

Development Disparities and Regional Balance Strategies in Odisha: An assessment of the impact of the Western Odisha Development Council

BRAJA BIHARI PANDA¹

¹Department of Economics, Sambalpur University, Odisha, India

Email: brajabihari panda73@gmail.com, ORCID: <https://orcid.org/0000-0002-9766-6719>

Abstract: This study examines the persistent regional disparities in Odisha and evaluates the role of the Western Odisha Development Council (WODC), established in 1998, in addressing developmental imbalances. Using composite indices across agriculture, health, education, infrastructure, and other socio-economic variables, the research applies Sudarshan Iyengar's methodology and Principal Component Analysis to assess inter-district disparities over a 15-year period. Findings reveal that while WODC districts recorded relatively higher growth rates compared to coastal and southern regions, their absolute development levels remain significantly lower, with none of the WODC districts advancing into the "Developed Most" category. The analysis further shows a negative correlation between backwardness indices and grant allocations, indicating that funding distribution has not adequately reflected the severity of deprivation. Districts such as Nuapada and Baudh, despite high backwardness shares, received disproportionately low grants, whereas Sundargarh, Balangir, and Kalahandi benefited more than their relative need. The persistence of disparities, coupled with uneven resource allocation, underscores the limited success of WODC in achieving balanced regional development. The study concludes that while WODC has justified its existence by accelerating growth in lagging regions, structural inequities remain entrenched, necessitating stronger policy interventions and enhanced equitable grant distribution mechanisms to ensure inclusive development across Odisha.

Keywords: Regional Development, Composite Development Index, Sudarshan-Iyengar Methodology, Principal Component Analysis

JEL Code R11, O18, C38, and C43.

1. Introduction

Spatial disparity in economic achievement is visible across the world economy, whether it is a case of an industrialised nation (Iammarino et al., 2019) or it is a case of the majority of poor nations (Kanbur & Venables, 2005; Kim, 2008). Prevalence of regional disparity and existence of pockets of backwardness in an absolute sense is the unfinished task of nation building. According to Gunnar Myrdal's (1957) "Socio-economic development requires the satisfaction of economic, social, political, and cultural rights; an equitable distribution of development benefits and opportunities; a dignified living environment; gender equality; and the empowerment of the poor and marginalized". Defines inclusive growth as a process that ensures equal access to opportunities for all segments of society and aims to ensure that the "fruits of growth" are shared to eliminate poverty and eradicate income inequality (van Niekerk, 2020, Rauniyar & Kanbur, 2010). Differences endowed by nature among people as well as among regions are known as natural constraints, and planning is done to cope with these constraints in the path of development. A regional plan means here an integrated, comprehensive plan for a region, formulated to best serve the needs of that particular region as an organic part of the plan for the country. It is not just a set of schemes to be executed within a region. The regional plan taken together should form a harmonious whole, each making the maximum use of the potentialities to push forward the national economy. Besides various steps taken at the national level, a committee was constituted by the Government of Odisha. To achieve balanced regional development, the Government of Odisha set up the Western Odisha Development Council (WODC) in the year 1998, evolved through 2000, 2001 and 2003. The Western Odisha



Development Council comprises of Sundargarh, Jharsuguda, Deogarh, Sambalpur, Bargarh, Sonepur, Balangir, Kalahandi, Nuapada, Baudh and Athamallik Sub-division of Angul district were included in the list.

2. Objectives of the Study

The objective is to assess whether the constitution of the Western Odisha Development Council (WODC) has contributed towards balancing the regional disparity in Odisha.

To measure relative levels of development in different sectors of the study area concerning the levels of development in the state as a whole.

To compare intertemporal development of various regions to analyse overall development

To assess the impact of the balanced regional development strategy in removing backlogs and deduce policy implications for the present status of the case study area.

3. Review of Literature

The Studies on regional disparity and regional development from 2000 onwards are reviewed and divided into categories such as general analytical & inter-state, intra-state, sectoral studies & Odisha-specific. In analytical studies Bruce T & Celine S (2025) Dwivedi, S& Mazhuvanchery A.S. (2025), Dev, S Mahendra (2024), Deb P & Mukherjee R (2024), Peng J, Baležentis T, Dalia S, Vida D, Giulio, (2022), Gaikwad, V, Pethe, A and Apte P (2022), Nieto, AT (2021), Van Niekerk, A. J. (2020) Iammarino, S, A Rodriguez-P and Michael S (2019) Rauniyar, G., & Kanbur, R. (2010). Radhakrishnan, R. (2002), Nayyar, Rohini (2005), Ramaswamy, K.V. (2007), Singh. Ajit Kumar (2012), Dev, S.M (2008), Rajkumar, R and Chennakrishna, P (2008) have been reviewed, and it is found that disparity persists, be it national, inter-regional or intra-regional.

Similarly in the field of Intra-state Majumder, R (2004), Haan & Dubey (2005), Pai(2005), Kar(2007), Sekhar(2007), Tiwari, A.K (2008), Mittal et al(2008), Nayak, R & Sudarshan, P.K. (2008), Dubey, A (2009), Bhattacharya, Govind(2009), Chakraborty, Pinaki(2009), Diwakar, D.M. (2009) Kurulkar, R.P.(2009), Raychaudhury, A and Haldar, S. K. (2009), Siddiqui, F.A. & Hussain. N (2010), Srivastava, A (2011), Tripathy, P.K. & Mishra, J.K. (2011), Satyanarayan(2013), Nayak, Chittaranjan(2014), Siddaram, H.M (2014), Manjunath, S. & Elumalai K (2017), Devi, R & Tiwari, A.K. (2023) Kaur et al (2023) & Majumder, R (2024), Deb P & Mukherjee R (2024), Sengupta P, and Chakrabarti A (2024), Chhabda, J. K. & Sonar S. G. (2025). Most of the studies found the prevalence of intra-regional disparity.

Odisha-specific studies also point out severe disparity; both studied at the district and block level by Swain (2002) and another by Swain et al. (2009) analysed data of the pre-WODC era, i.e. up to 1998. Tripathy et al. (2011), Panda, Pradeep (2016), Ratha Keshab Chandra (2020), Pani B.S. & Mishra Diptimayee (2022), Rout B (2023) still analyse prior data up to 2001.

In the sectoral studies as in the field of agriculture BIRTHAL et al (2011) Singh, J et al (2013) Chand & Pappurathu(2012), Benarjee(2014) Bhalla and Alagh (1979), Chand et al. (2009), Mohanty (2009), Dev (2008) & Reddy(2011) Raman, R. and Kumari, R. (2012), Pradhan, Raj Kishor (2017). Das et al (2016), Patra, A.K. (2010), Nayak (2014), Jena (2014), Sutradhar, A & Dasguptanayak, P. (2023), Sedithippa, J. B & Munisamy, G. (2023); Dwivedi, S& Mazhuvanchery A.S. (2025) Singh, U and Ranjan A (2025); similarly, in the field of Educational disparity Narayan (2009), Das A.B & Sahoo, D (2012). Further, in the field of infrastructure. Majumdar(2004) and in the field of tourism, Devi, R & Tiwari, A.K. (2023) explain inter-regional infrastructure disparities and their impact on development in India.

