10 Human Development Indices: Inter-State & Intra-State Ranking

Inter-state HDI

Measuring economic growth has always been easier than measuring human development for a number of reasons. For example, it is hard to include innumerable vital dimensions of human development like environment, human rights, political freedom, freedom of speech, freedom to practice religion, and so on; again, even if we restrict ourselves to the three dimensions commonly used to gauge it, namely, income, education and health to measure human development, it is difficult to get required data pertaining to these dimensions, especially at a sub national level and especially for small states like Tripura. For example, the data related to health dimension, namely life expectancy at birth, is generally calculated by using the life tables provided in the Sample Registration System (SRS), which is not available for smaller states (States with population less than 1 Crore), and is often calculated by using some indirect methods either using the United Nations model life tables or regressing data related to Infant Mortality Rate (IMR) etc. On the other hand, per capita Net State Domestic Product (NSDP) is commonly used as an indicator ofeconomic wellbeing of the States, which is not available in case of a number of Union Territories (UT). We are providing hereunder the indicators and the components thereon, used to calculate the Human Development Index (HDI) of the 29 States of India for the present study[1], and are also providingthe rationale behind selection of the various components.

1. Income Indicator: For the income indicator we have used two components, viz.
    a. Average Monthly Per Capita Expenditure (MPCE) (irrespective of sector) from NSSO 68th round. Data pertaining to schedules 1 (both type 1 and type 2) of NSSO 68th round are used to calculate MPCE, for schedule 1 type 1, MPCE for uniform reference period was used.
    b. Per capita Net State Domestic Product (NSDP) of year 2012-13 at constant price of 2004-05.

Rationale: While per capita expenditure is a more accurate indicator for living standards of people, hand NSDP reflects State's production capacities.

[1] Six Union Territories are not considered for the present ranking, neither is the newly created State of Telengana considered separately for the evaluation.

2. Health Indicator: For the health indicator, two components are used using the Sample Registration System
    a. Infant Survival Rate (i.e. 1000-Infant Mortality Rate)
    b. Reciprocal of Crude Death Rate (calculated as 10-Crude Death Rate, as all States reported death rates less than 10 per thousand, we have used ten as an arbitrary value here)

Rationale: in absence of data pertaining to life expectancy at birth (LEB) for the smaller States, the next pertinent components are infant mortality rate (IMR) and the overall death rate. It is undeniably true that the infant mortality rate has huge influence on LEB, so has crude death rate, despite the fact that it has some bearing with the average age of the population. Both these components are negative in nature, i.e. higher values of each actually indicate lower levels of health achievement, and therefore for convenience of calculation and understanding we have used the reciprocal values of these components.

3. Education: For the calculation of educational indicator, we have used the following components
    a. 7+ literacy rate using Census 2011 data
    b. Mean year of schooling (MYS) for population ageing 25 years and above, calculated using data pertaining to educational level by age for population ageing 7 and above provided in Table C-8 of Census 2011. For the purpose of evaluation of MYS we have used the method suggested by the UNESCO Institute of Statistics (UIS 2013).

$$\text{MYS} = \sum_{l} \text{HS}_l \times \text{YS}_l$$

Where HS_l is proportion of the population for which the level of education l is the highest level attained to total eligible population (above 25 years of age) and YS_l is official duration of the level of education l. The official duration of the level of education is considered for the purpose is provided hereunder. Please note that population with unclassified educational level or age is not considered for the calculation.

I. Below Primary =2.5 years
II. Primary =5 years
III. Middle =8 years
IV. Secondary =10 years
V. Higher secondary =12 years
VI. Diploma both technical and non-technical=12
VII. Graduate and above=15 years

Rationale: In a country like India, where a quarter of the population is yet to be liberated from the incarceration of illiteracy, spread of literacy remains one of the most important goals of human development. Moreover, it has been observed that a large section of the populace remains illiterate in States and UTs like NCT of Delhi and Chandigarh etc., though they emerge as the best performing regions in the country when it comes to MYS. On the other hand, literacy alone is not sufficient to gauge the educational achievements of a population, and improvement in MYS is a necessary condition for human development.

The index for the components of each dimension is prepared by using the formula

$$x_i = \frac{x_{ij} - x_{min}}{x_{max} - x_{min}}$$

Where x_i denotes index of i^{th}indicator and x_{ij}stands for value for i^{th}indicator for j^{th}state; $x_{min}$and $x_{max}$are the goalposts, in most of the cases the minimum and maximum observed values respectively of the respective indicators.

The indicators under each dimension, their minimum and maximum values, weights attributed and the source are given below.

