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DEVELOPMENT GAPS AMONG DISTRICTS FOR EFFECTIVE DECENTRALIZED PLANNING IN MADHYA PRADESH

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This paper tries to compare the districts grounded on the level of overall development in the districts by comparing their indices through a cross-sectional analysis of 45 districts of Madhya Pradesh so as to identify the regional gaps present among the districts. For this purpose, we have formed an index which would define the changes of the overall development in the state while also comparatively analyzing different dimensions of the indicator at district level and mapping out the disparities between them. Analysis suggests that the development gaps are widely present among the districts of Madhya Pradesh. It shows that as socio-economic, infrastructural and agriculture, if simultaneously developed in equal priority can lead to enhanced levels of development in Madhya Pradesh. The government, if includes the process of decentralization in the policies for development, would help in lowering the regional gaps, and an inclusive growth in true sense can be achieved.

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Introduction

Development in Madhya Pradesh was an eagerly sought phenomenon since independence. The path of growth seemed much tough till Chhattisgarh was carved out of it. Yet, the once-tagged BIMARU State not only got the tag off its shoulders but made a remarkable journey of growth and became one of the fastest growing States in the country. This incredible turnaround of the State's economy was credited to a tremendous growth in agriculture sector, which was complemented by the growth of socio-economic and infrastructure development parallel to it. Madhya Pradesh has been the achiever of excessive agriculture growth rates in the past few years. This tremendous development has been achieved owing to numerous reasons which many academicians have already tried to understand and explain while some are still working in this area. Nevertheless, a more intriguing, or rather enthralling, question occurs around the evidences of inquiries as how the development in different dimensions has affected the overall development among the districts of the State, or to state otherwise, how are the districts performing on socio-economic, infrastructural and agricultural development fronts? This question is complemented by the thought of the government's role in making the process smoother. Simply put, has the government been able to introduce adequate policies ensuring equal and inclusive growth in the state?

The task of such a system of governance is tough as the primary challenge of good governance is to ensure the effective implementation of reforms leading to a better path of development. In this regard, it has been recognized in literature that governance through decentralization can lead towards development more effectively. The first step of such development is by introducing required legislations. But legislating decentralization policy alone cannot empower the regional units unless it is accompanied with a policy that includes social mobilization program that will motivate them to organize and seek access to available opportunities and resources. For a development process to be inclusive in a true sense, the decentralized development should be linked to the all the regions through a mechanism in which 'all have an equal part (share)'. It is progressively recognized that institutionalization of developmental governance at the local level could increase involvement of all sections in the movement of resources and their distribution for development in different regions. It is hoped that by devolving more authority and channeling more resources to the local bodies, a balanced and equitable distribution of development across the region can be achieved.

In the same line of thought, the paper tries to compare the districts grounded on the level of overall development in the districts by comparing their indices through a cross-sectional analysis of 45 districts of Madhya

Pradesh so as to identify the regional gaps present among the districts. The paper then moves forward to form a theoretical base for the study followed by framing the objectives, describing the methodology, discussing the results and interpretations while deriving relevant conclusion(s) at last.

Theoretical Background

Economic Development is a subject of foremost importance in the field of economics. Many economists have contributed to the available literature through their rigorous works. However, the scope of this study is restricted to mapping the sectoral interlinkages at district level with a special focus on the performance of different dimensions of overall development in Madhya Pradesh through which proper and more effective decentralized policies could be implemented by the government. In this context, the works done by Ahuja, Kawadia, & Phatak (2017) while following Kawadia & Phatak (2016) has been considered as a base for this study. Methodology of this investigation has been adapted from a study by Ahuja, Kawadia, & Phatak (2017) who try to compare the districts grounded on the level of agricultural and overall development in the districts by comparing their indices through a cross-sectional analysis of 45 districts of the State. The paper has tried to develop an index of funds devolution based on the level of deprivation and concentration of population in the region using secondary data for 39 districts of Madhya Pradesh, while

finding presence of regional disparities in the state. Further, Ohkawa & Rosovsky (1960) present a framework to assess the role of agriculture in the economic development of Japan from 1878 to 1917. In the same lines, a study by Beckford (1965) focuses on some salient features of agriculture's contribution to total economic growth. The study by Dethier & Effenberger (2012) is formed as a base contributor of theoretical background in this paper. Another work by Johnston & Mellor (1961) deals with issues that have too often been discussed in terms of the false dichotomy of agricultural vs. industrial development. A study by Matsuyama (1992) in this regard addresses the role of agricultural productivity in economic development in a two-sector model of endogenous growth while suggesting the openness of an economy to be an important factor for planning development strategy and predicting growth performance. Another chapter by Timmer (2002) takes an analytical look at the potential role of agriculture in contributing to economic growth, and develops a framework for understanding and quantifying this contribution. In similar lines, Self & Grabowski (2007) present an empirical cross-country analysis of agricultural technology's role in economic development while indicating that agricultural modernization has a positive effect on both measures of economic growth and human development. In contradiction to Self & Grabowski (2007), Gardner (2003) investigates the sources of growth in

agricultural value-added (GDP) and rural household incomes using a sample of developing countries while concluding that agriculture does not seem to be a primary force behind growth in national GDP. An interesting work done by Maheshwari & Tandon (1959) on the inter-relationship of the agricultural sector with the Indian economy argues that agriculture plays a “very important role which this sector does and must continue to play in the development of India”. It thus becomes clear from the previous studies that the role of agriculture is evident in economic development of a region.

