

## Assessing the performance and ranking of aspirational districts of Assam through Composite Index

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### ABSTRACT

*Human Wellbeing vis-à-vis Economic Development are two interlinked fundamental bases which catalysis the overall development of a district and the nation as a whole. ‘Transformation of Aspirational Districts’ is a unique initiative started in January, 2018 by the Indian Government with an aim to transform India by 2022. Measurement of Performance of a district/region or a country as a whole has always been a challenging task and mostly the choice of indicators and the construction methodology adds up to the difficulty level for the researcher and administrators for policy formulation. In this context, the paper attempts to construct composite index of performance for the seven aspirational districts of Assam basing on the parameters of Health and Nutrition, Education and Basic Infrastructure for the period 2018 to 2022, based on the secondary data obtained from NITI Aayog website. Further, ranking of the districts developed out of the Composite Index is checked for variations over the years. The districts recorded variation in the their ranks for all the parameters.*

**Keywords:** Human Development Index, Composite Index, Human Well-being, Economic development, Weighing and Aggregation of Indicators.

### INTRODUCTION

Transforming economic success to social development is a challenging task. Country like India, wherein the measurement of success is done through the narrow confinement of economic prosperity only. Post-independence, India has recorded the upward trend in the overall growth and development, but still it has a larger scope for improvement. The possible reason could be, the schemes, initiatives have not penetrated to the grass root level which includes the downtrodden citizens of the country. Similar to the other country, India also recognises Gross Domestic Product (GDP) as the only determinant for development. The nexus between financial development and economic growth taking GDP as the indicator of economic growth substantiates the development of a region/country (Murari. K, 2017). However, GDP only captures the material well-being (Stiglitz. J, 2018). There are other aspects of growth measures which need to be focussed upon for recording the inclusive growth.

The broader aspect of Human well-being and development is missing one, which pushed down India in term of Human Development Index (HDI) ranking. According to UNDP report 2020, India is placed at 131<sup>st</sup> position with a score of 0.645, while in 2019 it secured 102<sup>nd</sup> rank in HDI. This necessitates the initiatives like Aspirational District Programme. Secondly, India has large regional disparities which differentiates the most developed regions from the least develop ones. The disparity is evident in terms of the per capita income which divides the richest states from the poorest ones. The disparity exists across

states as well as within states. To counter this disparity the ADP came into existence which visualises on uplifting the least developed districts and states of India.

The article is organised under different sections along the sequence of: The Abstract and Introduction as discussed above followed by Theoretical Framework and Literature Review, which leads towards the identification of research gap. Under the Methodology section, setting of objectives is done along with the rationale of the study, research design and data source. Further the methodology for creation of composite index is also discussed followed by the analysis. Next section contains the findings, discussion and conclusion. Final section includes the policy recommendations and future research directions.

## **Theoretical Framework**

### **Measures of Well-being & Development**

Economic Growth and Development represents the status of progress made by any country, state or region. In the context of economic progress of districts, Economic potential Index is calculated. Economic potential is measured in terms of the ability of the major determinants which can yield increased level of productivity (Robert. M, 2016). The EPI index summarizes the important determinants such as market proximity, economic density, level of urbanization, human skills, and transportation facilities. The dynamics of economic growth fuelled by human capital investment and labour force employment is tested to establish their long run relationship (Mitra. B, 2016). 'Well-being' a widely accelerated topic in social science highlights the concept that refers to the state of an individual's life. It reviews the different course of actions or achievements that creates a valued life or ensures quality of life. It is treated as one of the reliable method to assess the human progress or development state of citizen's life in a country, state or region. Human well-being is multidimensional in nature, as it measures the degree to which an person, family, or community can be recognised as being robust, happy, and prosperous. (Pollnac et al., 2006). The term 'well-being' and the use of its related concept is widespread, although there is lesser uniformity in them. The terms like quality of life, living conditions and standards etc. are used interchangeably. Well-being is a subjective matter, where individual perception, satisfaction, happiness comes into picture. Well-being talks about meeting different human needs, which are essential for material life as well as fulfilment of individual goals leading to satisfaction (OECD, 2011). It is a complex and multi-dimensional concept addressing different parameters/indicators: material Living condition (economic well-being), quality of life (non-monetary attributes) and sustainability.