Since our HDI analysis is not inter-temporal, we have used observed minimum and maximum values as goalposts (for health and income dimensions).

Table 10.1: Goalposts and weights for various dimensions used to calculate HDI

Indicator	Minimum	Maximum	Weight
1. Economy			
Per capita NSDP at constant price (2004-05) 2012-13[2]	14904	145923	1/2
Monthly Per-capita Consumption Expenditure 2011-12[3]	1177	3678	1/2
2. Health			
Reciprocal of Death Rate	1.6	6.9	1/3
Infant Survival Rate (ISR)	946	991	2/3
3. Education			
Literacy rate of persons ageing 7 and above[4]	0	100	1/3
Mean Years of Schooling	3.6	8.2	2/3

[2]Databook planning commission
[3] Calculated using NSSO 68th round data
[4] Census 2011

Figure 10.1: Human Development Index of India States

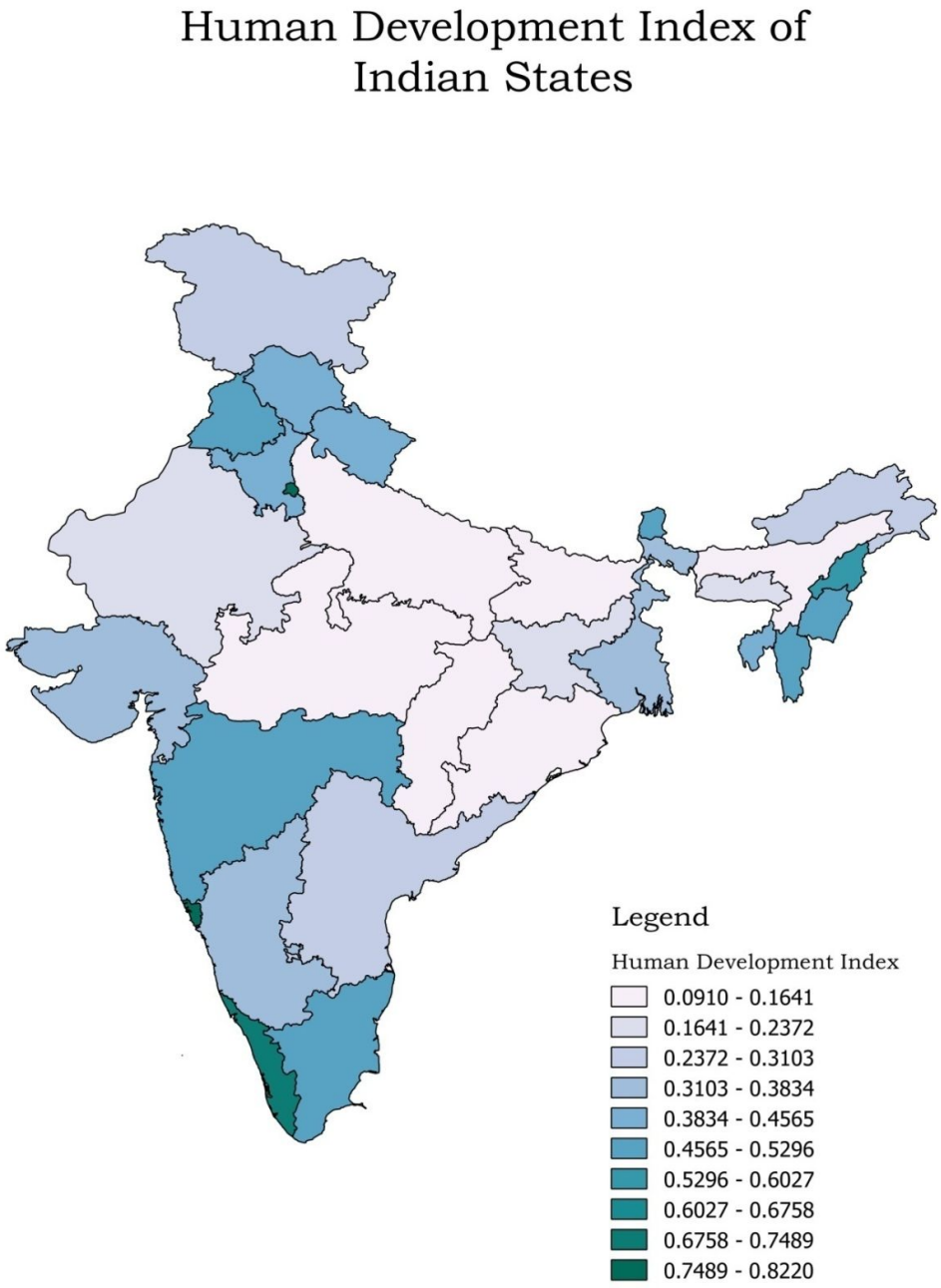


Table 10.1: Human Development Indices of Indian States

State	Income		Health		Education		Composite	
	Index	Rank	Index	Rank	Index	Rank	Index	Rank
Delhi	0.8971	1	0.7149	5	0.8551	1	0.8224	1
Goa	0.8723	2	0.7799	3	0.7183	3	0.7901	2
Kerala	0.5562	3	0.7166	4	0.8062	2	0.6930	3
Nagaland	0.3119	14	0.8667	2	0.4312	12	0.5366	4
Maharashtra	0.4805	5	0.5828	8	0.5122	7	0.5252	5