Objectives

1. To identify the parameters of development in Madhya Pradesh
2. To establish index for social, economic, infrastructure and agriculture development among various districts of Madhya Pradesh
3. To compare various dimensions of development among districts with respect to the State average
4. To identify the development gaps as a tool for effective decentralized planning
5. To map the gaps between the level of social, economic, infrastructure and agriculture development with respect to the overall development in Madhya Pradesh

Methodology

The study focuses on forming an index which would define the changes of the overall development in the state while also comparatively analyzing different dimensions of the indicator at district level and mapping out the disparities between them.

For the purpose of forming an index we have followed Kawadia and Phatak (2016) who provide a set of comprehensive steps of forming a much precise index. The first step used to develop the index was to identify different indicators which can capture the status of agricultural, economic, social, and infrastructural development in the region. For the purpose, twenty such indicators of social development, economic development and infrastructural development have been identified (see table 1).

To make these indicators additive, we converted them into standardized format using a distant function stated below:

$$X_i = \frac{X_i - \mathbf{Min}X_i}{\mathbf{Max}X_i - \mathbf{Min}X_i}$$

Where, X_i is the variables X for i^{th} district; $\mathbf{Min}X_i$ is the minimum value of variable and $\mathbf{Max}X_i$ is its maximum value in the State. This helps in

normalizing the value of the indicators. Before using the distant function, all the indicators were converted to ratio scale.

After normalizing the variables, the three composite Indexes were calculated by averaging all the indicators for each category, i.e.

$$SOI = \frac{PNDI + SXRI + LRCI + IMRI + IRGP}{5}$$

$$ECOI = \frac{ICDR + INDI + NCBI + ELCI + IPCI}{5}$$

$$INFI = \frac{ISCH + EHHI + ELVI + TWFI + HTFI + NTRI + PHCI}{7}$$

$$AGRI = \frac{ISAI + IYLD + IRDI}{3}$$

It is worth noting that the **Index of Agriculture Development (AGRI)** is formed by averaging the ratio of Net Irrigated Area to Net Sown Area (ISAI), geometric mean of five years (2003-04 to 2008-09) of agriculture productivity (yield) (IYLD) and irrigation sources per 1000 Hectare (IRDI).

Finally we developed the overall index of development of the district called as the **Index of Overall Development (DEVI)**, which shows the level of overall development of a district. The components of DEVI were added up with equal weight as the formula demonstrates:

$$DEVI = \frac{SOCI + ECOI + INFI + AGRI}{4}$$

Table 1: List of Indicators Included in the Study

No	Name	Unit	Code
SOCIAL INDEX (SOCI)			
1	Infant Mortality Rate	Deaths per 1,000 Births	IMRI
2	Population Density	People per Square Km	PNDI
3	Sex Ratio	Females per 1000 Males	SXRI
4	Literacy Rate	Percent	LRCI
5	Gross Enrollment Ratio (Primary)	Number of Students Enrolled in School at Different Grade Levels	IGRP
ECONOMIC INDEX (ECOI)			
1	Credit-Deposit Ratio	Loans by Deposits	ICDR
2	Per Capita Income	INR	IPCI
3	Industrial Units	Per 100 sq. km.	INDI
4	Electricity Consumption	Per Capita KW	ELCI
5	Number of Commercial Banks	'000 Square Km	NCBI
INFRASTRUCTURAL INDEX (INFI)			
1	Number of Teachers	'000 Population	NTRI
2	Number of PHCs	'000 Square Km	PHCI
3	HH with Tap-Water Facility	Percent	TWFI
4	HH with Toilet Facility	Percent	HTFI
5	Electrified Villages	Percent	ELVI
6	Number of Schools (Primary to Senior Secondary)	'00 Km	ISCH
7	Electrified HH	Percent	EHHI
AGRICULTURE INDEX (AGRI)			
1	Net Irrigated Area to Net Sown Area	Percent	ISAI
2	Agricultural Yield	Kilogram Production per Hectare	IYLD
3	Irrigation Density	Irrigation Sources per '000 Km	IRDI

Source: Compiled from various sources by the authors

Where the codes have their usual meaning (as shown in table 1). Once the indices are formed, the disparities between them is carved out using scatter plots with fitted regression lines. Out of 51, only 45 districts were included in this study due to limitation of data which is secondary in nature,

collected from various government portals including Census of India (2011); Economic Survey of Madhya Pradesh (2014-15, 2015-16, and 2016-17); Compendium for Agricultural Statistics MP (2009-10); and “*Madhya Pradesh ki Vividh Sankhyiki* (2014)” by Directorate of Economics and Statistics, Government of Madhya Pradesh. IBM’s *SPSS Statistical Package (version 22)* was used to prepare the plots and to estimate the regression models.

Analyzing Overall Development in the Region

To examine the performance of districts on the basis of these dimensions, we have first calculated central value of each dimension using arithmetic mean and then used standard deviation as a measure of dispersion. Then, we compared each dimension of development with the state average to see which districts are performing above the state average and also those performing below it. Districts having values higher than the state average are considered as more developed while districts having values lower than the state average are considered as less developed districts. Using this analysis enabled us to compare variability of districts based on the level of development along with bifurcation of the districts into two level. In this regard, table 2 shows distinction of districts on the basis of their overall development where the rows show rank of each index among the districts.

