Economic Wealth Index: A tool to study the Economic Health of Districts of selected States in India

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Abstract- The Economic Wealth Index (EWI) is created using the principal component analysis (PCA) method on the amenities data of Census 2001.The first principal component is used to create the index. An attempt is made in this research to the economic health of the districts of some selected states like Kerala, Maharashtra and Bihar/Jharkhand. The selected states represent almost all the regions of India i.e. Kerala from South, Maharashtra from West and Bihar/Jharkhand from North-East. The districts of the selected States are ranked based on the values of the index. When the researcher compared the district level value of this index with the Human Development index value, the researcher found that the two values are highly correlated with each other for the State of Maharashtra. Hence this method can be used to study the economic conditions of the districts of the States and can be used as an alternative to HDI values as district level HDI values are not available for all states.

Index Terms- Economic Wealth Index, Principal Component Index, Human Development Index, India

I. INTRODUCTION

An attempt is made in this research to the economic health of the districts of some selected states like Kerala, Maharashtra and Bihar/Jharkhand. The selected states represent almost all the regions of India i.e. Kerala from South, Maharashtra from West and Bihar/Jharkhand from North-East. Also as far as development is considered Kerala and Maharashtra is one of the most developed states while Bihar and Jharkhand are one of the less-developed states. The Economic Wealth Index (EWI) is created using the principal component analysis (PCA) method on the amenities data of Census 2001.

II. OBJECTIVE OF THE STUDY

i.   To create the economic wealth index using Principal Component Analysis
ii. To classify EWI values into categories.
iii. To rank the districts of the selected States
iv. To compare the EWI values of the districts of Maharashtra with Human Development Index

III. RESEARCH METHODOLOGY

Principal Component Analysis Method (PCA) is used to construct the Economic Well-Being Index (EWI) based on the amenities data, condition of houses and presence of various basic facilities like drinking water, electricity and toilet given by Census. In this study the first principal component is used to create the index. The data of nineteen variables are taken from the Census Amenities tables of Census 2001 data. The PCA is run in the pooled data of the Selected States. It was found in the study that index created with help of only first component behaved the best when compared with Human Development Index.

Further the districts are ranked on the basis of the value of this index. The EWI index calculated at the state level is compared to the HDI value for checking the robustness of the index.

3.1 Principal Components Analysis

PCA is a multivariate statistical technique used to reduce the number of variables in a data set into a smaller number of 'dimensions'. In mathematical terms, from an initial set of *n* correlated variables, PCA creates uncorrelated indices or components, where each component is a linear weighted combination of the initial variables.

Before applying the PCA following tests are necessary:

a) **Kaiser-Meyer-Olkin Measure of Sampling Adequacy:** This measure varies between 0 and 1, and values closer to 1 are better. A value of 0.5 is a suggested minimum.

b) **Bartlett's Test of Sphericity**: This tests the null hypothesis stating that the correlation matrix is an identity matrix. An identity matrix is one in which all of the diagonal elements are 1 and all off diagonal elements are 0. This null hypothesis should be rejected.

Taken together, these tests provide a minimum standard which should be passed before principal components analysis (or factor analysis) should be conducted.

3.2 Composite Index:
The indexing of districts using a set of variables has multiple uses. It helps in assessing current level of development, monitor the trends and identify target areas and groups requiring special attention not only by the country but in each state and district as well. The composite index is computed after standardizing the variables and by fixing the upper and lower limit.

3.2.1 Standardization of Indicators :
The indicators may be grouped into positive and negative indicators. For example coverage of complete immunization is a positive indicator while proportion of births of order three and above is a negative indicator. In computing composite indices the

researcher has to make them uniform and therefore there is a need of standardizing each indicator.

For positive indicators, composite index is usually computed as

100* (Vi – Vmin) / (Vmax-Vmin)

Here Vi is Actual Value in the series, Vmin is lowest value observed in the series, Vmax is highest value observed in the series. This simply states that the district with a lowest value will get a score of 0 and district with a highest value will get a score of 100.

In case variables affect negatively, composite index is computed as 100* (Vmax-Vi) / (Vmax- Vmin).

3.3 Selection of Variables: The data of amenities which are available district wise in Census (2001) are used for the construction of the Economic Wealth Index. Percentages of households possessing these amenities are calculated from Census (2001) data. To estimate the economic wealth index, principal component analysis based on the first principal component is used.

Following Nineteen variables have been selected for developing the index from the amenities district wise data of the four selected states.