Manipur	0.0987	23	0.9286	1	0.5143	6	0.5139	6
Sikkim	0.3909	8	0.6753	6	0.4043	14	0.4902	7
Mizoram	0.2726	15	0.5393	10	0.6488	4	0.4869	8
Tamil Nadu	0.3864	9	0.5581	9	0.4764	9	0.4736	9
Punjab	0.4349	6	0.5217	11	0.4372	11	0.4646	10
Himachal Pradesh	0.3948	7	0.3884	17	0.5709	5	0.4514	11
Uttaranchal	0.3339	12	0.4706	13	0.5051	8	0.4365	12
Tripura	0.1699	21	0.6475	7	0.4721	10	0.4298	13
Haryana	0.5332	4	0.3247	20	0.4193	13	0.4257	14
Karnataka	0.3646	11	0.4288	16	0.3275	16	0.3736	15
Gujarat	0.3707	10	0.3862	18	0.3578	15	0.3716	16
West Bengal	0.1959	20	0.4665	14	0.3072	17	0.3232	17
Jammu & Kashmir	0.2270	17	0.4468	15	0.2294	18	0.3011	18
Arunachal Pradesh	0.2529	16	0.4894	12	0.1239	26	0.2887	19
Andhra Pradesh	0.3120	13	0.2914	21	0.1247	25	0.2427	20
Meghalaya	0.2023	19	0.1540	24	0.2213	21	0.1925	21
Jharkhand	0.0795	25	0.3525	19	0.1047	27	0.1789	22
Rajasthan	0.2113	18	0.2232	23	0.0746	28	0.1697	23
Chhattisgarh	0.0658	27	0.1500	25	0.1549	23	0.1236	24
Uttar Pradesh	0.0807	24	0.1033	26	0.1647	22	0.1162	25
Assam	0.0696	26	0.0377	28	0.2282	19	0.1118	26
Odisha	0.0446	28	0.0444	27	0.2224	20	0.1038	27
Bihar	0.0000	29	0.2910	22	0.0000	29	0.0970	28
Madhya Pradesh	0.1034	22	0.0252	29	0.1447	24	0.0911	29