In the table, White background indicates that the district is more developed while black background indicate that the district is less developed. As can be seen, Indore and Ujjain are the only two districts which have values that are 'more than' the state average in every dimension of the index of overall development. Bhopal, although being the second most developed district in Madhya Pradesh, has its value of economic index as 'less than' state average. Similarly, Hoshangabad and Ratlam are less developed in terms of economic development, Harda and Sehore are less developed in terms of social development, while Datia and Gwalior are less developed at social and economic fronts, and Mandsaur is less developed at economic and infrastructural dimensions while all of the aforesaid districts have a higher level of overall development. Moreover, there are many districts, such as Bhind, Damoh, Guna, Shahdol, Umaria and Vidisha, which are less developed in every dimension of the overall development. This indicates that development in these districts is yet to be achieved. Also, the number of less developed districts is far more than the number of more developed districts (while considering their development in every dimension). This portrays a scenario of regional imbalance of two kinds, first of the different dimensions of development among the districts of the state and the second of the level of

overall development among the districts of the state. Collectively, these gaps are hindering the speed of development of the whole state.

Table 2: Ranks of Districts on the basis of level of DEVI

District	Rank (SOCI)	Rank (ECOI)	Rank (INFI)	Rank (AGRI)	Rank (DEVI)
Balaghat	3	33	15	26	23
Barwani	44	19	25	39	34
Betul	21	35	24	35	32
Bhind	40	39	41	29	40
Bhopal	2	11	5	8	2
Chhatarpur	36	40	40	22	38
Chindwara	12	25	21	21	17
Damoh	20	34	32	36	36
Datia	34	26	22	5	15
Dewas	31	3	7	16	5
Dhar	39	22	11	18	18
Dindori	16	44	44	45	45
Guna	23	20	30	23	28
Gwalior	22	21	16	9	12
Harda	24	6	10	1	3
Hoshnagabad	18	10	14	3	7
Indore	1	1	1	7	1
Jabalpur	4	4	2	32	9
Jhabua	35	28	13	34	30
Katni	7	29	31	41	35
Khandwa	30	16	17	28	22
Khargone	38	8	12	27	20
Mandla	8	45	27	44	42
Mandsaur	13	13	33	10	13
Morena	41	24	42	2	25
Narsimhapur	19	17	4	6	6
Neemuch	28	14	28	11	14
Panna	11	41	38	40	41
Raisen	25	12	23	24	21
Rajgarh	29	15	3	17	10
Ratlam	10	9	9	12	8
Rewa	6	43	29	33	33
Sagar	5	31	19	31	24
Satna	15	27	20	30	26
Sehore	27	7	18	14	11
Seoni	9	32	8	38	27
Shahdol	26	36	43	42	43
Shajapur	42	5	26	19	19
Sheopur	45	30	34	13	29
Shivpuri	43	38	36	20	37
Sidhi	17	37	37	37	39
Tikamgarh	32	18	39	4	16
Ujjain	14	2	6	15	4
Umaria	33	42	45	43	44
Vidisha	37	23	35	25	31

Source: Compiled by the authors

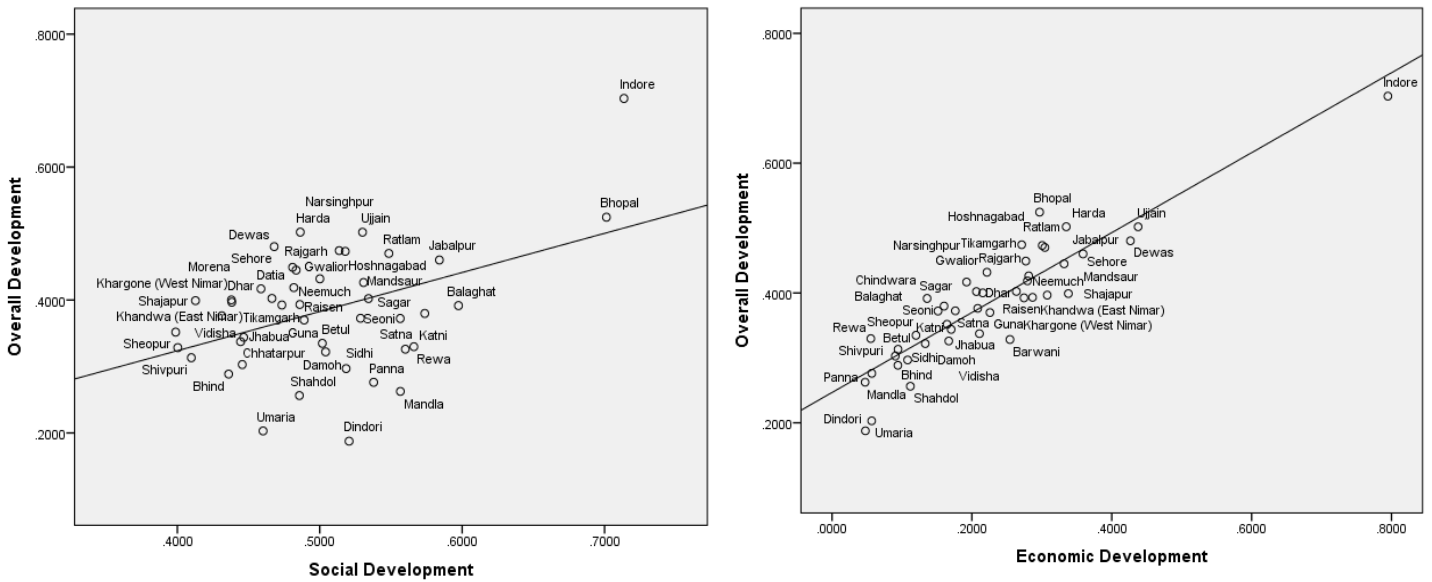
A focused set of policies for these districts would enhance the speed of growth in the state. It is now more evident to analyze the social, economic, infrastructure and agriculture development with the overall development so as to map the origin of differences in the overall development among the districts. For this purpose, we have performed a scatter-plot analysis where each dimension namely, social, economic, infrastructure and agriculture were separately mapped on a scatter-plot with the level of overall development.