4. Research Gap

In the above study, it is found that there is a very glaring incidence of regional disparity. Despite steps taken by the Govt the disparity or better to say pockets of backwardness and underdevelopment, are present and persistent, and the impact of the steps is missing. The study is going to focus on the impact of the setting up of the Western Odisha Development Council. No specific work is found in the field of development of the backward region of Western Odisha.

5. Hypotheses

- H0-1 Odisha has achieved balanced regional development to a great extent through the constitution of WODC
- H0-2 The WODC has considered the level of backwardness of the district as a factor for the guiding principle for the sharing of projects.

6. Limitations of the study

The study encompasses a period of 15 years of data, mainly based on secondary data and the selected indicators don't claim to encompass every aspect of development. Further, due to the non-availability of any work on the development and the development strategy of Western Odisha, scholarly contribution is missing.

7. Data Source Methodology

The sectoral indicators / Composite Index are constructed with Sudarshan Iyengar methodology and Principal Component Analysis of Factor Analysis. For the computation of these indices, secondary data from various government publications are used. Statistical Abstract of Odisha, 2012, Districts Statistical Handbook, 2015, District at a Glance of multiple years, Odisha Agricultural Statistics, 2013-14, 2001, Status of Elementary Education in Odisha, OPEPA, 2013-14 have been screened, and suitable data have been utilised in the paper.

Two-stage standardisation of the raw data has been made. As each unit area is not homogeneous either in size or population, in the first phase standardisation recasting of the secondary data have been recasted per unit area, say hundred sq km or per lakh population. In the second stage, standardisation using the following formula, the units of indicators are done away with.

Let X_{ij} represent the size or value of the i 'th development indicator in the

$$j\text{'th district. } Y_{ij} = \frac{X_{ij} - \text{Min } X_{ij}}{\text{Max } X_{ij} - \text{Min } X_{ij}}$$

The weights in Sudarshan Iyengar Methodology are taken.

$$W_i = \frac{K}{\sqrt{\text{Var}(Y_i)}} \quad \text{Whereas } K = \left[\sum_{i=1}^n \frac{1}{\sqrt{\text{Var}(Y_i)}} \right]^{-1}$$

In Principal Component Analysis, the positive relevant weights are taken and recasted so that the sum of their weight become 01 to facilitate comparison and calculation of the Backwardness index.

Composite indicators are calculated by the formula.

$$CI = W_1Y_{1j} + W_2Y_{2j} + W_3Y_{3j} + \dots + W_mY_{mj}$$

The districts are compared inter-temporally and classified into ABCD classification: 'Absolutely Deprived', 'Backwards', 'Continuity to Development', and 'Developed Most', and the performance of the districts of WODC regions is assessed in relation to other districts. At last, based on the Development Index, the Backwardness Index is calculated.

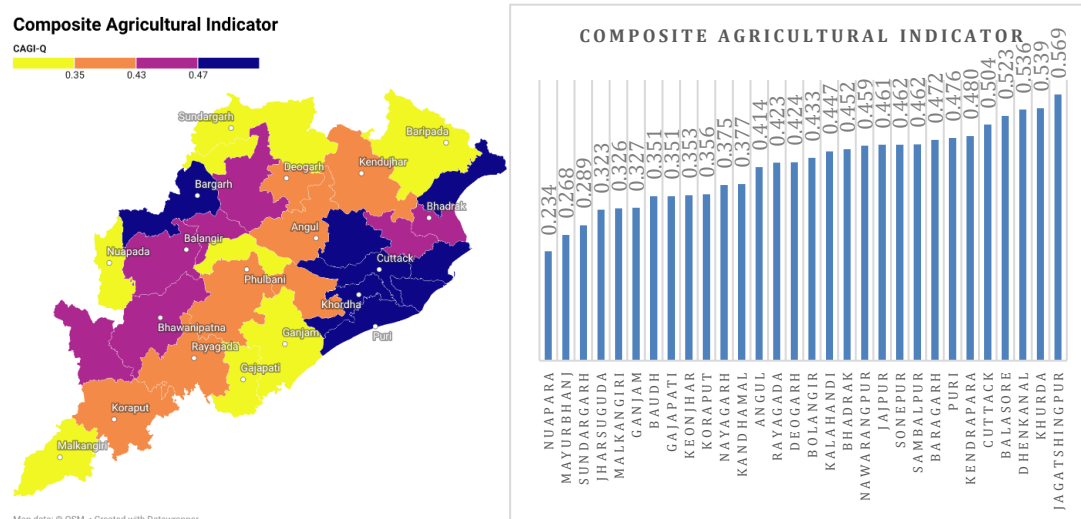
$$\text{Backwardness Index (BI)} = 1 / \text{CDI}$$

The share of the districts is estimated based on the Backwardness Index and contrasted with the share of the districts of the WODC region in the WODC grants. At the time of comparison, correlation is applied.

8. Result and Discussion

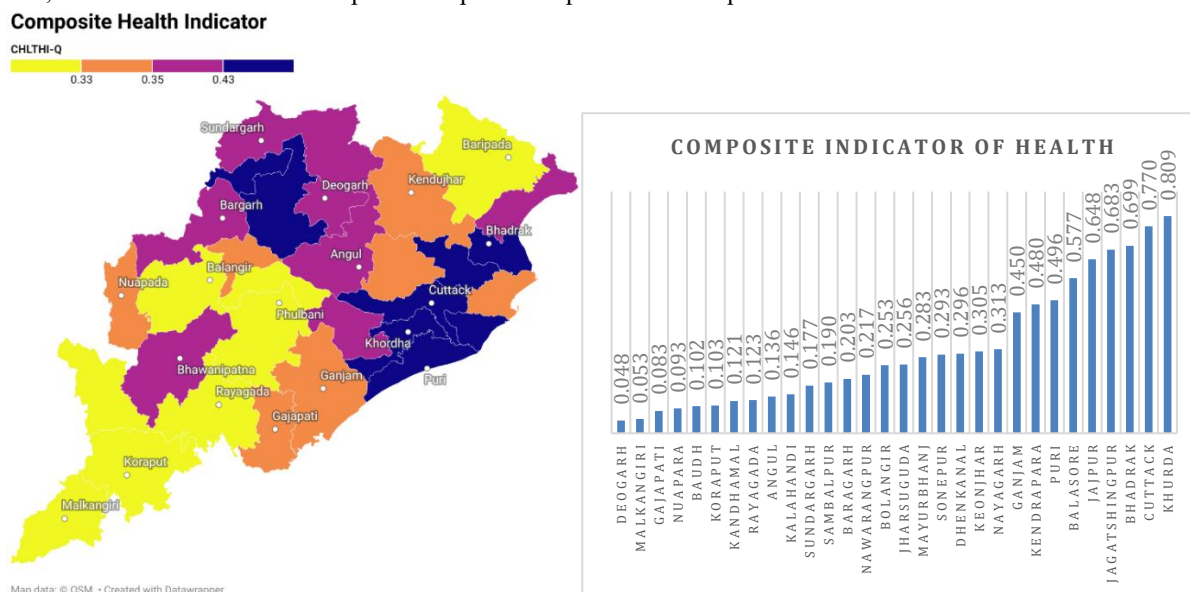
Assessment of the developmental status of the unit of study requires calculation of composite development indicators. The composite Agricultural Indicator (CAGI), Composite Health Indicator (CHLTHI), Composite Educational Indicator (CEDNI), Composite Infrastructural Indicator (CINFI), and composite indicator for other variables (CIOV) are taken into account for the construction of the Composite Development Index (CDI).

