

Technical Workshop on Child Development Index Methodology Framework Review

On: 14 December 2022
Venue: The Leela, Mumbai, India
Time: 11:00 AM to 04:30 PM

Agenda

- To provide strategic and technical advice to UNICEF, IIPS and NITI Aayog on the methodology for constructing Child Development Index in India.
- To review draft methodological framework, indicators and data sources and gain better understanding and feedback on proposed dimensions, indicators, and computations.
- To discuss next steps for shaping technically sound methodology on Child Development Index in India.

Programme Schedule

Time	Programme	Speaker/ Facilitator
1045 onward	Tea and Coffee	
Session –I		
Session Chairperson: K.S. James		
1100 – 1105	Welcome Address	K. S. James , Senior Professor and Director, IIPS, Mumbai
1105 – 1110	Opening remarks	Hyun Hee Ban , Chief, Social Policy and Social Protection, UNICEF India, New Delhi
1110 – 1115	Opening remarks	Ms. Indra Mallo , Joint Secretary, Ministry of Women and Child Development, Government of India
1115 – 1120	Opening remarks	Dr. Prem Singh Bogzi , SDG Advisor, NITI Aayog, Government of India
1120 – 1130	Introductions and Background to the Project	Urvashi Kaushik , Social Policy Monitoring & Evaluation Specialist, UNICEF India, New Delhi
1130 – 1200	Presentation on Draft Conceptual Framework	Srinivas Goli , Associate Professor, IIPS
1200 - 1300	Feedback from Experts: Domains and age group	U. S. Mishra , Senior Professor., IIPS
1300 - 1400	Lunch break	
Session -II		
Session Chairperson: Hyun Hee Ban		
1400 – 1500	Feedback from Experts: Discussion on Data sources and Indicators	T. R. Dilip , Associate Professor., IIPS
1445 – 1500	Tea break	
1500 – 1520	Presentation on Methods	Srinivas Goli , Associate Professor, IIPS
1520 - 1600	Feedback from Experts	U. S. Mishra , Senior Professor., IIPS
1600 - 1615	Summary of discussion	K. S. James , Senior Professor and Director, IIPS, Mumbai. or U.S. Mishra , Professor, IIPS, Mumbai.
1615 – 1630	Next steps and Vote of thanks	Hyun Hee Ban , Chief, Social Policy and Social Protection, UNICEF India, New Delhi

List of participants

Member from NITI (Virtual)

1. **Dr. Prem Singh Bogzi**, SDG Advisor, NITI Aayog, Government of India

Member from MWCD (Virtual)

1. **Ms. Indra Mallo**, Joint Secretary, Ministry of Women and Child Development, Government of India

Experts

1. **Prof. Supriya Roy Chowdhary**, Institute for Social and Economic Change (ISEC), Bangalore.
2. **Prof. B P Vani**, CESP, Institute for Social and Economic Change (ISEC), Bangalore.
3. **Prof. Saumen Chattopadhyay**, Zakir Husain Centre for Educational Studies, SSS, Jawaharlal Nehru University (JNU), New Delhi.
4. **Prof. Lekha S. Chakraborty**, National Institute of Public Finance and Policy (NIPFP), New Delhi (Virtual)
5. **Prof. Srijit Mishra**, Indira Gandhi Institute of Development Research (IGIDR), Mumbai
6. **Prof. Abhiroop Mukhopadhyay**, Economics and Planning Unit, Indian Statistical Institute (ISI), Delhi.
7. **Prof. S Chandrasekhar**, Indira Gandhi Institute of Development Research (IGIDR), Mumbai.

Members from IIPS, Mumbai

1. **Prof. K.S. James**, Director and Senior Professor.
2. **Prof. Udaya Shankar Mishra**, Professor.
3. **Dr. TR Dilip**, Associate Professor.
4. **Dr. Srinivas Goli**, Associate Professor.
5. **Harchand Ram**, Research Analyst.
6. **Umenthala Srikanth Reddy**, Research Analyst
7. **Shalem Balla**, Project Officer.

Members from UNICEF

1. **Hyun Hee Ban**, Chief, Social Policy Social Protection, UNICEF India, New Delhi
2. **Urvashi Kaushik**, Social Policy Monitoring and Evaluation Specialist, UNICEF India, New Delhi.
3. **Mehebab Rahaman**, Technical Consultant, Child Poverty Measurement and Data, UNICEF India, New Delhi
4. **Prasanna Ash**, Planning, Monitoring & Evaluation Specialist, UNICEF India, Patna
5. **Dr. Joemet Jose**, Consultant, UNICEF India, Mumbai

Members from DES, Govt. of Maharashtra

1. **Mr. Vijay Aher**, Director, Directorate of Economics and Statistics, Government of Maharashtra
2. **Dr. Jitendra Choudhary**, Additional Director, Evaluations, Directorate of Economics and Statistics, Government of Maharashtra

Background

Sustainable Development Goals (SDGs) provides a powerful framework which has widely been accepted by the global leaders with strong consensus and political commitment towards poverty eradication. SDG target (1.2) suggests three significant step forwards to fight against child poverty- *(i) explicitly recognise children; (ii) acknowledge the multidimensional nature of poverty; and (iii) importance of national definitions*. Thus, the SDG target 1.2 calls to adopt for multidimensional measures of poverty for children and to complement the conventional monetary measures and seek to provide a more nuanced picture of child poverty. With this, it is increasingly understood that child-focused approaches with routine monitoring mechanism are required to adequately analyze and investigate the issue of child poverty (Roelen, 2010). Therefore, measuring and demystifying the complexity of child poverty is of paramount importance to develop effective policy responses which are more feasible and targeted to ensure maximum impact on child development and wellbeing.