Overall Development and Social Development

While looking at another side of the analysis, figure 1 illustrates a scatter plot between overall development and social Indices. We can clearly see that Indore, Bhopal, Hoshangabad, Jabalpur, Mandla, Ratlam, and Ujjain are some of the districts performing well in both social and overall development front while Balaghat, Chhindwara, Dindori, Katni, Panna, Rewa, Sagar, and Sidhi are performing better on social fronts. Also, there are districts like Datia, Dewas, Gwalior, Harda, Neemuch and Sehore which are not performing well in social development than their respective level of overall development.

Figures 1 and 2: District Scatter Plot between Overall, Social, and Economic

Development



Overall Development and Economic Development

After the comparison of the districts on economic and overall development, figure 2 illustrates the association of social and agriculture development. It explains Dewas, Harda, Indore, Jabalpur, Ujjain etc. are among the districts performing well on both economic and overall fronts when compared to Khargone and Shajapur which are having a better level of economic development. Also, there are districts like Bhopal, Datia, Gwalior, Mandsaur, Narsimhapur, Neemuch, Rajgarh and Ratlam which are not performing well in economic development than their respective level of overall development.

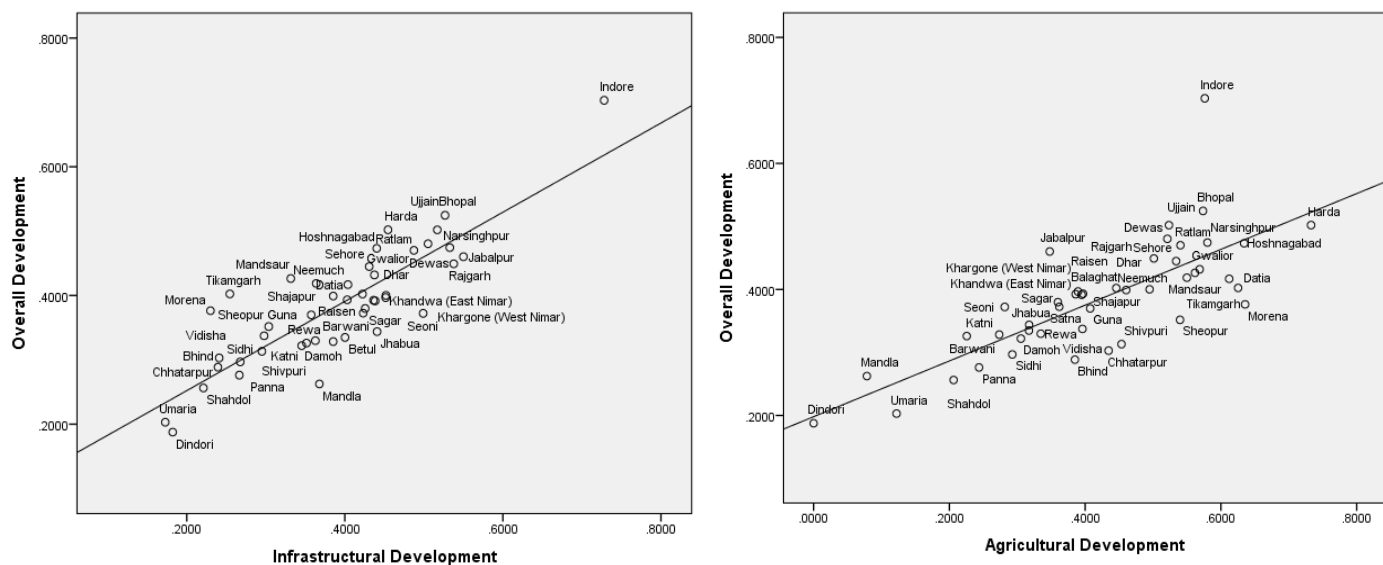
Overall Development and Infrastructure Development

While talking of associations between infrastructure and overall development, we have found that Indore again, along with others including Bhopal, Datia, Dewas, Gwalior, Harda, Hoshangabad, Jabalpur, Narsimhapur, Rajgarh, Ratlam, Sehore and Ujjain is performing better in overall development and infrastructure development. On the contrary, Seoni, Shajapur, Balaghat, Barwani, Betul, Dhar, Jhabua, Khandwa, Khargone, Raisen, Sagar, Satna etc. are the districts performing rather well in development of infrastructure.

Overall Development and Agriculture Development

Similarly, Figure 4 (showing association between overall development and agriculture indices) directs some districts to be in line with the performance of overall development, e.g. Indore, Bhopal, Ujjain, Datia, Dewas, Gwalior, Harda, Hoshangabad, Narsimhapur, Rajgarh, Ratlam, Sehore etc. while the others to be more agriculturally developed e.g. Chhatarpur, Chhindwara, Dhar, Morena, Shajapur, Sheopur, Shivpuri, Tikamgarh etc.

