} Pio$
and $\bar{P}$ and $\bar{\sigma}$ Pio are the mean and standard deviation respectively of the pattern of development.

Under this method, the value of composite index is always non-negative. The closer the value of the composite index to zero, the higher is the level of development and the closer to 1, the lower is the level of the development of the district. Lastly in order to categorise the districts the following method is used:

$Di > \bar{D} + \bar{\sigma} Di$ = lower level of development
$Di < \bar{D} - \bar{\sigma} Di$ = higher level of development
$\bar{D} + \bar{\sigma} Di < Di < \bar{D} - \bar{\sigma} Di$ = average level of development

Where $\bar{D}$ and $\bar{\sigma}$ Di are the mean and standard deviation of composite index respectively.
Selection of the variables

There are number of factors to measure regional inequalities. But, based on the availability of data the following 34 indicators are taken to look the regional disparities in the levels of development in the Haryana state and these are broadly divided into social, economic and demographic they are as follows:

Social Indicators

1) Primary schools per 100000 population
2) Middle schools per 100000 population
3) High schools per 100000 population
4) All types of colleges per 100000 population
5) Post offices per 100000 population
6) Hospitals per 100000 population
7) Primary health care units per 100000 population
8) Dispensaries per 100000 population
9) Community health care units per 100000 population
10) Tourist places per 100000 population
11) Cinema halls per 100000 population

Economic Indicators

12) No. of registered industries per 100000 population
13) No. of Co- operative societies per 100000 population

14) No. of Commercial banks per 100000 population
15) No. of agriculture credit societies per 100000 population
16) Length of roads per 100 sq. kms. of geographical area
17) No. of vehicles (all types) per 100000 population
18) Net area sown per 100 sq. kms. Of geographical area
19) % of net irrigated area to net sown area
20) Area under H.Y.V. crops (%)
21) Fertilizers (tonne) per 100 sq. of net sown area
22) % of area sown more than once to 100 sq. of net sown area

Demographic Indicators

23) Density of population
24) Growth of population in percent
25) Sex ratio
26) % of urban population
27) % of literates to total population
28) % of urban literates to urban population
29) % of female literates to female population
30) % of main working population to total population
31) % of cultivators to working population
32) % of agricultural labourers to working population
33) % of people in household industries to working population
34) % of other workers to working population

Empirical results

Inter –District condition

In order to look at inter district variation condition co-efficient of variation is calculated (Table-1).

Table-1: Mean and Coefficient of variation

				Social Dimension							
Districts	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Ambala	64	19	26	3	12	0.4	1.5	0.6	0.3	0.1	0.4
Panchkula	62	17	20	2	9	0.4	1.6	2.3	0.4	0.7	0.7
Yamunanagar	76	20	25	4	10	0.3	1.5	1.0	0.3	0.1	0.2
Kurukshetra	65	23	25	4	11	0.1	2.2	0.4	0.4	0.4	0.2
Kaithal	56	12	21	3	11	0.1	2.0	0.2	0.5	0.1	0.1
Karnal	54	14	23	3	11	0.1	1.7	0.8	0.3	0.1	0.3
Panipat	38	7	23	3	8	0.2	1.3	0.5	0.2	0.2	0.4
Sonipat	57	10	34	5	12	0.1	2.0	1.0	0.4	0.1	0.3
Rohtak	44	9	32	7	11	0.8	2.0	1.1	0.6	0.3	0.5
Jhajjar	66	11	39	6	15	0.3	2.3	0.5	0.4	0.1	0.2
Faridabad	46	16	33	3	5	0.2	0.6	1.6	0.1	0.4	0.6
Gurgaon	37	8	20	4	8	0.4	0.8	0.5	0.1	0.3	0.9
Rewari	69	14	36	4	14	0.3	1.9	0.4	0.6	0.2	0.4
Mahendragarh	70	17	35	7	13	0.1	2.6	0.3	0.5	0.0	0.3
Bhiwani	66	14	40	3	14	0.5	2.4	1.0	0.4	0.1	0.0