### **Aspirational Districts Program- A Closer Look**

Development of Human Resource and the Economic Progress are the interlinked concepts which catalysis the overall development of a district and the nation as a whole. With the years passed by, progress in economic terms mostly the GDP has become the major determinant for weighing the attainment of success of a country, and while doing so, development lags behind the race. To bring back the parity and refocussing of core area of development, the Government of India has initiated the 'The Aspirational District Programme (ADP)'. Post-independence, India has recorded the upward trend in the overall growth and

development, but still it has a larger scope for improvement. The possible reason could be, the schemes, initiatives have not penetrated to the grass root level which includes the downtrodden citizens of the country. Similar to the other country, India also recognises GDP as the only means of development. In contrast to this concept, Joseph Stiglitz (2018) have different opinion on the concept of using GDP as a measure of success of any country, as GDP only stress on economic well-being. There are other aspects of growth measures which need to be focussed upon for recording the inclusive growth. The flagship program ‘Transformation of Aspirational Districts’ by the Government of India started in January, 2018 aims at create a New India by 2022 in which the emphasis lies to upscale the HDI ranking of India, thereby uplifting the standard of living of natives and secure integrated growth. In this backdrop, this study is an attempt towards assessing the impact of Aspirational District Program and the basic indicators of economic and human well-being. The literature related to economic growth as well human well-being highlights the two-way relations in the context of income and other financial parameters of growth. But as far as the policy implication and relative evaluation of govt. schemes and programs are concerned, they are still unexplored. The Transformation of Aspirational Districts Programme has been implemented in 112 districts of India and active for more than four years till now. During this timeframe, the ADP has created a positive result at the elementary level in terms of the socio-economic subthemes mentioned in the program. In this context, the proposed study attempts to shed light on the aspect of both economic growth and human well-being and in turn reflecting the quality of life indicators. This paper will provide an understanding of the performance of aspirational districts under the ADP and also the threats and possibilities it presents while implementation and execution. It will also generate ideas as learning outcomes for other nations that have in view to follow such programs. In addition, the program will also assist the government of India in case of extension of program in other districts of the country.

### **Literature Review**

As per the literary evidences and the general theoretical accords, there are three dimensions of well-being; objective, subjective and relational wellbeing (Boarini et al., 2014). These classification of well-being is the result of the contributions derived from various social science disciplines (Schleicher et al., 2017). OECD (2011) highlighted the important linkage between income and wealth with individual’s well-being, whereas the Australian Bureau of Statistics included household economic well-being as one of the dimensions of its Measures of country’s Development. Human welfare and well-being is the major thrust areas where government looks for better performance. Although GDP, GNP are the primary measures of well-being, but human well-being is much wider than this economic aspects. Well-being includes policy framework on universal primary education, clean and safe drinking water, better health infrastructure, improved living conditions, skill generation and employment opportunities. Wong (2001), highlighted the relationship between quality of life and economic development. Esterlin (2017) explored to what extent the improvement in quality of life is linked with economic growth. Wolfers & Stevenson (2008), examined the relationship between changes in subjective well-being and income generation within countries. Well-being includes policy framework on universal primary education, clean and safe drinking water, better health infrastructure, improved living conditions, skill generation and employment opportunities. Ghosh (2006), evaluated the

performance of 15 Indian states on Human development and examined the linkage between economic growth and human development. Chakrabarty & Mukherjee (2011), analysed the relationship between economic growth and human development for 28 states over the decades. The paper examined that to what degree and extent the per capita income influenced the human development across the states. Joshi (2007) highlighted the impact of good governance on Human Development Indicators. Behra (2016), mentioned Human welfare has broader spectrum of equity, capabilities, basic needs, sustainability etc. which necessitate the need of wider range of parameters and indicators which measure the development on larger perspectives.