1) Percentage of households having Good condition houses (Gd_con_houses).
2) Percentage of households having Permanent houses (Per_perm).
3) Percentage of households having Separate kitchen (Per_sepkit).
4) Percentage of households having LPG connection (Per_LPG).
5) Percentage of households having Electricity (Per_elec).
6) Percentage of households having Water within Premises (Per_water).
7) Percentage of households having Bathrooms (Per_of_bath).
8) Percentage of households having Drainage (Per_of_drain).
9) Percentage of households having Toilets (Per_toilet).
10) Percentage of households having Cement or Mosaic Flooring (Per_cemmosaicfloor).
11) Percentage of households having Concrete Roof (Per_concreteroof).
12) Percentage of households having Brick, Stone and Concrete Walls (Per_brstconcretewall).
13) Percentage of households having Bank accounts (Per_bank).
14) Percentage of households having Radio (Per_radio).
15) Percentage of households having Television (Per_TV).
16) Percentage of households having Telephone (Per_telephone).
17) Percentage of households having Bicycles (Per_bicycles).
18) Percentage of households having Scooter (Per_scootermotor).
19) Percentage of households having Car or Jeep (Per_carjeep).

By definition the first principal component variable across households or individuals has a mean of zero and a variance of X, which corresponds to the largest Eigenvalue of the correlation matrix of X. The first principal component yields a wealth index that assigns a larger weight to assets that vary the most across households so that an asset found in all households is given a weight of zero (McKenzie, 2005). The first principal component can take positive as well as negative values.

The SPSS factor analysis procedure is used in this study. This procedure first standardizes the indicator variables (calculating Z scores); then the factor coefficient scores (factor loadings) are calculated; and finally, for each district, the indicator values are multiplied by the loadings and summed to produce the Economic Wealth Index (EWI) value for each district. In this process, only the first factor produced is used to represent the index. The resulting sum is itself a standardized score with a mean of zero and a standard deviation of one.

3.4 Economic Wealth Index Code: The values of Economic Wealth Index (EWI) are divided into three quartiles Q_1, Q_2 and Q_3. The District with EWI values less than Q_1 is given code 0. The district with EWI values between Q_1 and Q_2 is given code 1, district with EWI values between Q_2 and Q_3 is given code 2 and district with EWI values above Q_3 is given code 3. Thus the districts are classified as district with low economic condition (Code 0), moderate economic condition (Code 1), good economic condition (Code 2) and excellent economic condition (Code 3).

3.5 Composite Economic Wealth Index (CEWI)

Since the EWI index takes positive as well as negative values, the Composite EWI index is computed using the formula

Composite EWI = (EWI Value– Minimum EWI Value) * 100 / (Max EWI Value- Min EWI Value)

IV. ANALYSIS OF DATA

The data was analyzed the results are as follows

4.1. KMO and Bartlett's Test for EWI: The KMO Measure of Sampling Adequacy is 0.845 (Table 1) which is a very good value. Also the Bartlett's Test of Sphericity is significant. Thus it is found in the study that the data is fit for principal component analysis.

Table 1: KMO and Bartlett's Test for EWI

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.845
Bartlett's Test of Sphericity	Approx. Chi-Square	3643.754
	Df	171
	Sig.	.000

Source: Derived with the help of SPSS

4.2. Total Variance Explained by the Components

The principal components are extracted using SPSS. The first four Components had Eigen values more than 1 (Refer Table 2). The first four components explained 87.1 percent of variance in the data.

To construct the EWI the researcher decided to use the first principal component only. The first component itself is able to explain 63.969 percent of variance in the data.

Table 2: Total Variance Explained by the Components

Comp	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	percent of Variance	Cumulative percent	Total	percent of Variance	Cumulative percent
1	12.154	63.969	63.969	12.154	63.969	63.969
2	1.761	9.268	73.238			
3	1.555	8.183	81.420			
4	1.079	5.679	87.100			
5	.661	3.478	90.578			
6	.473	2.487	93.065			
7	.378	1.988	95.054			
8	.285	1.502	96.556			
9	.171	.902	97.458			
10	.134	.704	98.162			
11	.099	.523	98.685			
12	.070	.370	99.056			
13	.055	.291	99.347			
14	.044	.234	99.581			
15	.034	.178	99.759			
16	.018	.097	99.855			
17	.014	.073	99.928			
18	.010	.055	99.982			
19	.003	.018	100.000			
Extraction Method: Principal Component Analysis.						