Figures 3 and 4: District Scatter Plot between Overall Development, INFI and



AGRI

Conclusion

Analysis suggests that the development gaps are widely present among the districts of Madhya Pradesh. Districts such as Indore and Ujjain are the have values that are ‘more than’ the state average in every dimension of the index of overall development. On the contrary, Bhind, Damoh, Guna, Shahdol, Umariya and Vidisha, which are less developed in every dimension of the overall development. This indicates that development in these districts is yet to be achieved. Also, the number of less developed districts is far more than the number of more developed districts (while considering their development in every dimension). This portrays a scenario of regional imbalance of two kinds, first of the different dimensions of development among the districts of the

state and the second of the level of overall development among the districts of the state. The scatter-plot analysis also advocates the presence of variability among the districts on the dimensions of overall development and the level of agricultural expansion in the State. Collectively, these gaps are hindering the speed of development of the whole state. A focused set of policies for these districts would enhance the speed of growth in the state. For example, by providing more focused policies for the districts like Umaria and Vidisha, the government could easily ensure a better level of the development for the State. Therefore, while moving forward on the path of decentralization, more financial autonomy to such 'less developed' districts would ensure better and more efficient development in the respective districts. The analysis shows that as socio-economic, infrastructural and agriculture, if simultaneously developed in equal priority can lead to enhanced levels of development in Madhya Pradesh. The government, if includes the process of decentralization in the policies for development, would help in lowering the regional gaps, and an inclusive growth in true sense can be achieved.

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Annexure I: Index Numbers of Districts based on Various Dimensions of DEVI

District	SOCI	ECOI	INFI	AGRI	DEVI
Balaghat	0.5974	0.1359	0.4383	0.3948	0.3916
Barwani	0.4003	0.2544	0.3853	0.2734	0.3283
Betul	0.5018	0.1200	0.4002	0.3172	0.3348
Bhind	0.4360	0.0942	0.2394	0.3849	0.2886
Bhopal	0.7013	0.2968	0.5268	0.5736	0.5246
Chhatarpur	0.4456	0.0905	0.2410	0.4345	0.3029
Chhindwara	0.5342	0.2064	0.4224	0.4458	0.4022
Damoh	0.5041	0.1333	0.3454	0.3053	0.3220
Datia	0.4587	0.1923	0.4039	0.6122	0.4168
Dewas	0.4680	0.4266	0.5053	0.5211	0.4803
Dhar	0.4379	0.2155	0.4520	0.4949	0.4001
Dindori	0.5206	0.0477	0.1822	0.0000	0.1876
Guna	0.4890	0.2258	0.3575	0.4074	0.3699
Gwalior	0.5001	0.2215	0.4374	0.5687	0.4319
Harda	0.4863	0.3349	0.4546	0.7328	0.5021
Hoshangabad	0.5179	0.3005	0.4403	0.6342	0.4732
Indore	0.7136	0.7948	0.7281	0.5762	0.7032
Jabalpur	0.5840	0.3589	0.5501	0.3478	0.4602
Jhabua	0.4466	0.1704	0.4408	0.3174	0.3438
Katni	0.5601	0.1669	0.3515	0.2255	0.3260
Khandwa	0.4734	0.2744	0.4363	0.3859	0.3925
Khargone	0.4382	0.3077	0.4516	0.3894	0.3967
Mandla	0.5566	0.0473	0.3678	0.0785	0.2625
Mandsaur	0.5307	0.2812	0.3316	0.5618	0.4263
Morena	0.4312	0.2083	0.2300	0.6356	0.3763
Narsimhapur	0.5136	0.2712	0.5328	0.5801	0.4744
Neemuch	0.4818	0.2794	0.3638	0.5498	0.4187
Panna	0.5378	0.0569	0.2665	0.2437	0.2762
Raisen	0.4860	0.2867	0.4030	0.3969	0.3932
Rajgarh	0.4809	0.2771	0.5378	0.5012	0.4492
Ratlam	0.5485	0.3043	0.4874	0.5403	0.4701
Rewa	0.5661	0.0554	0.3627	0.3347	0.3297
Sagar	0.5737	0.1602	0.4257	0.3598	0.3798
Satna	0.5286	0.1763	0.4232	0.3619	0.3725
Sehore	0.4834	0.3318	0.4308	0.5340	0.4450
Seoni	0.5565	0.1515	0.4991	0.2815	0.3722
Shahdol	0.4857	0.1120	0.2211	0.2062	0.2563
Shajapur	0.4127	0.3379	0.3853	0.4604	0.3991
Sheopur	0.3988	0.1644	0.3037	0.5397	0.3517
Shivpuri	0.4098	0.0944	0.2951	0.4536	0.3132
Sidhi	0.5185	0.1081	0.2677	0.2927	0.2968
Tikamgarh	0.4664	0.2636	0.2545	0.6253	0.4024
Ujjain	0.5300	0.4376	0.5170	0.5234	0.5020
Umaria	0.4602	0.0567	0.1728	0.1222	0.2030
Vidisha	0.4444	0.2108	0.2978	0.3960	0.3373