Jind	51	10	30	4	12	0.2	2.0	0.7	0.4	0.1	0.0
Hisar	45	8	30	3	12	0.4	2.0	0.9	0.5	0.1	0.6
Fatehabad	51	12	22	2	14	0.2	1.7	0.5	0.3	0.1	0.0
Sirsa	56	11	25	2	13	0.2	0.3	0.8	0.3	0.2	0.1
Mewat	58	29	12	1	4	0.1	1.2	0.4	0.3	0.0	0.3
Palwal	54	16	26	1	3	0.1	1.3	0.2	0.3	0.1	0.1
Average	56.34	14.16	27.47	3.49	10.53	0.27	1.66	0.75	0.35	0.18	0.31
S.D.	10.37	5.21	6.84	1.53	3.15	0.16	0.58	0.48	0.14	0.17	0.24
C.V.	18.41	36.76	24.90	43.72	29.93	61.16	34.90	64.25	38.86	94.77	76.39

Economic Dimension

Districts	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
Ambala	2	82	14	4	80.62	29835	67.3	88.9	91.76	5215	194.3
Panchkula	2	1010	23	2	66.93	30481	26.7	46.2	82.81	2236	158.3
Yamunanagar	2	68	10	3	66.57	20698	70.7	92	89.69	5319	170.4
Kurukshetra	1	94	11	6	76.93	22208	98.7	100	86.38	6654	179.5
Kaithal	1	135	9	3	78.46	15076	86.8	99.5	92.49	4754	191.5
Karnal	2	69	11	3	23.61	27294	79.4	99.9	85.47	5626	195.0
Panipat	2	95	10	3	70.82	19740	75.7	100	81.82	5289	199.0
Sonipat	4	149	11	2	66.78	17462	67.9	100	83.53	5942	213.9
Rohtak	2	89	12	2	58.57	21105	80.2	79.8	86.36	4322	164.3
Jhajjar	6	84	9	2	72.46	16429	91.1	74	91.57	1293	143.7
Faridabad	16	234	10	2	68.07	41772	47.2	96.2	91.30	3364	191.4
Gurgaon	17	282	22	2	59.02	45198	65.2	71.1	95.56	1724	139.0
Rewari	6	148	11	3	63.8	20985	79.0	76.7	97.52	3773	156.3
Mahendragarh	0	74	7	2	54.34	14871	76.9	33.7	98.73	2315	192.5
Bhiwani	1	121	8	3	50.79	10745	77.6	54.4	95.00	1918	202.2
Jind	1	103	7	2	41.52	12943	88.1	90.4	87.13	4386	198.7
Hisar	4	113	8	3	55.28	17834	83.6	81.7	86.14	3776	193.1
Fatehabad	0	99	9	3	60.72	14842	88.3	99.6	84.45	5062	189.7
Sirsa	0	145	9	3	52.54	18495	92.6	89.7	86.83	4181	181.3
Mewat	0	31	3	0	63.45	6585	70.3	28.6	97.14	1983	163.2
Palwal	0	43	6	0	60.82	2970	78.7	98.4	86.33	6114	179.4
Average	3.28	155.60	10.54	2.55	61.53	20360.31	75.81	80.99	89.43	4059.30	180.80
S.D.	4.71	199.40	4.41	1.26	12.67	9958.01	15.60	21.91	5.03	1574.82	19.64
C.V.	143.68	128.15	41.85	49.36	20.59	48.91	20.57	27.05	5.62	38.80	10.86

Demographic Dimension

Districts	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
Ambala	717	11.23	885	44.38	72.5	78.16	67.35	28.31	14.21	15.40	4.23	66.16
Panchkula	625	19.83	873	55.81	72.2	77.22	67.07	32.57	12.62	6.07	4.67	76.65