### **Research Gap**

While reviewing the previous literary work it is observed that, only few selective government reports are only available related to the 'Aspirational Districts Program'. Also, keeping in touch with Sustainable Development Goal (SDG), it becomes imperative to throw light on the primary/basic pillars of developmental indicators to gauge the status of a region/district.

## **METHODOLOGY**

### **Objectives**

The paper attempts to fulfil two objectives. First is to construct composite index of performance for the seven aspirational districts of Assam basing on the parameters of Health and Nutrition, Education and Basic Infrastructure for the period 2018 to 2022. Secondly, the ranking of the districts developed out of the Composite Index is checked for variations over the years.

### **Rationale of the Study**

The rationale of the study is grounded on the fact that, measurement of Performance of a district/region or a country as a whole has always been a challenging task and mostly the choice of indicators and the construction methodology adds up to the difficulty level for the researcher and administrators for policy formulation. Composite Index being comprehensive and multidimensional in nature can summarize the various aspects of multiple indicators by aggregating them in a single figure. The diverse nature of the performance indicators under Aspirational Districts Program specified by the NITI Aayog can be brought under the purview of composite index and the districts can be ranked accordingly. Thus the ranking so created will provide a clear and consistent image to the administrators regarding the performance of the districts under the Aspirational Districts Programme.

### **Research Design and Data Sources**

The study is exploratory in nature and aimed at providing clear understanding of the performance of the districts under Aspirational Program and their counterparts in terms of the developmental parameters. The study focuses on the 7 aspirational districts of Assam viz. Barpeta, Darrang, Dhubri, Goalpara, Hailakandi, Baksa and Udalguri. The data is collected from NITI Aayog's dedicated web platform "Champions of Change". Appropriate statistical tools are used for composite index development and other required areas of

quantitative assessments. The measurement of composite index and its related methodology is discussed in the following section.

### ***Measurement Framework of Aspirational Districts***

The state Assam situated in the north eastern corner of India has 34 Districts and state head quarter at Dispur, Guwahati. The state shares its border with 7 states like Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and West Bengal. Assam is the largest economy in the northeast region. The state is relatively close to the rest of the country in comparison with other North Eastern states, which offers a congenial atmosphere for the industry. The state area is 78,438 sq km which is the home to 3.6 crores of people (Census estimate 2021). Majority of the state's population around 86% resides in rural areas and the rate of urbanisation is slow. The state's performance in the basic development spectrum is low in comparison with all India average.

Keeping in pace with the Planning Commission's Sustainable Development Goal (SDGs), Assam is striving hard to realise it in the domain of critical sectors for human development and basic indicators of life. The flagship program of Aspirational Districts provides the right impetus towards inclusive development and hence improved indicators. Assam has 7 aspirational Districts viz. Barpeta, Darrang, Dhubri, Goalpara, Hailakandi, Baksa and Udalguri. Under Health & Nutrition theme, a total of 13 indicators are there with the thrust areas of prenatal and postnatal care, gender equality, newborn health facilities, child health, infectious diseases, and health infrastructure. In the Education theme, 8 indicators are mentioned with the focus on learning outcomes related to transition rates, score in mathematics and language subjects for primary, upper primary as well as secondary level, institutional infrastructural facilities and institutional governance indicators. Under the Basic Infrastructure, 7 indicators are recorded covering housing facility, drinking water, sanitation facilities, electricity and connectivity.

### ***Methodology for Constructing Composite Index of Performance***

The Composite Index (CI) is based on how multiple variables or indicators are combined to provide the overall assessment. Various combinations of component indicators yield distinct confidence intervals (CI) and ranks within a given dataset. The steps for constructing composite index includes, normalisation of indicators, Weighting of indicators and finally aggregating them into a single index.

#### ***Normalisation of Indicators***

The normalisation of indicators is done in the study to make the variables under study unit free pure numbers. Although different normalization techniques are available, for the purpose of this study re-scaling method of indicators is used. Under this method, the raw data is normalised by the following formula for each year (2018 to 2022) separately.

$$x_{norm} = \frac{x - \min(x)}{\max(x) - \min(x)} \quad \dots (1)$$

Where,  $\min(x)$  and  $\max(x)$  are the minimum and the maximum values of the  $x$  across all the aspirational districts. In this way, the normalized indicators  $x_{norm}$  have values lying between 0 and 1.