Composite Agricultural Indicator (CAGI) is calculated through Net area irrigated compared to Net area sown, Cropping Intensity, Fertiliser Consumption per hectare, Productivity of Rice per hectare, Productivity of Food grain per hectare. Percentage of the area under non-food grain in total area, Percentage of the non-agricultural worker to total workers, Per capita Agricultural Credit, The wage rate of Agricultural labourers.



The left-hand side depicts a quartile view of indicator values showing the clustering of development, whereas the right-hand side shows a bar diagram displaying the absolute value of the composite indicator showing the level of disparity.

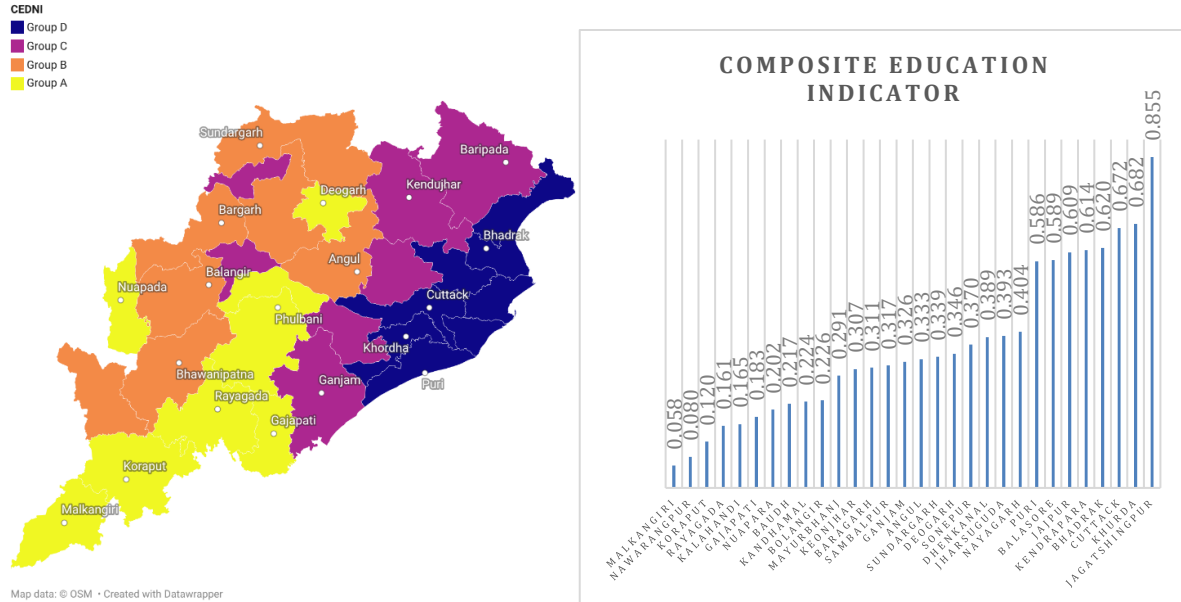
Composite Health Indicator (CHLTHI) is calculated from the number of Govt. Allopathic Hospitals per Hundred sq. Km, the number of hospital beds per lakh of population, the number of Ayurvedic hospitals per thousand sq. km, and the number of Homoeopathic Dispensaries per thousand sq. km.



The left-hand side map depicts a quartile view of indicator values showing a spatial view of backward regions, whereas the right-hand side shows a bar diagram displaying the absolute value of the composite indicator showing the level of disparity. Here, the southern region falls behind along with the western and northern regions, except the Sambalpur belt having a medical college and could propel its tally.

Composite Educational Indicator (CEDNI) is calculated through the number of Primary schools per hundred sq. km, Secondary Schools per hundred sq. km, the number of Primary Teachers per hundred Sq. Km, the number of Secondary Teachers per thousand populations, teacher-pupil Ratio, Literacy ratio, the inverse of the Literacy Gap between male and female literacy, General College per thousand Sq. Km,

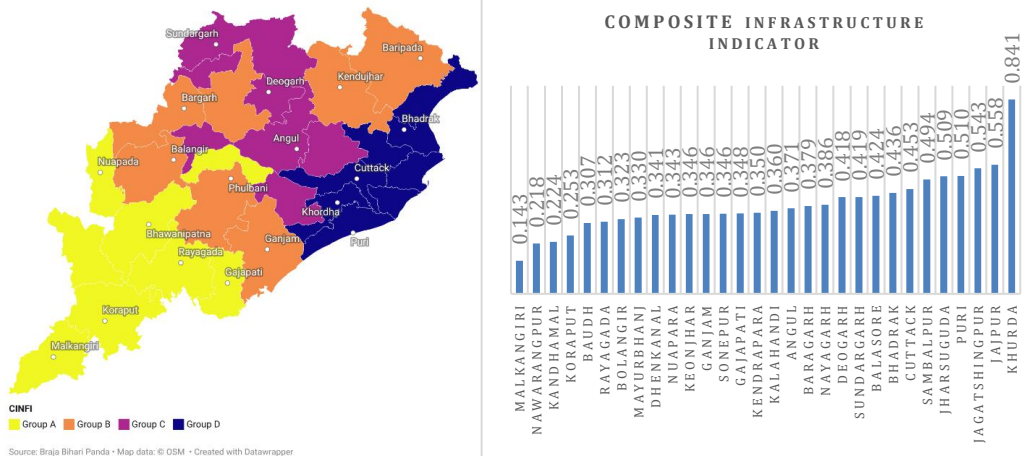
Composite Education Indicator



The left-hand side map depicts a quartile view of indicator values showing a spatial view of backward regions, whereas the right-hand side shows a bar diagram displaying the absolute value of the composite indicator showing the level of disparity. Here, the core coastal region is amply facilitated, whereas the districts beside them follow them in the tally, but the western and southern districts are showing backwardness and severe backwardness.

Composite Infrastructural Indicator (CINFI) is calculated from the indicators as percentage of villages electrified, road length per hundred sq. km, railway length per hundred sq. Km, number of vehicles per lakh of the population, telephone connection per lakh of population, commercial banks per lakh of population, and per capita bank credit.

Composite Infrastructure Indicator



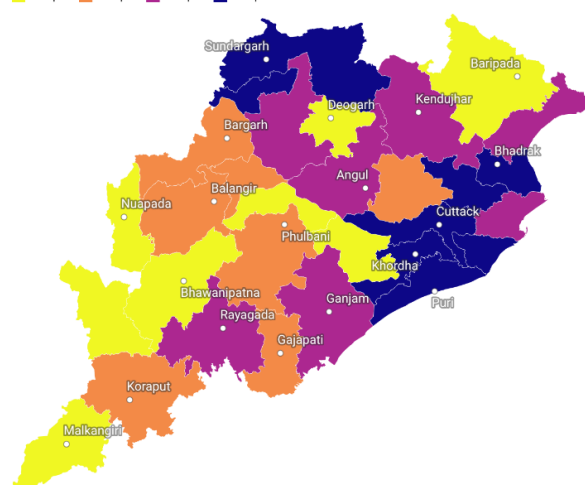
The left-hand side map depicts a quartile view of indicator values showing a spatial view of backward regions, whereas the right-hand side shows a bar diagram displaying the absolute value of the composite indicator showing the level of disparity. Here, the core coastal region is amply facilitated, whereas southern districts are showing utter backwardness.