Annexure II: Index Numbers of Districts based on Various Dimensions of SOCI

District	PNDI	IMRI	SXRI	LRCI	IGRP	SOCI
Balaghat	0.11827	0.45098	1	0.89463	0.52323	0.59742
Barwani	0.21156	0.54902	0.81122	0.15303	0.27668	0.40030
Betul	0.08279	0.49020	0.76020	0.67779	0.49826	0.50185
Bhind	0.37845	0.27451	0	0.84617	0.68090	0.43601
Bhopal	1	0.19608	0.40306	0.98147	0.92605	0.70133
Chhatarpur	0.14323	0.56863	0.26531	0.54117	0.70950	0.44557
Chhindwara	0.10907	0.60784	0.70918	0.73762	0.50733	0.53421
Damoh	0.10381	0.74510	0.42347	0.69976	0.54849	0.50413
Datia	0.23259	0.66667	0.19898	0.77654	0.41859	0.45867
Dewas	0.16951	0.35294	0.59694	0.68970	0.53077	0.46797
Dhar	0.22865	0.29412	0.77551	0.41567	0.47579	0.43795
Dindori	0	0.60784	0.89796	0.54541	0.55156	0.52055
Guna	0.13141	0.74510	0.42347	0.52767	0.61713	0.48896
Gwalior	0.46255	0.19608	0.12245	0.88298	0.83661	0.50013
Harda	0.10118	0.50980	0.53571	0.77310	0.51165	0.48629
Hoshangabad	0.11958	0.47059	0.43367	0.84697	0.71871	0.51790
Indore	0.98160	0	0.59184	0.99470	1	0.71363
Jabalpur	0.49803	0.23529	0.58163	1	0.60486	0.58396
Jhabua	0.25099	0.52941	0.85714	0	0.59523	0.44655
Katni	0.21945	0.56863	0.66327	0.75933	0.58993	0.56012
Khandwa	0.11038	0.56863	0.57653	0.61133	0.50035	0.47344
Khargone	0.18265	0.33333	0.71939	0.51364	0.44217	0.43824
Mandla	0.11564	0.60784	0.94898	0.62404	0.48626	0.55655
Mandsaur	0.19448	0.45098	0.69898	0.75404	0.55518	0.53073
Morena	0.39422	0.41176	0.03061	0.73418	0.58532	0.43122
Narsimhapur	0.15637	0.54902	0.46939	0.85756	0.53565	0.51360
Neemuch	0.13141	0.33333	0.71939	0.72809	0.49672	0.48179
Panna	0.06307	1	0.39796	0.56897	0.65899	0.53780
Raisen	0.08279	0.68627	0.38776	0.78581	0.48751	0.48603
Rajgarh	0.20631	0.43137	0.66327	0.47419	0.62913	0.48085
Ratlam	0.26938	0.52941	0.75000	0.62166	0.57207	0.54850
Rewa	0.36925	0.60784	0.54592	0.74980	0.55756	0.56607
Sagar	0.18134	0.94118	0.30612	0.87795	0.56216	0.57375
Satna	0.26675	0.54902	0.53061	0.76675	0.53007	0.52864
Sehore	0.13798	0.60784	0.43878	0.70850	0.52407	0.48343
Seoni	0.08279	0.66667	0.80102	0.76304	0.46882	0.55647
Shahdol	0.10250	0.41176	0.79592	0.61875	0.49965	0.48572
Shajapur	0.19711	0.62745	0.55612	0.68282	0	0.41270
Sheopur	0.01314	0.60784	0.37245	0.37411	0.62634	0.39878
Shivpuri	0.10118	0.60784	0.23469	0.50966	0.59565	0.40981
Sidhi	0.18134	0.62745	0.67347	0.55944	0.55100	0.51854
Tikamgarh	0.25230	0.50980	0.36224	0.48001	0.72764	0.46640
Ujjain	0.30486	0.33333	0.66837	0.76886	0.57444	0.52997
Umaria	0.08410	0.49020	0.65306	0.59809	0.47537	0.46016
Vidisha	0.13666	0.56863	0.32143	0.72094	0.47440	0.44441

