Ranking District of Odisha on Socio-economic parameter

Below table indicates the ranking of all districts of Odisha. The districts are ranked on the basis of the Standardized Index.

Ranked District

District	Index	Rank
Kendrapara	100	1
Jharsuguda	93.27135492	2
Jagatsinghapur	91.9025541	3
Baudh	89.77246077	4
Jajapur	87.44956414	5
Bargarh	86.24077486	6
Anugul	84.93396782	7
Sundargarh	83.69438396	8
Dhenkanal	83.66409611	9
Bhadrak	81.82111689	10
Sambalpur	79.64071191	11
Debagarh	77.42195617	12
Subarnapur	74.84594979	13
Puri	73.02145752	14
Baleshwar	70.07594694	15
Mayurbhanj	69.88436604	16
Cuttack	66.01792841	17
Balangir	60.96063337	18
Khordha	60.89772666	19
Nuapada	60.54688197	20
Ganjam	56.69114183	21
Kendujhar	56.55183429	22
Kalahandi	44.18316712	23
Nayagarh	38.32131088	24
Gajapati	33.47906309	25
Kandhamal	20.74002167	26
Rayagada	11.58474677	27
Malkangiri	6.759942338	28
Koraput	1.433075079	29
Nabarangapur	1	30

Table 1: Index that measures and ranks districts of Orissa on socio-economic parameters.

According to Şuler's (2005) to gauge socio-economic parameter, economic growth, education, public health, number of houses with bathrooms inside, social justice are most important indicators. So below significant socio-economic indicators are selected to analyse the overall development for a particular district in healthcare, education and agriculture.

Indicators Selected for Index Calculation:

1. Income greater than 10000 (%)
2. Literacy rate (%)
3. Children currently attending School (Age 6-17 years) (%)
4. Percentage of Pucca households to Total households
5. Marriages among Females/Male below legal age %
6. Net Enrolment ratio in Upper Primary
7. Net Enrolment ration in Upper Primary
8. Percentage of women who received ANC
9. Children who received foods other than breast milk during 6 months
10. Crude Birth Rate
11. Sex Ratio at Birth
12. Under Five Mortality Rate (U5MR)
13. Children aged 5-14 years engaged in work (%)
14. Toilet access-Households(%)
15. Agricultural Indicators (measurements are in '000hect).

Calculating Index:

The following steps were involved for calculating the index from the dataset. Python's library Scikit- Learn was used to implement the following steps.

Standardizing Data:

StandardScaler from the scikit-learn library was used to scale all the variables in the dataset. This function standardizes the variables by removing the mean and scaling to unit variance. Centering and scaling happen independently on each variable by computing the relevant statistics.

Applying Principal Component Analysis:

Following are the results of the principal component analysis describing the variance being explained by each principal component. This was done using PCA function from the scikit-learn library.

2.56852994e-01, 2.25463766e-01, 1.49095097e-01,
9.32744123e-02, 5.46824723e-02, 4.28120430e-02,
2.98036213e-02, 2.68643032e-02, 2.46772892e-02,
2.09080596e-02, 1.72185524e-02, 1.24672310e-02,
1.14120748e-02, 8.11414365e-03, 7.60641427e-03,
5.24885794e-03, 4.45801235e-03, 3.59960112e-03,
2.30811239e-03, 1.45804840e-03, 8.29320453e-04,
5.39789414e-04, 1.98713213e-04, 7.47585937e-05,
3.23124299e-05

The first five components were used to compute the index as they explain about 77 % of the variation in the data.

0.25685299, 0.22546377, 0.1490951 , 0.09327441, 0.05468247

<u>Data Collection:</u>

Data for the calculation of index was collected from the following data sources. All of the sources are Government organisations working in some related field.

Data Sources:

- Socio-Economic Caste Census 2011, http://www.secc.gov.in/
- Odisha Economic Survey 2014-2015, Planning and Coordination Department, Government of Odisha. http://www.odisha.gov.in/pc/Download/Economic_Survey_2014-15.pdf
- Annual Health Survey 2012-2013 Odisha, Census http://www.censusindia.gov.in/vital_statistics/AHSBulletins/AHS_Factsheets_2012- 13/FACTSHEET-Odisha.pdf
- District Information System for Education, http://www.dise.in