Composite Indicator for Other Variables (CIOV) is calculated from the number of industrial units per lakh of the population, the number of industrial workers per lakh of the population, veterinary and livestock aid centre per lakh people, degree of urbanisation, job creation under poverty alleviation, population density, percentage of the main worker to the total worker, percentage of GSDP per thousand Sq. km, number of Panthanivas/Aranyanivas per thousand Sq. km.

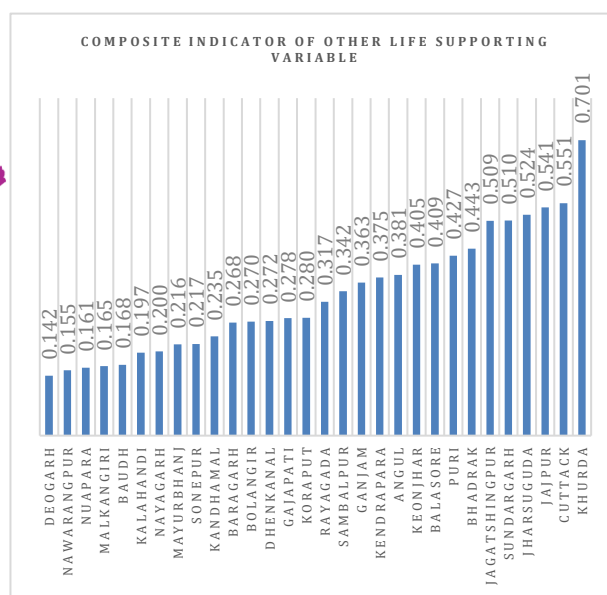
Composite Indicator of Other Variable

COIV-Q

Group A Group B Group C Group D



Map: Braja Bihari Panda • Source: Calculated Data • Map data: © OSM • Created with Datawrapper



The left-hand side map depicts a quartile view of indicator values showing a spatial view of backward regions, whereas the right-hand side shows a bar diagram displaying the absolute value of the composite indicator showing the level of disparity. Here, Mayurbhanj, Deogarh, Baudh, Nuapada, Malkangiri and Nabarangapur are severely deprived, asking for immediate corrective action.

Table-1

Composite Sectoral Indicator based on Sudarshan Iyengar 2015

		CAGI	CINFI	CHLTHI	CEDNI	CIOV
1	Angul	0.413524	0.370814	0.136315	0.332624	0.381275
2	Balasore	0.522976	0.423771	0.577336	0.588747	0.408629
3	Bargarh	0.471686	0.379442	0.202811	0.310591	0.268124
4	Bhadrak	0.451824	0.436245	0.698638	0.620351	0.443071
5	Bolangir	0.43349	0.323486	0.253471	0.226436	0.270147
6	Baudh	0.351184	0.306962	0.101514	0.217153	0.16811
7	Cuttack	0.504309	0.453373	0.770391	0.67154	0.551268
8	Deogarh	0.424171	0.418149	0.047803	0.346049	0.141745
9	Dhenkanal	0.536452	0.340872	0.296153	0.38929	0.271887
10	Gajapati	0.351387	0.348378	0.083445	0.183266	0.278287

		CAGI	CINFI	CHLTHI	CEDNI	CIOV
11	Ganjam	0.326713	0.345729	0.449857	0.325641	0.362723
12	Jagatshingpur	0.568583	0.543332	0.683456	0.854993	0.509028
13	Jajpur	0.461276	0.557786	0.648249	0.608869	0.54128
14	Jharsuguda	0.322692	0.508891	0.255762	0.393095	0.523791
15	Kalahandi	0.44725	0.359663	0.145578	0.164581	0.196524
16	Kandhamal	0.377232	0.224432	0.120636	0.223542	0.235464
17	Kendrapara	0.480164	0.350173	0.480434	0.614158	0.375324
18	Kendujhar	0.353454	0.345651	0.304505	0.306878	0.404937
19	Khurda	0.539199	0.840687	0.808602	0.681968	0.700733
20	Koraput	0.355632	0.253044	0.103442	0.119858	0.279723
21	Malkangiri	0.32563	0.142928	0.052921	0.058273	0.164662
22	Mayurbhanj	0.268484	0.329839	0.283379	0.290562	0.216235
23	Nawarangpur	0.45934	0.218336	0.217381	0.080227	0.155177
24	Nayagarh	0.375081	0.385871	0.312911	0.403649	0.199965
25	Nuapara	0.233563	0.342946	0.09273	0.202192	0.160919
26	Puri	0.475765	0.509949	0.49584	0.585716	0.426727
27	Rayagada	0.42334	0.311544	0.123252	0.160764	0.317102
28	Sambalpur	0.462314	0.494383	0.189634	0.31652	0.34199
29	Sonepur	0.46171	0.346031	0.292874	0.37001	0.217273
30	Sundargarh	0.289377	0.419059	0.177207	0.338718	0.50999

Source: Computed Value, 2024.

The Composite Development Index is constructed with the help of the Composite Agricultural Indicator, Composite Health Indicator, Composite Educational Indicator, Composite Infrastructural Indicator, and Composite indicator for Other variables.

In a similar fashion, the sectoral indicators by Principal Component Analysis are found, and the composite Development Index is calculated for both 2001 and 2015 for both the method Sudarsan-Iyengar Method and Principal Component Analysis and contrasted.

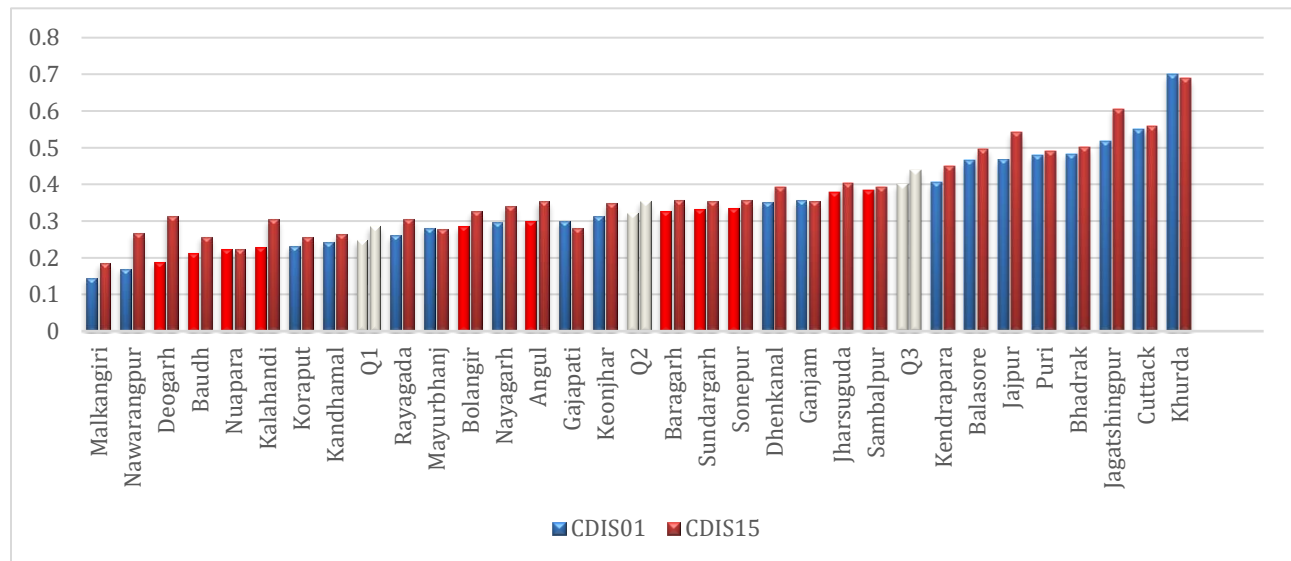
Table-2

Analysis of CDI based on Sudarshan Iyengar Methodology and Principal Component Analysis