Source: Derived with the help of SPSS

4.3. Scree Plot of the Components

The Scree plot (Figure 1) helps one to determine the optimal number of components. The Eigen value of each component in the initial solution is plotted. Generally the components on the steep slope are extracted. The components on the shallow slopes contribute little to the solutions. The figure clearly points that in the Scree plot the largest variation is due to the first principal component only.
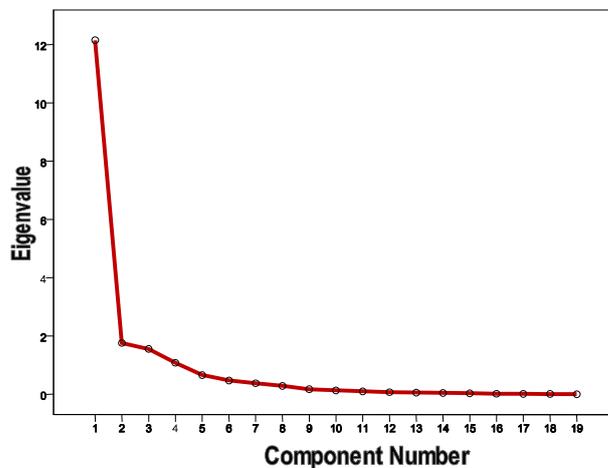
Source: Drawn with the help of SPSS
Figure 1: Scree Plot for EWI

4.4. First Principal Component Matrix: The first Principal Component is given below (Table 3). It is observed in Table 3 that the highest variance in the data is due to percentage of cement and mosaic floor (0.938) followed by percentage of telephone (0.928) and percentage of television (0.927).

Table 3: First Principal Component Matrix

Component Matrix[a]	Component 1
Gd_con_houses	.892
Per_perm	.820
Per_sepkit	.678
Per_LPG	.861
Per_elec	.903
Per_water	.780
Per_of_bath	.891
Per_of_drain	.584
Per_toilet	.844
Per_cemmosiacfloor	.938
Per_concreteroof	.587
Per_brstconcretewall	.802
Per_bank	.898
Per_radio	.786
Per_TV	.927
Per_telephone	.928
Per_bicycles	-.582
Per_Scootermotor	.693
Per_carjeep	.917
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Source: Derived with the help of SPSS

4.5. Component Score Coefficient Matrix of the EWI factors

The Component (or Factor) Score Coefficient Matrix is given below in Table 4. As observed in the initial communalities, in the Component (or Factor) Score Coefficient Matrix also it is observed that the highest score is of Percentage of Cement and Mosaic Flooring (0.077) followed by Percentage of Telephone (0.076) and Percentage of Television (0.076).

Table 4: Component Score Coefficient Matrix

	Component 1
Gd_con_houses	.073
Per_perm	.068
Per_sepkit	.056
Per_LPG	.071
Per_elec	.074
Per_water	.064
Per_of_bath	.073
Per_of_drain	.023
Per_toilet	.069
Per_cemmosiacfloor	.077
Per_concrete roof	.048
Per_brstconcretewall	.066
Per_bank	.074
Per_radio	.065
Per_TV	.076
Per_telephone	.076
Per_bicycles	-.031
Per_Scootermotor	.057
Per_carjeep	.075
Extraction Method: Principal Component Analysis.	

Source: Derived with the help of SPSS

4.6. Descriptive Statistics of EWI: The descriptive statistics of the EWI is given below (Table56). The mean value is 0 and the standard deviation and the variance is 1. The maximum value is 2.65 and the minimum value is -1.32. Range which is defined as the difference between the maximum and minimum value is 3.97.

Table 5: Descriptive Statistics of EWI

Statistics		
EWI		
N	**Valid**	108
	Missing	0
Mean		0
Median		-.2650
Mode		-.57
Std. Deviation		1
Variance		1
Range		3.97
Minimum		-1.32
Maximum		2.65
Percentiles	25	-.8212
	50	-.2653
	75	.8278

Source: Derived with the help of SPSS

4.7. Ranking the Economic Wealth Index

Using the Composite index formula, the Composite Economic Wealth Index (CEWI) is calculated. The EWI value is ranked. In the ranked EWI values, Mumbai (with value 2.65) from Maharashtra gets the highest rank and Pakaur (with value -1.32) from Jharkhand is the least rank district. The next four rankings go to the district Ernakulum, Mumbai (Suburban), Pune and Thane. Out of the top five, four are from the state of Maharashtra. The last five districts in rankings are Pakaur, Garhwa, Gumla, Sahibganj and Araria. Out of the five worst ranked districts in the pooled data, 4 are from Jharkhand and one from Bihar. The calculated EWI, Rank of EWI, CEWI and Code of EWI for all the districts in the four States are given in the Appendix 1.

