

Methodology - Second Delta Ranking of Aspirational Districts

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December 2018

Second Delta Ranking This ranking will incorporate inputs from the household survey conducted the partner agencies, TATA Trusts & IDInsight. The methodology to be adopted for the upcoming ranking is detailed in this document.

Data to be used For this ranking, we'll use the following data.

- Indicators estimated by survey agencies through household surveys in June 2018, & their corresponding baseline values as entered by the districts on the Champions of Change Dashboard. (9)
- Self-reported (non-validated) indicators in June & Oct with either monthly or quarterly frequency (38)
- Self-reported (validated) indicator in June & Oct with either monthly or quarterly frequency. (20)
- Point-estimates, upper & lower confidence interval of 20 survey-validated indicators provided by survey agencies. (20)

Calculating Delta Score This round of calculation will be based on the following method.

- Each indicator for each time-period is scaled to get the scaled value s_{ijk} - i (indicator); j (survey only, self-reported (non-validated), or self-reported (validated)); k (time-period)

For positive indicator

$$s = \frac{x - \min}{\max - \min}$$

For negative indicator

$$s = \frac{\max - x}{\max - \min}$$

- We then calculate the weighted sum of the scaled values for $j=1,2,3$ & $k=1,2$ to get ws_{jk}

$$ws_{jk} = \sum_i w_{jk} \times s_{jk}$$

- Calculate λ , the correction factor

$$\lambda = \frac{\text{no of self-reported values within confidence interval}}{\text{no of validated indicators}}$$

- For each time period, we calculate the composite score based on the following formula. For e.g., for time period 1 we use

$$cs_1 = \frac{ws_{11} + ws_{21} + (ws_{31} \times \lambda)}{w_1 + w_2 + w_3}$$

- Once we have cs_1 & cs_2 , the calculation of delta score is straightforward (α has been explained later in the document)

$$\Delta = cs_2 - cs_1 + \alpha$$

Half-yearly baseline ranking Along with the delta ranking, we also calculate a half-yearly baseline ranking using all the 81 data-points with the latest available data. The same methodology as explained above is followed for data as on 31st October 2018.

$$CS_{oct} = \frac{ws_1 + ws_2 + (ws_3 \times \lambda)}{w_1 + w_2 + w_3}$$

Baseline The score will be arranged in descending order to get the baseline ranking

Use of Survey Validated Data For 20 data-points self-reported by the districts, we have survey estimates provided by the agencies. The following methodology is used for replacement of self-reported values with survey estimates.

- If the self-reported value falls within the confidence interval, **do not replace self-reported value**
- If the self-reported value is greater than the upper confidence interval, **replace with the upper confidence interval**
- If the self-reported value is lower than the lower confidence interval, **replace with the lower confidence interval**

Things to note Kindly note the following

- Treatment of missing values: If a district has not entered value for a particular indicator in the month of October 2018, take September 2018 value.
- Treatment of values above 100%: Consider all values above 100% as 100%.
- Treatment of districts maintaining 100%: For districts maintaining 100% in both the time-periods (June and October 2018), an additional score α has been added to the delta score. α is the average improvement recorded by districts in indicators under 'Basic Infrastructure'.

List of Indicators: The list of indicators under each category are listed below.

- Indicators estimated through survey
 - Health: 8.1, 10.1
 - Education: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4
- Self-Reported (non-validated indicators)
 - Health: 3.1, 3.2, 4.1, 5, 11, 12.1, 12.2, 13.5, 13.6
 - Education: 7, 8
 - Agriculture: 1.1, 3.1, 4, 10
 - Financial Inclusion & Skill Development: All
 - Basic Infrastructure: All
- Survey Validated indicators
 - Health: 1.2, 1.3, 2, 4.2, 6.1, 6.2, 6.3, 7, 9.1, 9.2, 13.1, 13.2, 13.3, 13.4, 13.7
 - Education: 2, 5, 6
 - Agriculture: 8, 9