		Sudarshan-Iyengar Methodology				Principal Component Analysis			
		CDIS01	Rank	CDIS15	Rank	CDIP01	Rank	CDIP15	Rank
Absolutely deprived	Malkangiri	0.144015	30	0.184543	30	0.12123703	30	0.13381	30
Absolutely deprived	Nawarangpur	0.169525	29	0.266167	25	0.17355647	28	0.232124	24
Absolutely deprived	Deogarh	0.187869	28	0.311718	20	0.17024277	29	0.261333	21
Absolutely deprived	Baudh	0.213754	27	0.257265	27	0.20152734	27	0.206781	27
Absolutely deprived	Nuapara	0.223063	26	0.221891	29	0.20547032	25	0.184517	29
Absolutely deprived	Kalahandi	0.228022	25	0.303911	22	0.21910945	23	0.258326	22
Absolutely deprived	Koraput	0.232003	24	0.255295	28	0.21639621	24	0.207557	26
Absolutely deprived	Kandhamal	0.241825	23	0.264067	26	0.20535389	26	0.1981	28
	Q1	0.24651	Q1	0.286533	Q1				
Backward	Rayagada	0.260566	22	0.305602	21	0.23987635	22	0.249279	23

		Sudarshan-Iyengar Methodology				Principal Component Analysis			
Backward	Mayurbhanj	0.281052	21	0.276632	24	0.27639962	20	0.304553	18
Backward	Bolangir	0.286131	20	0.327411	19	0.29203268	18	0.295211	19
Backward	Nayagarh	0.297528	19	0.340009	18	0.30875007	17	0.330504	15
Backward	Angul	0.300243	18	0.353065	15	0.27639962	20	0.304553	18
Backward	Gajapati	0.300421	17	0.28074	23	0.26995228	21	0.226669	25
Backward	Kendujhar	0.312835	16	0.349291	17	0.32831417	14	0.325345	16
	Q2	0.320198	Q2	0.352854	Q2				
Continuity to development	Baragarh	0.327561	15	0.357264	12	0.31251502	16	0.311044	17
Continuity to development	Sundargarh	0.333018	14	0.353419	14	0.33841171	13	0.338331	13
Continuity to development	Sonepur	0.334758	13	0.356068	13	0.31914361	15	0.362179	11
Continuity to development	Dhenkanal	0.352216	12	0.393141	10	0.36145211	10	0.374151	9
Continuity to development	Ganjam	0.355687	11	0.352643	16	0.36068167	11	0.345919	12
Continuity to development	Jharsuguda	0.379022	10	0.403699	9	0.37270331	9	0.369178	10
Continuity to development	Sambalpur	0.385151	9	0.392706	11	0.34870503	12	0.334159	14
	Q3	0.399921	Q3	0.438562	Q3				
Developed most	Kendrapara	0.404844	8	0.450183	8	0.4284048	8	0.457917	8
Developed most	Balasore	0.464699	7	0.495001	6	0.51530936	5	0.520042	7
Developed most	Jajpur	0.467455	6	0.540935	4	0.5106917	6	0.551029	4
Developed most	Puri	0.479066	5	0.491411	7	0.49097072	7	0.525997	6
Developed most	Bhadrak	0.483104	4	0.500101	5	0.51756513	4	0.53327	5
Developed most	Jagatshingpur	0.518825	3	0.605214	2	0.58259427	2	0.647132	2
Developed most	Cuttack	0.548728	2	0.557805	3	0.57041135	3	0.59059	3
Developed most	Khurda	0.70007	1	0.688623	1	0.74413404	1	0.713339	1

Source Computed Value, 2024.

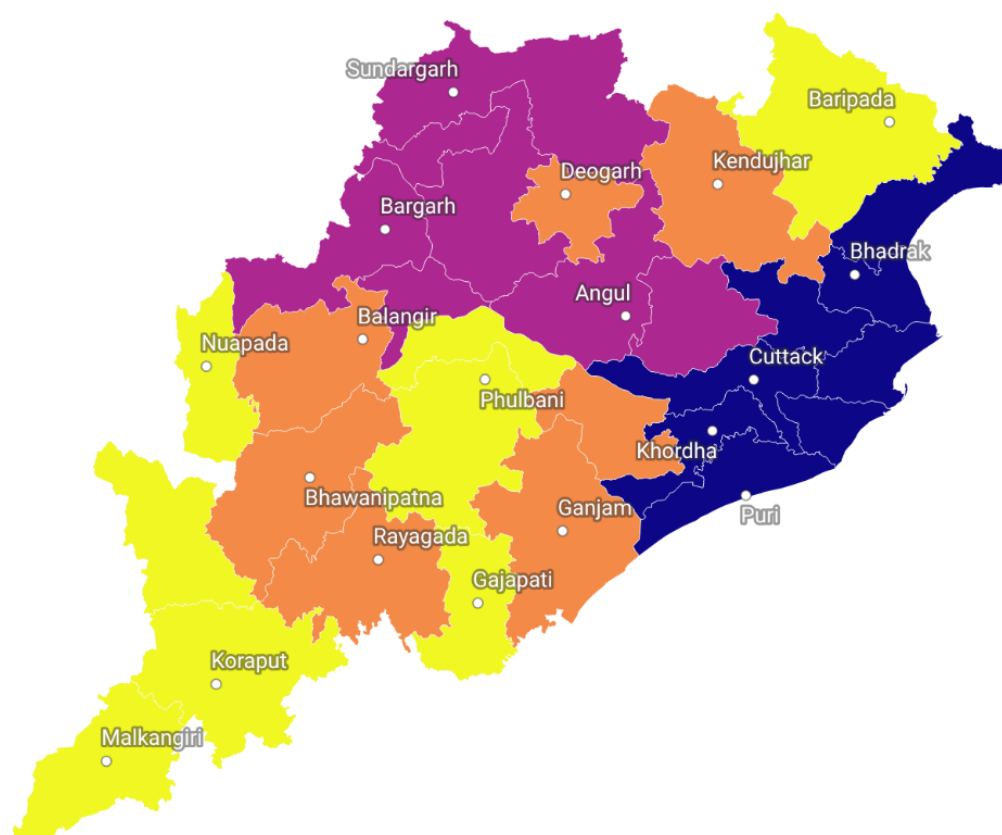


WODC districts are represented by red bars and other districts are represented by blue bars, whereas grey bars are quartile separators

Composite Development Index

CDI-Q

Group A Group B Group C Group D



Map: Braja Bihari Panda • Source: Calculated Data • Map data: © OSM • Created with Datawrapper

The above choropleth map shows the clustering of development scenarios. Mayurbhuj, Malkangiri, Kandamal, Boudh, Gajapati, Nuapada, Nabarangapur and Koraput are suffering in absolute deprivation. In contrast, the core capital region of Cuttack, Bhubaneswar and its surrounding districts are figured in the developed most group. The rest are hovering in the 2nd and third category.