4.8 Economic Wealth Code

In order to classify the district into low, moderate, good and excellent economic conditions, EWI has been coded as 0, 1, 2 and 3 respectively. The three quartiles of the data are calculated.

The three quartiles Q_1, Q_2 and Q_3 are -0.8212, -0.2653 and 0.8278 respectively. These values are given in the Table 6 as the 25th, 50th and 75th Percentile.

4.9 Classification of districts according to EWI Code

The districts in each States are classified into different EWI Code. It is observed in Table 6 that in Bihar there are 16 districts with EWI Code 0, 19 districts with EWI Code 1 and only 3 districts namely Patna, Hazaribag and Rohtas with EWI code 2. In Jharkhand there are 10 districts with EWI Code 0, 4 districts with code 1 and 5 districts with code 2. In both Bihar and Jharkhand there is no district with code 3 i.e. excellent EWI values. In the State of Maharashtra there is not a single district with EWI code 0 but 5 districts with EWI code 1, 20 districts with EWI code 2 and 11 districts with EWI code 3. In Kerala, districts have the best EWI values, all the districts of Kerala has EWI Code 3 i.e. excellent EWI.

Table 6: EWI Classification among the States

EWICODE * State code Cross tabulation							
Count							
			State code				**Total**
			Bihar	**Jharkhand**	**Maharashtra**	**Kerala**	
EWICODE	0	Low	16	10	0	0	26
	1	Moderate	19	4	5	0	28
	2	Good	3	5	20	0	28
	3	Excellent	0	0	11	15	26
Total			38	19	36	15	108

Source: Derived with the help of SPSS

4.10 Comparison of EWI values with HDI values

To compare the robustness of EWI created with principal component method, the EWI values are calculated for all the districts of Maharashtra by the same method as in the pooled data. This time the researcher used only Maharashtra State amenities data from Census 2001.

The EWI values are then compared with the district level Human Development Index (HDI) values given by the Human Development Report Maharashtra (2002). The researcher has ranked the EWI and the HDI values for all the districts of Maharashtra and calculated the Component EWI (CEWI) and Composite HDI.

The Table 7 gives the EWI and the HDI values of the districts in Maharashtra. The Coefficient of Correlation between EWI and HDI values is found to be very good (0.876). Also the difference between the rankings is less than 10 for 29 districts and less than 5 for 23 districts. Hence it indicates that, one can use EWI to measure the economic health of a place and this index is very compatible to HDI index. Also it can be used as an alternative measure to HDI as district level HDI values are not given for all States.

Table 7: EWI and HDI values of the districts in Maharashtra

Sr. No	State/District	EWI	CEWI	RANK EWI	HDI	Comp HDI	RANK HDI	Diff. in Ranking of EWI and HDI
	MAHARASHTRA	0.54	48.14	7	0.58	47.50	12	-5
1	Nandurbar	-1.22	3.58	33	0.2	0.00	34	-1
2	Dhule	-0.36	25.35	19	0.36	20.00	30	-11
3	Jalgaon	0.14	38.04	12	0.49	36.25	15	-3
4	Buldana	-0.62	18.71	25	0.39	23.75	28	-3
5	Akola	0.07	36.16	13	0.42	27.50	24	-11
6	Ishim	-0.9	11.7	31	0.48	35.00	17	14
7	Amravati	-0.03	33.65	15	0.81	76.34	4	11
8	Wardha	0.02	34.81	14	0.49	36.25	15	-1
9	Nagpur	1.37	69.05	5	0.71	63.75	6	-1
10	Bhandara	-0.61	19.02	24	0.46	32.50	18	6
11	Gondiya	-1.22	3.49	34	0.46	32.50	18	16
12	Gadchiroli	-1.36	0	35	0.2	0.00	34	1
13	Chandrapur	-0.35	25.53	18	0.41	26.25	27	-9
14	Yavatmal	-0.88	12.2	30	0.21	1.25	33	-3
15	Nanded	-0.76	15.06	27	0.36	20.00	30	-3
16	Hingoli	-1.08	6.92	32	0.42	27.50	24	8
17	Parbhani	-0.66	17.69	26	0.42	27.50	24	2
18	Jalna	-0.81	13.79	28	0.26	7.50	32	-4
19	Aurangabad	0.34	43.06	11	0.56	45.00	13	-2
20	Nashik	0.46	45.98	8	0.51	38.75	14	-6
21	Thane	1.86	81.64	4	0.83	78.75	3	1
22	Mumbai (Sub)	2.33	93.36	2	1	100.00	1	1
23	Mumbai	2.59	100	1	1	100.00	1	0
24	Raigarh	0.43	45.2	10	0.71	63.75	6	4
25	Pune	1.87	81.69	3	0.76	70.00	5	-2
26	Ahmadnagar	-0.04	33.44	16	0.57	46.25	12	4
27	Bid	-0.86	12.63	29	0.44	30.00	23	6
28	Latur	-0.41	24.02	20	0.46	32.50	18	2
29	Osmanabad	-0.57	20.08	23	0.38	22.50	29	-6
30	Solapur	-0.2	29.45	17	0.46	32.50	18	-1
31	Satara	0.44	45.44	9	0.59	48.75	11	-2
32	Ratnagiri	-0.52	21.27	22	0.46	32.50	18	4
33	Sindhudurg	-0.44	23.19	21	0.64	55.00	9	12
34	Kolhapur	0.89	57.03	6	0.64	55.00	9	-3
35	Sangli	0.54	48.12	7	0.68	60.00	8	-1