Yamunanagar	687	16.57	877	38.94	68.6	75.00	63.03	27.92	15.80	18.82	3.16	62.22
Kurukshetra	630	16.86	888	28.95	67.1	74.93	60.85	29.64	20.46	25.50	2.00	52.04
Kaithal	464	13.55	881	21.97	60.2	68.35	51.81	27.06	34.24	22.91	2.53	40.33
Karnal	597	18.14	887	30.21	65.0	72.59	58.44	27.34	21.87	25.91	2.97	49.36
Panipat	951	24.6	864	46.05	65.3	69.12	57.73	28.12	17.49	15.12	3.84	63.55
Sonipat	683	13.35	856	31.27	68.8	73.49	61.08	27.36	27.21	19.45	3.48	49.87
Rohtak	608	12.88	867	42.04	70.4	75.07	63.23	27.23	27.67	10.57	2.46	59.30
Jhajjar	523	8.9	862	25.39	70.5	73.82	62.34	25.72	34.42	13.73	2.83	49.01
Faridabad	2442	32.54	873	79.51	70.3	72.68	63.75	27.37	4.78	5.06	5.57	84.59
Gurgaon	1204	73.14	854	68.82	73.4	75.51	67.71	32.19	10.29	4.97	3.35	81.39
Rewari	565	17.64	898	25.93	70.7	73.90	61.38	27.79	30.41	8.35	2.90	58.34
Mahendragarh	486	13.48	895	14.41	68.4	72.87	57.37	23.03	44.05	11.32	2.26	42.38
Bhiwani	342	14.7	886	19.66	65.5	71.49	55.58	27.27	46.31	16.66	2.38	34.64
Jind	494	12.13	871	22.9	62.4	70.37	53.24	28.92	44.02	19.50	1.74	34.74
Hisar	438	13.45	872	31.74	63.9	72.18	54.67	30.46	37.75	20.85	2.33	39.07
Fatehabad	371	16.85	902	19.06	59.2	68.52	51.52	30.39	35.83	26.55	1.78	35.84
Sirsa	303	15.99	897	24.65	60.4	69.93	53.20	30.82	32.73	29.29	2.38	35.60
Mewat	723	38.65	907	11.39	41.8	56.52	28.27	18.74	35.95	19.06	2.08	42.91
Palwal	767	25.76	880	22.69	57.5	66.72	45.08	20.8	29.56	19.60	2.77	48.07
Average	696.15	20.49	879.76	33.61	65.43	71.83	57.37	27.57	27.51	16.89	2.94	52.67
S.D.	438.83	13.71	14.60	17.04	6.97	4.49	8.68	3.30	11.56	7.04	0.96	14.96
C.V.	63.04	66.92	1.66	50.70	10.66	6.25	15.14	11.97	42.04	41.71	32.57	28.40

At the different dimensions it is clear that largest variation is found in social dimension followed by demographic and economic dimension with respective coefficient of variations as 14.50%, 12.90%, 11.57%. In social dimension the highest variation is seen in presence of tourist places (94.77%) followed by cinema halls (76.39%), next comes the presence of dispensaries (64.25%), while the least value 18.41% is found in the availability of primary schools. In context of economic dimension the largest coefficient of variation is found in the no. of registered factories (143.68%) followed by no. of cooperative societies (128.15%), while the least variation (5.62%) is found in context of area under H.Y.V. crops. In case of demographic indicators the highest variation is seen in case of population growth (66.92%) followed by density (63.04%), while the least variation is found in case of sex ratio (1.66%).

Inter- District development condition

It has been calculated by Wroclaw's Taxonomy Method (Table-2, 3).

Table-2 Pattern of development

District	Dimension of Development			
	Social	Economic	Demographic	Overall
Ambala	7.790	6.997	7.694	12.993
Panchkula	6.471	8.773	7.765	13.384
Yamunanagar	7.793	8.143	7.995	13.819
Kurukshetra	7.852	7.385	8.423	13.680
Kaithal	9.717	7.779	9.433	15.619
Karnal	9.068	8.874	8.263	15.141
Panipat	10.188	8.209	7.788	15.226
Sonipat	8.299	8.120	8.648	14.478
Rohtak	6.538	8.574	8.705	13.858
Jhajjar	7.770	9.166	9.284	15.185
Faridabad	8.848	7.341	6.586	13.250
Gurgaon	9.783	7.593	6.992	14.219
Rewari	7.243	7.726	8.376	13.502
Mahendragarh	8.158	9.583	9.603	15.830
Bhiwani	7.487	9.070	9.430	15.075
Jind	9.022	9.168	9.753	16.142
Hisar	8.128	8.304	9.074	14.743
Fatehabad	9.774	8.508	9.575	16.112
Sirsa	9.747	8.419	9.222	15.840
Mewat	10.795	11.257	11.980	19.667
Palwal	10.804	10.267	9.530	17.691