Annexure III: Index Numbers of Districts based on Various Dimensions of ECOI

District	ICDR	INDI	NCBI	ELCI	IPCI	ECOI
Balaghat	0.23077	0.00983	0.11836	0.12717	0.19344	0.13591
Barwani	0.82548	0.00356	0.03312	0.31312	0.09648	0.25435
Betul	0.18241	0.00034	0.01556	0.20791	0.19379	0.12000
Bhind	0.19064	0.01873	0.11265	0.06947	0.07940	0.09418
Bhopal	0.32603	0.03985	0.31815	0.05246	0.74730	0.29676
Chhatarpur	0.16919	0.00744	0.05047	0.14033	0.08486	0.09046
Chhindwara	0.23366	0.00464	0.14648	0.25301	0.39430	0.20642
Damoh	0.32514	0	0.01440	0.16788	0.15912	0.13331
Datia	0.45854	0.01191	0.11223	0.14251	0.23619	0.19228
Dewas	0.75267	0.01347	0.27221	0.85204	0.24254	0.42658
Dhar	0.44675	0.00793	0.08309	0.35488	0.18488	0.21551
Dindori	0.09660	0.00102	0.01169	0	0.12896	0.04765
Guna	0.60582	0.01290	0.06682	0.24045	0.20310	0.22582
Gwalior	0.23711	0.03018	0.27527	0.06306	0.50169	0.22146
Harda	0.98722	0.00626	0.08649	0.25792	0.33648	0.33487
Hoshangabad	0.67630	0.01291	0.20081	0.22795	0.38457	0.30051
Indore	0.94509	0.02907	1	1	1	0.79483
Jabalpur	0.20709	0.03351	0.51081	0.41469	0.62824	0.35887
Jhabua	0.22843	0.01765	0.12175	0.40756	0.07669	0.17042
Katni	0.26790	0.00524	0.11553	0.19716	0.24852	0.16687
Khandwa	0.52423	0.01270	0.05819	0.58595	0.19070	0.27435
Khargone	0.70554	0.00288	0.05396	0.68660	0.08957	0.30771
Mandla	0.09571	0.00425	0.06188	0.07454	0	0.04728
Mandsaur	0.36972	0.00890	0.02662	0.69877	0.30205	0.28121
Morena	0.68508	0.02267	0.14537	0.10586	0.08227	0.20825
Narsimhapur	0.61827	0.00202	0.14987	0.43611	0.14992	0.27124
Neemuch	0.31892	0.00803	0.06086	0.70057	0.30861	0.27940
Panna	0.13695	0.00400	0	0.06575	0.07768	0.05688
Raisen	1	0.00462	0.01036	0.24050	0.17790	0.28668
Rajgarh	0.89106	0.01296	0.08999	0.25104	0.14032	0.27707
Ratlam	0.47143	0.01518	0.02924	0.66848	0.33715	0.30430
Rewa	0.05102	0.01788	0.02879	0.12209	0.05703	0.05536
Sagar	0.29580	0.00543	0.10954	0.19664	0.19372	0.16023
Satna	0.20631	0.01542	0.36047	0.16261	0.13684	0.17633
Sehore	0.95276	0.00008	0.12533	0.43346	0.14736	0.33180
Seoni	0.27379	0.00794	0.14311	0.14393	0.18858	0.15147
Shahdol	0.10293	0.01133	0.12881	0.08533	0.23180	0.11204
Shajapur	0.94331	0.01741	0.10170	0.46369	0.16322	0.33787
Sheopur	0.40018	0.00200	0.01286	0.31255	0.09434	0.16439
Shivpuri	0.23866	0.00799	0.03996	0.10006	0.08550	0.09443
Sidhi	0.00756	0.01885	0.08011	0.15892	0.27522	0.10813
Tikamgarh	0.10983	1	0.02149	0.13253	0.05418	0.26361
Ujjain	0.45676	0.01793	0.38933	0.88817	0.43604	0.43764
Umaria	0	0.00456	0.11710	0.08533	0.07644	0.05669
Vidisha	0.65562	0.01046	0.12067	0.09386	0.17335	0.21079

Annexure IV: Index Numbers of Districts based on Various Dimensions of INFI

District	ISCH	EHHI	ELVI	TWFI	HTFI	NTRI	PHCI	INFI
Balaghat	0.04704	0.42820	0.57670	0.45598	0.12088	0.43952	1	0.43833
Barwani	0.10815	0.52175	0.84000	0.74492	0.12088	0.24289	0.11878	0.38534
Betul	0.00907	0.67615	0.71630	0.65914	0.20879	0.46410	0.06754	0.40016
Bhind	0.11928	0.06248	0	0.76072	0.28100	0.35210	0.10034	0.23942
Bhopal	0.24072	0.95437	0.06210	0.96614	1	0.39795	0.06647	0.52682
Chhatarpur	0.07228	0.14508	0.91480	0.00000	0.12559	0.30048	0.12879	0.24100
Chhindwara	0.04832	0.87717	0.84990	0.42438	0.23862	0.38541	0.13276	0.42237
Damoh	0.01925	0.50638	0.92850	0.39503	0.19780	0.34095	0.03009	0.34543
Datia	0.07741	0.55250	0.72430	0.72009	0.24490	0.34205	0.16616	0.40392
Dewas	0.01502	0.94586	0.97000	0.79684	0.50078	0.22984	0.07897	0.50533
Dhar	0.10182	0.84576	0.88000	0.63883	0.24333	0.30193	0.15211	0.45197
Dindori	0	0.10157	0.24390	0.32280	0	0.60351	0.00331	0.18216
Guna	0.05663	0.56788	0.69370	0.63431	0.15856	0.34954	0.04188	0.35750
Gwalior	0.08098	0.70200	0.49670	0.79458	0.58870	0.33134	0.06764	0.43742
Harda	0.03007	0.95453	0.71150	0.66817	0.58242	0.20842	0.02690	0.45457
Hoshangabad	0.01084	0.76824	0.51560	0.79458	0.56829	0.37762	0.04704	0.44032
Indore	1	1	0.99000	1	0.96075	0	0.14606	0.72812
Jabalpur	0.12843	0.67566	0.97190	0.95260	0.75196	0.271720	0.09839	0.55009
Jhabua	0.13111	0.26202	0.96000	0.62754	0.07378	1	0.03086	0.44076
Katni	0.06544	0.46631	0.54800	0.81264	0.20879	0.28751	0.07160	0.35147
Khandwa	0.03573	0.82908	1	0.69300	0.27316	0.22284	0	0.43626
Khargone	0.07880	0.88027	0.76000	0.78555	0.20094	0.29363	0.16170	0.45156
Mandla	0.03888	0.26987	0.87550	0.55756	0.15228	0.56168	0.11914	0.36784
Mandsaur	0.05720	0.91528	0.38000	0.38826	0.19152	0.20339	0.18520	0.33155
Morena	0.10295	0.26856	0.00000	0.71558	0.29356	0.16386	0.06539	0.22999
Narsimhapur	0.06084	0.70837	0.96580	0.99549	0.49765	0.41722	0.08424	0.53280
Neemuch	0.10796	0.97677	0.32000	0.49661	0.21664	0.34797	0.08049	0.36378
Panna	0.04883	0	0.90470	0.31151	0.07535	0.49368	0.03134	0.26649
Raisen	0.01846	0.68891	0.64700	0.78781	0.26688	0.35988	0.05198	0.40299
Rajgarh	0.07954	0.89581	0.99640	0.51016	0.19780	0.38259	0.70215	0.53778
Ratlam	0.08995	0.76497	0.96000	0.77201	0.36892	0.33770	0.11833	0.48741
Rewa	0.14707	0.29064	0.75940	0.55079	0.28100	0.41081	0.09896	0.36267
Sagar	0.06087	0.53729	0.95320	0.61625	0.28571	0.52199	0.00436	0.42567
Satna	0.06764	0.46173	0.93890	0.58465	0.14757	0.62355	0.13808	0.42316
Sehore	0.07976	0.88436	0.92150	0.56885	0.27630	0.24498	0.04004	0.43083
Seoni	0.07078	0.58243	0.90590	0.48984	0.12873	0.51733	0.79893	0.49913
Shahdol	0.05500	0.04874	0.73750	0.11287	0.16327	0.32481	0.10550	0.22110
Shajapur	0.06061	0.99215	0.74000	0.31828	0.27630	0.24375	0.06597	0.38529
Sheopur	0.00864	0.51047	0.43070	0.87585	0.05495	0.23063	0.01494	0.30374
Shivpuri	0.04735	0.43310	0.50610	0.54853	0.16013	0.29797	0.07277	0.29514
Sidhi	0.10634	0.04612	0.74230	0	0.39560	0.46524	0.11862	0.26775
Tikamgarh	0.08674	0.25728	0.63630	0.26637	0.12245	0.32614	0.08603	0.25447
Ujjain	0.06206	0.94128	0.82000	0.81716	0.58085	0.32128	0.07646	0.51701
Umaria	0.04128	0.22849	0.40580	0.17156	0.04082	0.26343	0.05819	0.17280
Vidisha	0.08352	0.54465	0.01240	0.70880	0.27316	0.37696	0.08528	0.29782