*Weighting of Indicators*

After normalising the data, the normalizing constant (C) is calculated as follows,

$$C = \left[ \sum_{i=1}^n \frac{1}{\text{Standard Deviation of } x_{norm}} \right]^{-1} \dots (2)$$

Next, the weights of the sub parameters by the following formula

$$W_k = \frac{c}{\text{Standard Deviation of } x_{norm}} \dots (3)$$

*Composite Index of Performance*

Finally, Composite Indices (CI) have been calculated by the following formula

$$CI = W_1 \times x_{norm1} + W_2 \times x_{norm2} + \dots + W_k \times x_{normk} \dots (4)$$

**Data Analysis**

**Ranking of the Aspirational Districts**

Based on the construction methodology of composite index, the following table 1, table 2 and table 3 are constructed to observe the composite indices in terms of ‘Education’, ‘Health and Nutrition’ and ‘Basic Infrastructure’ for seven Aspirational districts of Assam from 2018 to 2022.

**Table 1: Composite Indices (CI) and the rankings in terms of ‘Education’ for seven Aspirational districts of Assam from 2018 to 2022**

Districts	2018		2019		2020		2021		2022	
	CI	Rank	CI	Rank	CI	Rank	CI	Rank	CI	Rank
Baksha	0.7313	2	0.5024	6	0.7324	3	0.5571	7	0.5087	7
Barpeta	0.4500	6	0.3242	7	0.2167	7	0.6155	5	0.6903	3
Darrang	0.7057	4	0.6771	3	0.6659	4	0.9398	1	0.9854	1
Dhubri	0.6857	5	0.6041	4	0.4571	6	0.6036	6	0.6344	6
Goalpara	0.7708	1	0.7861	2	0.8681	1	0.8358	2	0.8205	2
Hailakandi	0.4265	7	0.9140	1	0.8446	2	0.7314	4	0.6672	4
Udalguri	0.7075	3	0.5265	5	0.4582	5	0.8056	3	0.6638	5

Source: Author’s Own Calculation

**Table 2: Composite Indices (CI) and the Rankings in terms of ‘Health and Nutrition’ for Seven Aspirational Districts of Assam from 2018 to 2022**

Districts	2018		2019		2020		2021		2022	
	CI	Rank	CI	Rank	CI	Rank	CI	Rank	CI	Rank
Baksha	0.5451	3	0.5760	4	0.5261	6	0.5679	4	0.6189	4
Barpeta	0.6542	1	0.6646	2	0.6564	3	0.6558	3	0.6482	3
Darrang	0.4907	4	0.6013	3	0.7428	1	0.7440	1	0.6528	2
Dhubri	0.4506	5	0.5016	6	0.5850	5	0.5659	5	0.5365	5
Goalpara	0.6482	2	0.7847	1	0.7303	2	0.6641	2	0.6806	1
Hailakandi	0.4441	6	0.5334	5	0.6047	4	0.5008	6	0.4395	6
Udalguri	0.3789	7	0.3303	7	0.3537	7	0.3306	7	0.2908	7

Source: Author’s Own Calculation

**Table 3: Composite Indices (CI) and the Rankings in terms of ‘Basic Infrastructure’ for Seven Aspirational Districts of Assam from 2018 to 2022**

Districts	2018		2019		2020		2021		2022	
	CI	Rank	CI	Rank	CI	Rank	CI	Rank	CI	Rank
Baksha	0.1991	7	0.4472	6	0.7628	2	0.7609	4	0.7327	4
Barpeta	0.5216	4	0.5446	5	0.2324	7	0.3550	7	0.2746	7
Darrang	0.5097	5	0.7040	3	0.6353	5	0.5010	5	0.4394	6
Dhubri	0.6120	2	0.5763	4	0.6622	4	0.8422	2	0.8924	2
Goalpara	0.5602	3	0.9147	1	0.9442	1	0.9186	1	0.9231	1
Hailakandi	0.9717	1	0.7976	2	0.7328	3	0.8037	3	0.8653	3
Udalguri	0.4174	6	0.3718	7	0.2981	6	0.3827	6	0.5331	5

Source: Author’s Own Calculation

**Variation of Rank of the Aspirational District over the years**

The check the variations in rank over the years for the Aspirational districts, coefficient of variation (CV) is also performed. The coefficient of variation (CV) is a relative measure of variability that indicates the size of a standard deviation in relation to its mean. Coefficient of variation facilitates to compare the variability of significantly different groups of variable in a research study.