Source: 1) EWI values derived with the help of SPSS, CEWI and Rankings calculated using formulas
2) HDI values taken from Human Development Report Maharashtra, 2002

V.   CONCLUSIONS

The Economic Wealth Index (EWI) values are ranked in descending order, the first five rankings went to the district Mumbai, Ernakulam, Mumbai (Suburban), Pune and Thane. Out of the top five, four are from the state of Maharashtra. And the last five districts in rankings are Pakaur, Garhwa, Gumla, Sahibganj and Araria. Out of the five worst ranked districts in the pooled data, four are from Jharkhand and one from Bihar. In the State of Maharashtra there is no district with low EWI but 5 districts with moderate EWI, 20 districts with good EWI and 11 districts with excellent EWI. All the districts of Kerala have excellent EWI.

The results point out that correlation between Composite Economic Wealth Index (CEWI) and mean number of births is significant only in the pooled data, the State of Maharashtra and Jharkhand. When the correlation between CEWI and IMR as well as FWPR is studied, it is found to be significant in the pooled data and in all the selected States except Kerala.

VI.   SUGGESTIONS

- The study pointed out that Bihar and Jharkhand are the States whose districts have low Economic Wealth Index values. Hence using these indices districts which are not that good in these categories can be traced and development plans can be chalked out to improve the economic conditions of these districts.
- This method can be used to study the economic and wealth index of other States also.

VII.   LIMITATIONS

Census 2001 data has been used for the study as Census 2011 data for amenities was not available at the time of study.

Appendix 1: EWI and CEWI values in Pooled data

State/District Code	State/District	EWI	CEWI	Rank EWI	EWI CODE
10	STATE-BIHAR	-0.69	15.79	76	1
1	Pashchim Champaran	-0.99	8.24	89	0
2	Purba Champaran	-0.83	12.21	84	0
3	Sheohar	-1.12	5.05	102	0
4	Sitamarhi	-1.00	7.94	91	0
5	Madhubani	-0.89	10.91	86	0
6	Supaul	-1.06	6.53	95	0
7	Araria	-1.14	4.65	104	0
8	Kishanganj	-1.10	5.52	99	0
9	Purnia	-1.07	6.22	97	0
10	Katihar	-1.02	7.64	92	0
11	Madhepura	-1.05	6.68	94	0
12	Saharsa	-0.96	9.09	87	0
13	Darbhanga	-0.77	13.96	80	1
14	Muzaffarpur	-0.71	15.29	77	1
15	Gopalganj	-0.60	18.03	70	1
16	Siwan	-0.34	24.65	57	1
17	Saran	-0.40	23.08	58	1
18	Vaishali	-0.74	14.68	79	1
19	Samastipur	-0.83	12.32	83	0
20	Begusarai	-0.60	18.01	71	1
21	Khagaria	-0.98	8.63	88	0
22	Bhagalpur	-0.51	20.32	64	1
23	Banka	-1.11	5.37	100	0
24	Munger	-0.25	26.98	54	2
25	Lakhisarai	-0.59	18.45	69	1
26	Sheikhpura	-0.64	17.15	73	1
27	Nalanda	-0.57	18.79	67	1
28	Patna	0.68	50.39	29	2
29	Bhojpur	-0.31	25.39	56	1
30	Buxar	-0.48	21.13	63	1
31	Kaimur (Bhabua)	-0.73	14.85	78	1
32	Rohtas	-0.22	27.66	51	2
33	Jehanabad	-0.57	18.77	68	1