Annexure IV: Index Numbers of Districts based on Various Dimensions of AGRI

District	ISAI	IYLD	IRDI	AGRI
Balaghat	0.57384	0.38930	0.22123	0.39479
Barwani	0.35200	0.17305	0.29513	0.27339
Betul	0.33616	0.37973	0.23583	0.31724
Bhind	0.41920	0.50351	0.23194	0.38489
Bhopal	0.71419	0.58167	0.42489	0.57358
Chhatarpur	0.72065	0.20853	0.37439	0.43452
Chhindwara	0.29286	0.62866	0.41583	0.44578
Damoh	0.45724	0.31281	0.14587	0.30531
Datia	0.87134	0.51221	0.45309	0.61221
Dewas	0.45655	0.60068	0.50612	0.52111
Dhar	0.41861	0.53952	0.52646	0.49486
Dindori	0	0	0	0.00000
Guna	0.54286	0.45230	0.22714	0.40743
Gwalior	0.70026	0.73451	0.27145	0.56874
Harda	1	1	0.19850	0.73283
Hoshangabad	0.84140	0.85190	0.20935	0.63422
Indore	0.46266	0.62040	0.64544	0.57617
Jabalpur	0.50817	0.38553	0.14956	0.34775
Jhabua	0.19930	0.22851	0.52426	0.31736
Katni	0.37761	0.13813	0.16071	0.22548
Khandwa	0.47734	0.30884	0.37152	0.38590
Khargone	0.45907	0.28490	0.42426	0.38941
Mandla	0.10871	0.08259	0.04419	0.07850
Mandsaur	0.36311	0.32237	1	0.56183
Morena	0.82290	0.82203	0.26201	0.63565
Narsimhapur	0.73773	0.71267	0.28981	0.58007
Neemuch	0.57659	0.47055	0.60222	0.54979
Panna	0.42713	0.21583	0.08809	0.24368
Raisen	0.57826	0.48395	0.12858	0.39693
Rajgarh	0.35492	0.40476	0.74381	0.50116
Ratlam	0.35232	0.52284	0.74587	0.54035
Rewa	0.30256	0.20447	0.49718	0.33474
Sagar	0.56164	0.23851	0.27911	0.35975
Satna	0.48907	0.13967	0.45687	0.36187
Sehore	0.68126	0.52581	0.39499	0.53402
Seoni	0.38118	0.26449	0.19892	0.28153
Shahdol	0.14253	0.13077	0.34521	0.20617
Shajapur	0.41442	0.40953	0.55738	0.46044
Sheopur	0.92709	0.64384	0.04817	0.53970
Shivpuri	0.60948	0.41112	0.34017	0.45359
Sidhi	0.21849	0.09640	0.56312	0.29267
Tikamgarh	0.87088	0.25176	0.75321	0.62529
Ujjain	0.37306	0.51105	0.68613	0.52341
Umaria	0.02425	0.14568	0.19663	0.12219
Vidisha	0.58606	0.42672	0.17524	0.39600