Comparative Regional Growth Rate Analysis

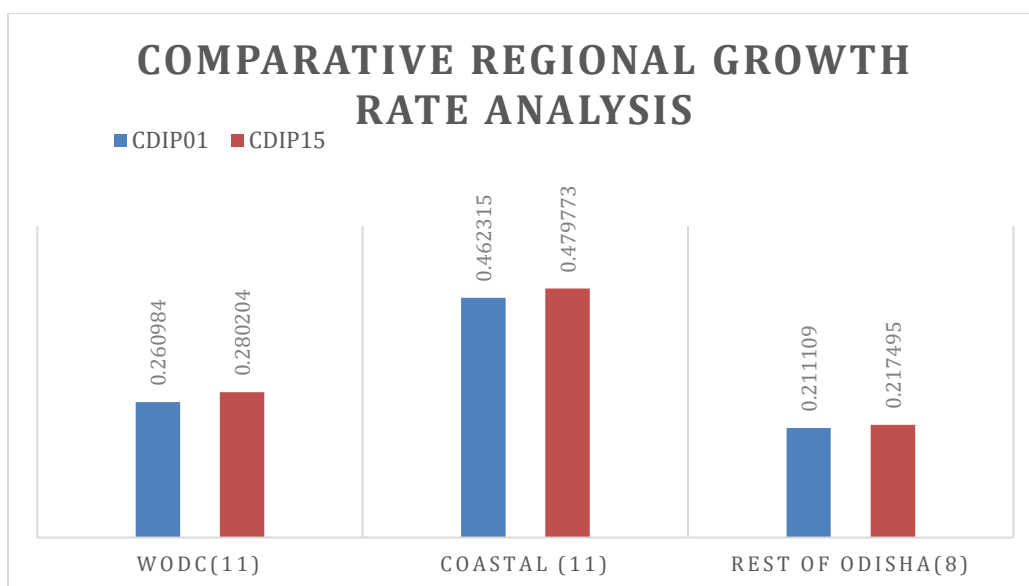
Table-3

Comparative Regional Growth Rate Analysis

Regions	Regions	CDIP01	CDIP15	Growth
WODC(11)	WODC(11)	0.260984	0.280204	7.364
Coastal (11)	Coastal (11)	0.462315	0.479773	3.776
Rest of Odisha(8)	Rest of Odisha(8)	0.211109	0.217495	3.025
Rest of Odisha(8)	Northern Odisha (Mayurbhanj & Keonjhar)(2)	0.28803	0.287564	-0.162
	Rest of southern Odisha(6)	0.191241	0.199531	4.335

The average Growth rate of various regions is calculated using Harmonic Mean and compared

It is found that the WODC backward region is growing faster compared to the coastal region, but the gap in absolute value is very much disturbing. The rest of Odisha growing at a slower rate justifies the constitution of a similar development Board /Council at the lagging region northern mining belt, and the rest of the KBK region.



But when growth rates are compared and also the rest of Odisha is divided into two congruous regions, namely Northern Odisha (Mayurbhanj and Keonjhar) and the Rest of KBK, it is observed that though the rest of Odisha growing slower than core capital coastal Odisha, but rest of the KBK region is showing a better growth rate as it has a lower base. But the most disturbing thing is that the Northern Mayurbhanj and Keonjhar mining region has shown a negative growth rate.

One more disturbing fact is that the absolute value of the index value of various regions remains in a similar position. The absolute gap between the study area and the core capital developed region remains the same.

Backwardness Index is then calculated based on the Composite Development Index. Further, it needs to be analysed that in the WODC region, the Grants are shared based on their share of backwardness or not. Then the share of backwardness of each district in the WODC area is calculated and compared with the share of the district in WODC grant.

Table-4

Share of the district in Backwardness and Grant from WODC

		Share of the district in backwardness	Share of the District in WODC Grants
		SodB	SoDG
1	Angul	8.27	2.60
2	Baragarh	8.17	13.17
3	Bolangir	8.92	14.58
4	Baudh	11.35	5.53
5	Deogarh	9.37	3.17
6	Jharsuguda	7.23	5.33
7	Kalahandi	9.61	13.61
8	Nuapara	13.16	6.09
9	Sambalpur	7.44	11.56
10	Sonepur	8.20	5.92
11	Sundargarh	8.26	18.44

Source: Computed Value, 2024

Here we see that Sundargarh, Bolangir, Bargarh, Kalahandi and Sambalpur are getting more grant than their share in backwardness and districts like Nuapara and Boudh, having a larger share in backwardness, could not get enough funds for developmental work.

Table-5

Correlation Matrix: SoD and Grant percentage

	Share of the district based on the backwardness index	Grant percentage allotted to districts through the study period
Share of the district based on the backwardness index	1	
Grant percentage allotted to districts through the study period	-0.222185015	1

Source: Computed Value, 2024

9. Major Findings

The major findings begin with the analysis of the objective

1. The first objective of relative development analysis is tackled within the framework of the dimensions of disparities and found the prevalence of severe disparity. The next objective about analysis of the impact of the strategic regional balance initiative by the government has been tested, where it is found that WODC, in addition to all other initiatives, could bear fruit in the shape of a faster growth rate of the WODC area, but in the overall situation it is disturbing.

2. The growth rate of the Average Composite Development Index of various region compared, and it is found that the WODC region depicts a better growth rate, hence justifying the constitution of WODC; but the CDI value of the WODC district is about half of the CDI value of the coastal district; it is an area of concern and disgrace. Such a rate of growth in the index value will take more than centuries to eradicate the disparities.

3. The first hypothesis has been analysed with the help of Sudarshan Iyengar's methodology and Principal Component Analysis, and it is found that there is an inter-district disparity between the districts of Odisha. It rejects the null hypothesis that balanced regional growth has been achieved to a great extent. Further, from the ABCD classification, it is found that there is absolute deprivation.

4. As per the 2nd hypothesis, when the allocation of grants to the WODC district is compared with the Backwardness index, the correlation analysis shows a negative insignificant correlation between the variables of a magnitude of -0.22. It rejects the null hypothesis, which implies that the share of the district in backwardness has not been considered while grants are allocated.

Overall development indices are compared. Deogarh, Baudh Nuapara, and Kalahandi figures in the Absolutely Deprived Category, whereas Bolangir and Angul figures in the Backwards Category. Though Bargarh, Sundargarh, Sonapur, Jharsuguda and Sambalpur could cement their place in Continuity to development, none of the WODC districts could venture into the Developed category.

Nuapara district became more impoverished as regards the WODC district as well as the state of Odisha. The range between the lowest and the highest value of the index remains similar, which implies there is a persistence of disparity. Further, it is found that the Government provision for WODC has remained at Ra 100 Crores from the year 2008-09; to have a more visible impact, the Govt. grant-in-aid to WODC needs to be hiked. And the hiked amount may be allocated based on the share of the district in backwardness. Also, the planning unit at the district level should be strengthened for proper and effective utilisation of the grant for the development of the districts.