Calculating the coefficient of variation involves a simple ratio. Simply take the standard deviation and divide it by the mean.

$$CV = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100 \quad \dots (5)$$

**Table 4: Result of Coefficient of Variation (CV) for the Aspirational districts in terms of ‘Education’ for the year 2018 to 2022**

Districts	2018	2019	2020	2021	2022	Coefficient of Variation (CV)
	Rank	Rank	Rank	Rank	Rank	
Baksha	2	6	3	7	7	42%
Barpeta	6	7	7	5	3	27%
Darrang	4	3	4	1	1	52%
Dhubri	5	4	6	6	6	15%
Goalpara	1	2	1	2	2	31%
Hailakandi	7	1	2	4	4	57%
Udalguri	3	5	5	3	5	23%

*Source: Author's Own Calculation*

It is observed from table 4 that the percentage (57%) of variation in rank is higher in Hailakandi district and lower in Dhubri district (15%) in terms of Education. The higher the coefficient of variation, the greater the level of dispersion around the mean and lower values for the coefficient of variation are considered better because there is less variability around the mean.

**Table 5: Result of Coefficient of Variation (CV) for the Aspirational districts in terms of ‘Health and Nutrition’ for the year 2018 to 2022**

Districts	2018	2019	2020	2021	2022	Coefficient of Variation (CV)
	Rank	Rank	Rank	Rank	Rank	
Baksha	3	4	6	4	4	23%
Barpeta	1	2	3	3	3	33%
Darrang	4	3	1	1	2	53%
Dhubri	5	6	5	5	5	8%
Goalpara	2	1	2	2	1	31%
Hailakandi	6	5	4	6	6	15%
Udalguri	7	7	7	7	7	0%

*Source:*

*Author's Own Calculation*

It is observed from table 5 that the percentage (53%) of variation in rank is higher in Darrang district and lower in Udalguri district (0%) in terms of Health and Nutrition.

**Table 6: Result of Coefficient of Variation (CV) for the Aspirational districts in terms of ‘Basic Infrastructure’ for the year 2018 to 2022**

Districts	2018	2019	2020	2021	2022	Coefficient of Variation (CV)
	Rank	Rank	Rank	Rank	Rank	
Baksha	7	6	2	4	4	38%
Barpeta	4	5	7	7	7	21%
Darrang	5	3	5	5	6	20%
Dhubri	2	4	4	2	2	35%
Goalpara	3	1	1	1	1	57%
Hailakandi	1	2	3	3	3	33%
Udalguri	6	7	6	6	5	11%

*Source: Author's Own Calculation*



Table 6 shows that the percentage (57%) of variation in rank is higher in Goalpara district and lower in Udalguri district (11%) in terms of Basic Infrastructure.

## FINDINGS AND DISCUSSION

Composite indices are developed for the 7 aspirational districts based on three subthemes under study, i.e. Education, Health and Nutrition, Basic Infrastructure. Accordingly, ranks of the 7 districts are also calculated. In case of Composite Indices (CI) and the rankings in terms of 'Education' for seven Aspirational districts of Assam from 2018 to 2022, the districts obtained different ranks over the years. Similarly, in case of the Composite Indices (CI) and the rankings in terms of 'Health and Nutrition' and 'Basic Infrastructure' for seven Aspirational districts of Assam from 2018 to 2022, variations in ranks among the districts are observed. Further, to check the variations in rank over the years for the Aspirational districts, coefficient of variation (CV) has been performed. For the subtheme Education, it is observed that, the percentage (57%) of variation in rank is higher in Hailakandi district and lower in Dhubri district (15%). In case of Health and Nutrition, it is observed that the percentage (53%) of variation in rank is higher in Darrang district and lower in Udalguri district (0%). The percentage (57%) of variation in rank is higher in Goalpara district and lower in Udalguri district (11%) in terms of Basic Infrastructure. Overall, it may be conclude that the ranks are equally distributed around its mean in case of Education for Dhubri district and conversely for Hailakandi district.