34	Aurangabad	-0.57	18.88	66	1
35	Gaya	-0.69	15.88	75	1
36	Nawada	-0.78	13.55	81	1
37	Jamui	-1.07	6.22	96	0
20	STATE-JHARKHAND	-0.42	22.56	60	1
1	Garhwa	-1.30	0.45	107	0
2	Palamu	-1.04	7.16	93	0
3	Chatra	-1.12	4.93	103	0
4	Hazaribag	-0.05	32.02	44	2
5	Kodarma	-0.46	21.73	61	1
6	Giridih	-0.82	12.64	82	1
7	Deoghar	-0.68	16.05	74	1
8	Godda	-1.09	5.84	98	0
9	Sahibganj	-1.14	4.55	105	0
10	Pakaur	-1.32	0.00	108	0
11	Dumka	-1.11	5.21	101	0
12	Dhanbad	0.67	50.26	30	2
13	Bokaro	0.67	50.15	31	2
14	Ranchi	-0.08	31.34	45	2
15	Lohardaga	-1.00	7.97	90	0
16	Gumla	-1.16	4.13	106	0
17	Pashchimi Singhbhum	-0.85	11.73	85	0
18	Purbi Singhbhum	0.82	53.97	27	2
27	STATE-MAHARASHTRA	0.91	56.29	22	3
1	Nandurbar	-0.47	21.34	62	1
2	Dhule	0.17	37.46	39	2
3	Jalgaon	0.54	46.75	32	2
4	Buldana	-0.09	31.11	46	2
5	Akola	0.43	44.09	34	2
6	Washim	-0.28	26.16	55	1
7	Amravati	0.33	41.64	36	2
8	Wardha	0.39	43.06	35	2
9	Nagpur	1.47	70.25	13	3
10	Bhandara	-0.09	30.99	47	2
11	Gondiya	-0.54	19.54	65	1
12	Gadchiroli	-0.62	17.62	72	1
13	Chandrapur	0.16	37.22	40	2
14	Yavatmal	-0.24	27.08	53	2
15	Nanded	-0.17	28.93	49	2
16	Hingoli	-0.42	22.77	59	1
17	Parbhani	-0.13	29.90	48	2
18	Jalna	-0.22	27.74	50	2
19	Aurangabad	0.71	51.07	28	2
20	Nashik	0.89	55.72	23	3
21	Thane	1.96	82.70	5	3
22	Mumbai (Sub)	2.44	94.75	3	3
23	Mumbai	2.65	100.00	1	3
24	Raigarh	0.92	56.42	20	3
25	Pune	2.04	84.72	4	3
26	Ahmadnagar	0.48	45.31	33	2
27	Bid	-0.24	27.17	52	2
28	Latur	0.15	37.03	41	2
29	Osmanabad	-0.01	33.02	43	2
30	Solapur	0.30	40.83	37	2
31	Satara	0.88	55.36	24	3
32	Ratnagiri	0.13	36.58	42	2

33	Sindhudurg	0.17	37.53	38	2
34	Kolhapur	1.18	63.00	18	3
35	Sangli	0.92	56.40	21	3
32	STATE-KERALA	1.54	72.16	10	3
1	Kasaragod	1.25	64.68	16	3
2	Kannur	1.59	73.30	9	3
3	Wayanad	0.86	54.91	25	3
4	Kozhikode	1.51	71.43	11	3
5	Malappuram	1.24	64.61	17	3
6	Palakkad	0.98	57.89	19	3
7	Thrissur	1.86	80.21	6	3
8	Ernakulam	2.55	97.63	2	3
9	Idukki	0.85	54.57	26	3
10	Kottayam	1.85	79.81	7	3
11	Alappuzha	1.47	70.27	12	3
12	Pathanamthitta	1.82	79.21	8	3
13	Kollam	1.36	67.64	15	3
14	Thiruvananthapuram	1.39	68.35	14	3

Source: EWI values derived with the help of SPSS. CEWI and Rankings calculated using formulas

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