Reference

1. Banerjee, A. and Kumar Kuri, P., (2014) "Agricultural Growth and Regional Disparity in India: A Convergence Analysis". Sri Lankan Journal of Agricultural Economics, 16(1), pp.61–77.
2. Bithal, P.S., Singh, H. & Kumar, S. (2011): Agriculture, Economic Growth and Regional Disparities in India; Journal of International Development, 23, pp. 119- 131
3. Bruce Thom & Celine Steinfeld (2025) Natural resource management and regional planning: a geographical perspective, Australasian Journal of Environmental Management, 32:2, 116-133, DOI: 10.1080/14486563.2024.2383436
4. Calero C & Turner L. W (2019) Regional economic development and tourism: A literature reviews to highlight future directions for regional tourism research, Tourism Economics 2020, Vol. 26(1) 3–26 DOI: 10.1177/1354816619881244

5. Chakraborty, P (2009) Intra-regional inequality and the role of public policy: Lessons Learnt from Kerala, *Economic & Political Weekly*, June 27, 2009, vol xlv nos 26 & 27
6. Chand, R. & Parappurathu, S. (2012), "Temporal and Spatial Variations in Agricultural Growth and its Determinants". *Economic and Political Weekly*, 47(26 & 27), pp 55-63
7. Chand, R., Garg, S. & Pandey, L. (2009), "Regional Variations in Agricultural Productivity - A District Level Study". Report of the National Professor Project, NCAEPR, ICAR, New Delhi.
8. Chhabda, J. K. & Sonar, S. G. (2025) Investigating the relationship between geographical scale and disparity indicators in the state of Maharashtra, India. *GeoJournal* 90:242. <https://doi.org/10.1007/s10708-025-11490-7>
9. Das, Arosikha, Khan, A., Daspattanayak, P., Chatterjee, S., Mohammad I. H. (2016) "Regional Model for Agricultural Imbalances in West Bengal, India", *Modelling Earth Systems and Environment*. 2. 1-24.
10. Das, A. B, and Sahoo, D (2012): Regional Disparity in Education: A Comparative Study Between KBK and Non-KBK Districts of Odisha; *International Journal of Educational Science and Research*, Vol.2, Issue 2, pp 1-15
11. Dev, S Mahendra (2024) Regional Dimensions in India: Economic Growth, Inclusive and Sustainable Development. *Journal of Quantitative Economics* 22:245–296 <https://doi.org/10.1007/s40953-024-00403-z>
12. Deb, P & Mukherjee, R (2024) Pattern of Regional Disparities in the Level of Household Deprivation among the Scheduled Tribes of Eastern India: A District-level Analysis *Journal of Asian and African Studies* 2024, Vol. 59(1) 201–221 <https://doi.org/10.1177/00219096221106097>
13. Dev, S. Mahendra (2008) Challenges for Revival of Indian Agriculture *Agricultural Economics Research Review* Vol. 22 January-June 2009 pp 21-45 DOI:10.1177/ 0971344120090102
14. Devi, R & Tiwari, A.K. (2023) The Changing Patterns of Infrastructure Development in Himachal Pradesh: An Inter-District Analysis, *Journal of Infrastructure Development* 15(1) 7 –21, DOI: 10.1177/09749306231163959
15. Dey, S., Ray, J. & Majumder, R (2024) Spatial inequality in sub-national human development index: A case study of West Bengal districts, *Sustainable Futures*, Volume 8, December 2024, 100330, <https://doi.org/10.1016/j.sfr.2024.100330>
16. Diwakar D.M. (2009): Inter-Regional Disparities, Inequalities and Poverty in Uttar Pradesh; *Economic & Political Weekly*, July 27, 2009, Vol. XLIV Nos.:26 & 27, pp 264-273.
17. Dwivedi, S. & Mazhuvanchery A.S. (2025) Multivariate assessment of digital agriculture and irrigation potential: Application to India, *Agricultural Systems*, 227, 104328 <https://doi.org/10.1016/j.agsy.2025.104328>
18. Dubey. Amaresh (2009): Intra-State Disparities in Gujarat, Haryana, Kerala, Orissa and Punjab; *Economic & Political Weekly*, Vol.44 No 26/27(June 27-Jul 10), pp 224-230
19. Gaikwad, V., Pethe, A and Apte, P (2022) Intra-regional Development Disparities: Experiences and Policy Options, *Review of Market Integration* 14(1) 7 –30, 2022 <https://doi.org/10.1177/09749292221101433>
20. Haan, A. De. And Dubey, A (2005): Poverty, Disparities, or the Development of Underdevelopment in Orissa; *Economic and Political Weekly*, May 28-June 4, pp. 2321-2329
21. Iyengar N S & Sudarshan P (1982): A Method of Classifying Regions from Multivariate Data. *Economic and Political Weekly*, Special Article: Vol. 17, Issue No. 51, 18 Dec, 1982, pp. 2047-52
22. Iammarino, S., Rodriguez-P and Michael S (2019) Regional inequality in Europe: evidence, theory and policy implications *Journal of Economic Geography* 19 (2019) pp. 273–298 doi:10.1093/jeg/lby021
23. Jena, (2014), "Agricultural Development Disparities in Odisha: A Statistical Study" *American Review of Mathematics and Statistics*, Vol. 2, No. 1, pp. 45-53.
24. Kanbur, R. & Venables, T, (2005). Introduction: Spatial inequality and development. *Journal of Economic Geography*, 5,1-2, DOI:10.1093/jnfcg/ihh059
25. Kaur, N., Shazada Ahmad Adnan Shakeel (2023) An inter-district analysis of health infrastructure disparities in the Union Territory of Jammu and Kashmir. *GeoJournal* 88:4403–4414 <https://doi.org/10.1007/s10708-023-10869-8>
26. Kim, K., Ziang, M., & Li, X. (2008). Effects of temporal and Social Distance on Consumer Evaluation, *Journal of Consumer Research*, 35, 706-713, <https://doi.org/10.1086/592131>
27. Mohanty B. B. (2009), "Regional Disparities in Agricultural Development of Maharashtra" *Economic and Political Weekly*, Mumbai Feb. 7 2009 Vol. 6, PP. 63-69
28. Majumdar, R (2005) Infrastructure and Regional Development: Interlinkages in India. *Indian Economic Review*, New Series, Vol. 40, No. 2 (July-December 2005), pp. 167-184 Stable URL: <http://www.jstor.org/stable/29793842>.
29. Manjunath, S. & Elumalai, K (2017) Effects of Rural Infrastructure on Agricultural Development: A District-Level Analysis in Karnataka, India. *Journal of Infrastructure Development* 9(2) 113–126 DOI: 10.1177/0974930617732258
30. Mittal, S, Tripathi, G. and Sethi, D. (2008): Development Strategy for the Hill Districts of Uttarakhand; Working Paper, Indian Council for Research on International Economic Relations, July 2008.
31. Nayyar, Rohini(2005): Planning of the Development of Backwards Districts; CPRC India Working Paper 23. 2005.
32. Nayak Chittaranjan(2014): Rural Infrastructure in Odisha: An Inter-District Analysis; *Pragati: Journal of Indian Economy /Journal Press of India* .accessed in 2017, Volume I, Issue I, January-June, 2014, (ISSN:2347-4432)