With the years passed by, well-being in economic front became the major determinant for estimating the performance of a country, and while doing so, development was lagging behind in gaining attention from the policy makers. The Aspirational Districts Program is targeted towards achievement of developmental goals in line with the Sustainable Developmental Goals (SDGs). This initiative of Government of India has generated evidence based data for guiding the policy makers regarding the existing gaps in the various developmental parameters. The core approach of ADP has resulted into a data-driven governance system. It is evident that ADP has positively impacted the whole developmental targets of districts in particular and country as a whole. But there are still some challenges and issues that need to be addressed.

The findings of the study advances the way for measuring the progress of a district/state/country in terms of overall development going beyond the measures of GDP only.

### **Policy Recommendation**

Few suggestions are recorded below for the better outcome based measurement of Aspirational District Program.

- Apart from the existing broad themes under the Aspirational Districts Program (ADP) program, it should cover other themes such as various human welfare dimensions of basic human needs, wellbeing parameters (Access to Basic Education, Access to ICT, Environment and Ecology), Basic Rights and Opportunity (Personal Right, Opportunity to Employment and Startup, Access to Advance Education)

- As the Aspirational Districts Program (ADP) carries a competitive aspect following the ranking system, there has been some major concerns regarding the discrepancies in data collection and the recording of the data in the portal. It can be eliminated by the inclusion of new methodology of performance evaluation of districts.
- Finally, for the successful implementation of Aspirational Districts Program (ADP) and for wider coverage of the program to the other parts of the country wherein the program has not been covered so far, proper support system from the government should be envisioned targeting to capacity building program, resource allocation and mobilization, training and technical support expertise at the block level of the districts.

### **Conclusion**

The seven Aspirational Districts of Assam recorded notable progress in terms of Health and Nutrition, Education and Basic Infrastructure parameters over the years of implementation of the Aspirational Districts Programme in the state. The ADP has brought lot of achievement in the state of Assam in terms of developmental parameters of Health and Nutrition, Education and Basis Infrastructure facilities. The program initiated awareness campaigns by the districts to reach out to the population who are far away and disengaged from the developmental programs. It further created collaboration between various stakeholders like government agencies, private and civil society sectors through numerous outreach activities. Further, the data driven methodology to record the progress of the district provides better inputs to the administration and the policy makers for formulating action based programs and policies. However, the study illustrated that in all the themes under consideration viz. Health and Nutrition, Education and Basic Infrastructure not all the sub-indicators specified by NITI Aayog are recorded. The non-inclusion of major sub-indicators limits the assessment of the district's performance which results in the discrepancy in measuring country's progress in terms of human well-being fronts. With the years passed by, well-being in economic front became the major determinant for estimating the performance of a country, and while doing so, development was lagging behind in gaining attention from the policy makers. The findings of the study advanced the way for measuring the progress of a district/state/country in terms of overall development going beyond the measures of GDP only. Further, the effectiveness of any developmental initiative/programme specifically undertaken by the government depends upon the evaluation criterion. The choice of indicators are always tricky and cumbersome task for the assessment procedure. This ADP caters to the inclusive growth of a district with active involvement from the various stakeholders, which requires extensive coverage of vital indicators and parameters of major developmental goal.

### **Conflict of interests**

The authors declare that no competing interests exist.

### **Author's contributions**

Both the authors contributed equally to the theoretical development, analysis, interpretation and writing of the manuscript. Dr. Nilanjana Chakrabarty contributed to the development of the theoretical framework, methodology analysis, and interpretation of the result and writing the manuscript. Dr. Juthika Konwar contributed in refining the theoretical framework, interpretation of the results and framing policy recommendation.

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