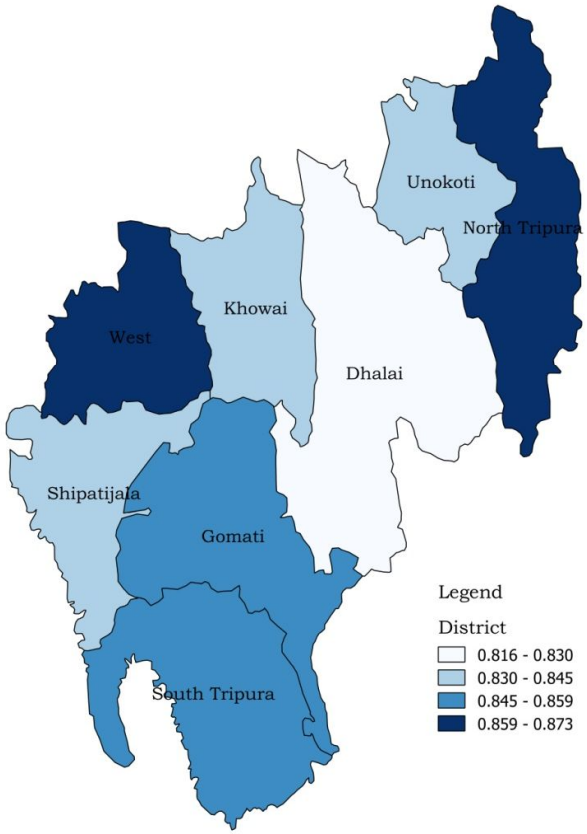
Inter-district HDI

Calculation of district level Human Development Index (HDI) becomes further difficult due to the same reasons that we have mentioned while discussing HDI for Indian states. The population of the districts of Tripura is much smaller; therefore,availability of relevant data becomes scarcer, especially as far as district-wise health outcomes are concerned. Moreover, large scale datasets like the Census of India, NFHS, DLHS etc. segregate the stateon the basis offour erstwhiledistricts, while the number of districts has doubled during 2012 due to reorganization of the districts. As a result we had to consider data from Health Management Information System (HMIS) – the only available dataset for eight districts related to health services and outcomes which provide district level information. Given these data related difficulties, two qualifications are in order here. One, at the district level, it has not been possible to use the standard health indicator of life expectancy at birth. Instead, we have sought to innovatively use other proxies for health status of the people in Tripura, as described below, drawing on HMIS data. Two, and consequently, we remain mindful of the usual concerns raised about the dependability of data not culled from standard publicly recognized sources.

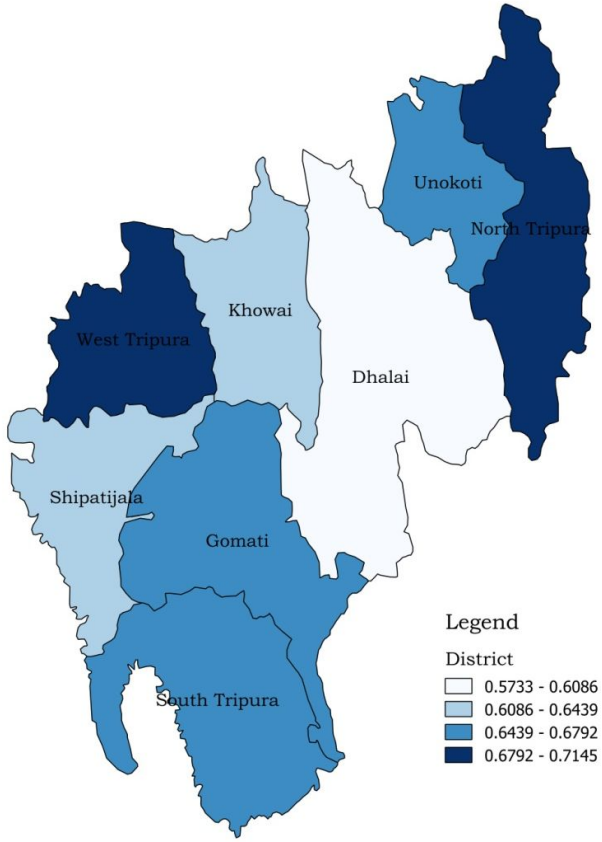
	Economy		Health		Education		Composite	
District	Index	Rank	Index	Rank	Index	Rank	Index	Rank
West Tripura	0.7145	1	0.9557	4	0.9499	1	0.8734	1
North Tripura	0.6886	2	0.9659	1	0.9355	2	0.8633	2
South Tripura	0.6776	3	0.9603	2	0.9116	8	0.8498	3
Gomati	0.6643	4	0.9537	5	0.9186	6	0.8455	4
Unokoti	0.6557	5	0.9412	8	0.9278	3	0.8415	5
Sepahijala	0.6356	6	0.9533	6	0.9167	7	0.8352	6
Khowai	0.6249	7	0.9568	3	0.9202	5	0.8340	7
Dhalai	0.5733	8	0.9527	7	0.9222	4	0.8161	8

A quick comparison of economic performance of the districts in the last two decades in the State reveals an interesting trend: the inter-district gap in per capita income at current prices between the best and the worst of the then four districts was relatively modest (about 12 percent) in the early 1990s; the gap started widening in late 1990s (20 percent), peaking