33. Nieto, AT (2021) Regional disparities in Mexico and the spatially cumulative effects of national development and economic cycles, 1940–2013, *Regional Science Policy and Practice*, 13:1283–1296, [wileyonlinelibrary.com/journal/rsp3](https://www.wileyonlinelibrary.com/journal/rsp3) DOI:10.1111/rsp3.12311
34. Pani B.S. & Mishra Diptimayee (2022) Sustainable livelihood security in Odisha, India: A district level analysis, *Regional Sustainability*, Volume 3, Issue 2, June 2022, Pages 110-121, <https://doi.org/10.1016/j.regsus.2022.07.003>
35. Panda, Pradeep (2016): Regional Disparities in Development of Odisha Economy: Assessment of Scheme, Issues, and Challenges; *Orissa Economic Journal*, Vol.48, No 1&2, July Dec 2016 Pp124-132
36. Patra, R. (2014), “Agricultural Development in Odisha: are the disparities growing?” *International Journal of Food and Agricultural Economics*, Vol. 2, pp. 129-144. Retrieved from www.foodandagriculturejournal.com/vol2.no3.pp129.pdf
37. Pradhan RK (2017) Regional disparities in Odisha: Factors responsible for the persisting regional imbalances in Odisha - Available at SSRN 2934740, 2017 DOI: 10.2139/ssrn.2934740
38. Peng J, Baležentis T, Dalia S, Vida D, Giulio (2022) Circular Economy in Agriculture: A Systematic Literature Review. *Economic Affairs*, Vol. 67, No. 03, pp. 161-168, DOI: 10.46852/0424-2513.3.2022.3
39. Radhakrishna, R (2002) Agricultural Growth, Employment and Poverty: A Policy Perspective, *Economic and Political Weekly*, January 19, 2002
40. Raman, R. and Kumari, R. (2012), “Regional Disparity in Agricultural Development: A District Level Analysis for Uttar Pradesh”, *Journal of Regional Development and Planning*, Vol.1 [2], pp. 71 90.
41. Ratha Keshab Chandra (2020) Deciphering Regional Disparity in Western Odisha: Looking Through the Prism of History, *Indian Journal of Public Administration* 66(2) 240–255, 2020, DOI: 10.1177/0019556120922834
42. Rajkumar, R and Chennakrishna, P. (2008) : Regional Disparities in India , Myth and Realities; *Journal of the Indian Economic Association*, 1 December
43. Rout, B (2023). Local Economy and Forest-based Livelihood in Gandhamardan Region of Western Odisha, *Contemporary Voice of Dalit* 1–16. DOI: 10.1177/2455328X231185253
44. Rauniyar, G., & Kanbur, R. (2010). Inclusive growth and inclusive development: A review and synthesis of Asian Development Bank literature. *Journal of the Asia Pacific Economy*, 15(4), 455–469. <https://doi.org/10.1080/13547860.2010.517680>
45. Ramaswamy, K.V. (2007) Regional dimension of Growth and Employment, *Economic and Political Weekly*, (December 8), pp. 47-56.
46. Raman, R. and Kumari, R. (2012), Regional Disparity in Agricultural Development: A District Level Analysis for Uttar Pradesh, *Journal of Regional Development and Planning*, Vol.1 [2], pp. 7190
47. Raychaudhury, Ajitava & Halder, Sushil Kumar (2009): An investigation into the Inter-District Disparity in West Bengal, 1991-2005, *Economic and Political Weekly*, Vol. XLIV, Nos. 26 and 27, (June 27, 2009) pp 258-263
48. Reddy, A.A. (2011): Dynamics of the Agricultural Economy of Andhra Pradesh, India since the last five decades; *Journal of Development and Agricultural Economics*, 3(8), 394410
49. Sedithippa, J. B & Munisamy, G. (2023) Spatial growth and convergence in Indian agriculture, *Agricultural Economics* published by Wiley Periodicals LLC on behalf of International Association of Agricultural Economists. DOI: 10.1111/agec.12807
50. Sengupta P, and Chakrabarti A (2024) Comparative Study of Regional Disparities in the Districts of West Bengal. *The Indian Economic Journal* 72(5) 849 –868, DOI: 10.1177/00194662241238586
51. Siddaram, H.M (2014) Regional Backwardness and Public Spending on Development of Rural Physical and Social Infrastructure in Karnataka. *Journal of Land and Rural Studies* 2(2) 299–315 DOI: 10.1177/2321024914534058
52. Singh, Ajit Kumar (2012): Regional Disparities in the Post Reform Period; *Journal of Regional Development and Planning*, Vol. 1, No. 1 pp 17-24
53. Singh, J, Yadav, H.S., Singh, K. and Singh, N. (2013), “Agricultural Regional Disparity in Indian States: An Inter-Temporal Analysis” *JECET*; March –May 2013; Vol .2 No.2 pp 241-248
54. Singh, U and Ranjan A (2025) Regional Convergence in Agricultural Sector Growth in North-eastern Rajasthan Arthaniti: *Journal of Economic Theory and Practice* 24(1) 7 –39, <https://doi.org/10.1177/09767479221088147>
55. Sutradhar, A & Dasguptanayak, P. (2023) A regional model for the variability of Agricultural development: evidence from a drought-prone region of Rarh Bengal, Eastern India. *Modelling Earth Systems and Environment* 9:3663–3691. <https://doi.org/10.1007/s40808-023-01721-6>
56. Tiwari, A.K.(2008): Economic infrastructure and agriculture development in Himachal Pradesh: A district level analysis, *Social Change* June 2008 Vol. 38 No 2, pp245-262
57. Tripathy, P.K.& Mishra, J. K. (2011): Disparity in Development of Orissa State; Working paper, Department of Economics, Sambalpur University
58. Van Niekerk, A. J. (2020). Inclusive economic sustainability: SDGs and global inequality. *Sustainability*, 12(13), 5427. <https://doi.org/10.3390/su12135427>
59. Woodhouse, A (2006) Social capital and economic development in regional Australia: A case study. *Journal of Rural Studies* 22 (2006) 83–94. www.elsevier.com/locate/jrurstud

60. doi: 10.1016/j.jrurstud.2005.07.003
61. Yumnam A and Deka N. (2022) Disparities in Agricultural Development among the Districts- Findings from North East India, Economic Affairs, Vol. 67, No. 03, pp. 161-168, DOI: 10.46852/0424-2513.3.2022.3

Book

Myrdal, G (1957), Economic Theory and Under-Developed Regions, Gerald Duckworth

Report

Report of the Committee on the Constitution of Separate Development Board in Orissa, Planning and coordination, Department 1994 (Ghadei Committee)

Odisha Agricultural Statistics, 2013-14, & 2001

District at a Glance, 2015, 2016: DES

Status of Elementary Education in Odisha: OPEPA, 2013-14

Economic Survey of Odisha, 2000-01, 1998-99, 2015-16.

District Statistical Handbook, 2015.

Statistical Abstract of Odisha, 2002, 2005, 1008, 2012

The website of WODC has been accessed.