Table-3. Index of level of development

District	Dimension of Development			
	Social	Economic	Demographic	Overall
Ambala	0.699	0.666	0.698	0.717
Panchkula	0.581	0.835	0.704	0.738
Yamunanagar	0.700	0.775	0.725	0.762
Kurukshetra	0.705	0.703	0.764	0.755
Kaithal	0.872	0.740	0.855	0.861
Karnal	0.814	0.844	0.749	0.835
Panipat	0.915	0.781	0.706	0.840
Sonipat	0.745	0.773	0.784	0.799
Rohtak	0.587	0.816	0.789	0.764
Jhajjar	0.698	0.872	0.842	0.838
Faridabad	0.794	0.698	0.597	0.731
Gurgaon	0.878	0.722	0.634	0.784
Rewari	0.650	0.735	0.759	0.745
Mahendragarh	0.732	0.912	0.871	0.873
Bhiwani	0.672	0.863	0.855	0.831
Jind	0.810	0.872	0.884	0.890
Hisar	0.730	0.790	0.823	0.813
Fatehabad	0.877	0.809	0.868	0.889
Sirsa	0.875	0.801	0.836	0.874
Mewat	0.969	1.071	1.086	1.085
Palwal	0.970	0.977	0.864	0.976

It has been calculated separately for each dimension and then calculated separately to show overall development of districts. In social dimension the index values show that the Panchkula is on top followed by Rohtak and Rewari with respective values as 0.581, 0.587, 0.650. The district which is most laggard is Palwal (0.970). The other backward districts in social dimension are Mewat (0.969) and (0.915) as they have values greater than mean+1sd (0.887). In case of economic dimension the highly developed districts come out to be Ambala (0.666), followed by Faridabad (0.698) and Kurukshetra (0.703), while Mahendragarh (0.912), Palwal (0.977) and Mewat (1.071) come out to be the laggard districts. Here most backward district is Mewat. In context of demographic dimension the highly developed districts come out to be Faridabad (0.597) followed by Gurgaon (0.634) while Mewat (1.086) come out to be the backward district. In case of overall development Ambala (0.717) is the best district while Mewat (1.085) and Palwal (0.976) seem to stand on the other end of the ladder. There are 18 districts which fall in medium category these are: Faridabad, Panchkula, Rewari, Kurukshetra, Yamunanagar, Rohtak, Gurgaon, Sonipat, Hisar, Bhiwani, Karnal, Jhajjar, Panipat, Kaithal, Mahendragarh, Sirsa, Fatehabad, Jind.

Inter-Dimensional Correlation

If we calculate the correlation between various dimensions: social, economic and demographic then it is highest between economic and demographic dimension (0.789). In case of social and economic dimension it is 0.341 while in between social and demographic indicator it is 0.331. If we calculate the correlation between one specific dimension and overall development index then it comes out highest for the economic dimension followed by demographic dimension and social dimension with respective correlation coefficient as 0.851, 0.850 and 0.728. It clearly indicates the importance of the social dimension for overall development.

CONCLUSION

It is clear from discussion that (i) In Haryana there do exists inequalities and these can be seen across different dimensions and different districts. The discussion also reveals that (ii) Mewat and Palwal come out to be the laggard districts while Ambala comes out to be the best district. (iii) High correlation coefficient between is found between economic and demographic dimension and economic and overall development.(iv) Regional inequality seem to follow some specific area as the southern ,eastern pockets are showing the less development while development is more pronounced in areas which are nearby to the capital regions.
Social dimension shows greater coefficient of correlation which clearly indicates that in social dimension special need to be focussed. In case of health sector the availability and accessibility need special attention. In case of economic dimension the agriculture is showing fairly balanced development; here industrial sector need special attention. In case of demographic dimension special attention need to be given to raise the sex ratio and the conditions of working community specially the cultivators and agricultural labourers. Panipat, Mewat and Palwal need special attention in social dimension. Mahendragarh, Palwal and Mewat need special attention in economic dimension while Mewat again need special attention in demographic dimension. It is necessary to strengthen the human resource development for the wholesome structural development in the region. Under the new economic policy, the entrepreneurs should be asked to invest in diversified agro-based industries. The government should emphasise upon the development of the neglected regions by initiating socio-economic development programmes in less developed districts.

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