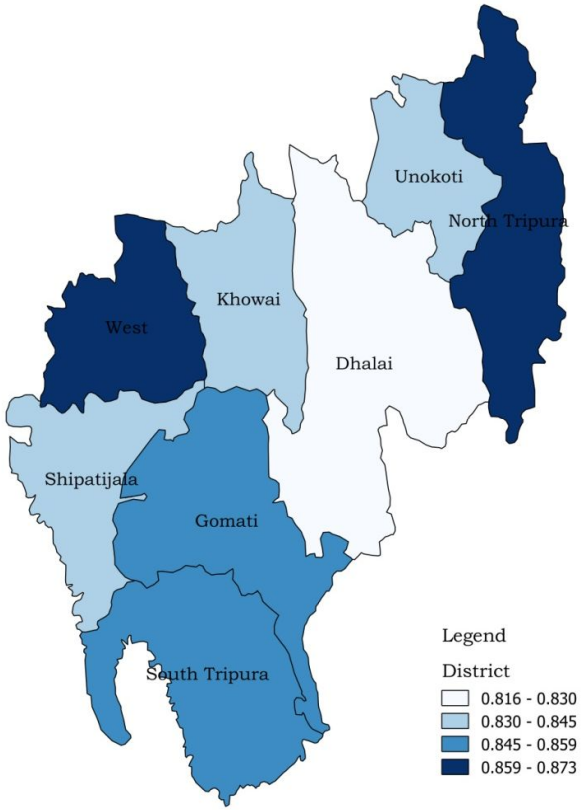
District-wise Composite Index



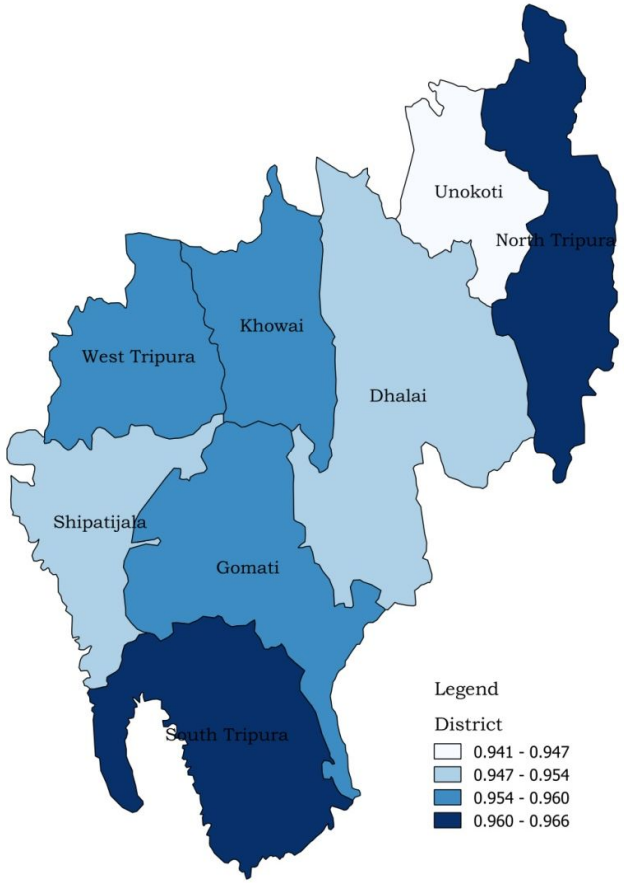
District-wise Income Index



DIstrict-wise Educational Index



District-wise Health Index



around 2000-01(24 percent). Promisingly, as the District Domestic Product (DDP) data 2013-14 indicate, this trend is being reversed.

The method of calculation of index for each indicator remains the same as in the case of HDI calculation of the states of the India union. For actual values and goal posts, please see the table below. While the economic indicator depends on a single variable, for the other two indicators we have used arithmetic mean of the variables used.

	Economy	Education		Health		
Name of District	per capita DDP 2013-14 at current price base 2004-05	Literacy rate of 7+ population	Net Enrolment Ratio	% live births to Reported Births (3 Year average2013-14 to 2015-16)	% of newborns having weight 2.5 kg or more (3 year average 2013-14 to 2015-16)	Infant Survival Reported per thousand live births (3 year average 2013-14 to 2015-16)
1	2	3	4	5	6	7
Dhalai	61599	85.7	98.74	97.8	89.7	984
Gomati	69786	84.5	99.21	98.4	88.6	992
Khowai	66243	87.8	96.24	98.4	89.2	994
North Tripura	71978	87.9	99.2	98.0	93.1	987
Sepahijala	67200	84.8	98.53	98.7	88.1	992
South Tripura	70982	84.7	97.61	99.0	89.6	994
Unokoti	69009	86.9	98.65	97.6	85.9	989
West Tripura	74302	91.1	98.87	98.1	89.3	993
Minimum	10000	0	0	0.0	0.0	0
Maximum	100000	100	100	100	100	1000
Weight	1	½	½	1/3	1/3	1/3

Source: Column 2-Directorate of Economics and Statistics, Government of Tripura. Column 3-Census of India, data rearranged for newly created districts by Directorate of Economics and Statistics, Government of Tripura. Column 4-Department of School Education, Government of Tripura. Column 5 to 7-Health Information Management System