According to recent Global MPI Report (UNDP and OPHI, 2022), India is home to the largest number of poor people in the world — 228.9 million, out of which, 97 million children are multidimensionally poor. India accounts for 17 per cent of all children living in multidimensional global poverty. South Asia accounts for 30 per cent of children in extreme poverty, but India alone is contributing 55 per cent of this. Globally, 150 million additional children have ended up in poverty since the start of the COVID-19 pandemic (Richardson et al., 2020). Since India accounts for 17 per cent of children in global multidimensional poverty, this means that as many as (or even greater than) 25 million more children in India are facing poverty in the last several months.

A child-cantered approach to poverty measurement is vital for ensuring that commitment to children's rights is monitored (Leu et al., 2016). A generally accepted and workable definition and measurement method of child poverty is an important tool for both academics and policy makers. It does not only offer the opportunity to get an insight into children's poverty status but also gives the possibility to formulate and monitor sound poverty reduction objectives, strategies and policies. UNICEF India is committed to support the Government of India. To do so, UNICEF India and NITI Aayog is working together with IIPS, technical partner, in developing a comprehensive measure to understand the multidimensional deprivations among children and launch a flagship national report on the Status of India's Children establishing the status of child development across Child Rights domains based on an adapted methodology gaining consensus among stakeholders. This initiative will provide a set of policy recommendations achieving the holistic development of every child and accelerate progress towards the SDGs to "leave no child behind".

Technical Note

Introduction

United Nations Declaration of the Rights of the Child under Article 1 defines a child as “every human being below the age of eighteen years unless, under the law applicable to the child, the majority is attained earlier”. To track the child development several countries have identified a multi-dimensional approach by measuring deficits or achievements in health, education, nutrition, protection and standard of living at household level and individual level. The multidimensionality approach for measuring human progress has been an integral part of Sustainable Development Goals, Target 1.2. Development of refined multi-dimensional indicators helps us to capture the detailed multiple faces of development and overlapping deprivations. This report attempts to develop a national level Child Development Index (CDI) tailored for Indian context to the national and state level priorities.

Several countries have started preparing a summary measure of childhood development in a multi-sectoral framework (Black et al., 2017; Guio et al., 2018; Sollis, 2019; Pinilla-Roncancio et al., 2020). At the global level, UNICEF's "The State of the World's Children 2021" focuses on multiple dimensions of child wellbeing. UNICEF's "child-related SDG indicators" highlight the most recent status and analyse the progress towards achieving the relevant SDG targets (Keeley, 2021). Attempts have also been made to develop a multidimensional child poverty index with a gendered dimension (Alkire, Haq and Alim, 2019). In the Indian context, Dreze' and Khera (2015) have developed a child development index using four indicators (three for under-five children and one for 10-14 years children). Also, in its efforts to achieve sustainable development goals while 'leaving no one behind', the Government of India, through NITI Aayog, has developed the annual SDG India index and Dashboard since 2018, and India's first Multidimensional Poverty Index (MPI) in November 2021. So far, there are no children-specific multidimensional development measures in India. In the above context, the attempt of IIPS, UNICEF and NITI Aayog to develop a report on the state of India's children using a multi-sectoral child development index across the life course of 0-18 age children by gender has been proposed.

Proposed Data Source

To construct CDI for India and its States National Family Health Survey (NFHS) will be used. This survey has several advantages, as the data can be disaggregated by age and sex or by subgroups. The measurement of variables is consistent across the space and dimension.

Proposed Methodology

The dimensions and indicators selected for age group 0-18 years are listed (see Table 1) in three categories of age: (i) 0-5 years (early childhood), (ii) 6-14 years (mid-childhood) and (iii) 15-18 years (adolescence and adulthood).

This method involves two stages one is obtaining the development score for each individual and second aggregating the score of each indicator by each dimension followed by aggregation of all the dimension and then definite cut-off to distinguish to identify the development of child. This aggregation of score for each dimension involves two partial indices one is intensity of development and second is head count of developed children. Each part of calculation has been described below.

We assigned equal weights indicators within each dimension and also across the 7 dimensions. This is also implying that the weight assigned to each indicator should not exceed the overall weight assigned to its

dimension or in other way we can say it as the summation of weights of all indicators in each dimension is equivalent overall weight assigned to its dimension.

Calculation of score for indicators

For instance, all the indicators (C_j) take values either 0 or 1. 0 indicating deprivation in the given indicator and 1 indicating otherwise. After assigning Score for each indicator, an arithmetic summation of each child is considered across all the indicators within the dimension. Within each dimension, each indicator Score is multiplied by its assigned weight. Then the weighted indicator Score has summed for each dimension to generate child deprivation score. The mathematical formulae for the aforementioned method are as below:

$$\text{Score of indicators } (C_j) = \sum_{i=1}^n x_{ij}$$

Where x_{ij} represent child i in indicator j .

Aggregation across the Dimensions

$$\text{Score} = \sum_{k=1}^7 \sum_{j=1}^N w_j C_{jk}$$

in C_{jk} , j represents the indicator of the child in the k^{th} dimension. w_j represents weight of each indicator.

Defining Well-off

Cut-off point will be decided for child development score as k , children who has greater than or equal will be considered as well-off.

$$d = \begin{cases} \text{well-off}, & \text{if score} \geq k \\ \text{not well-off}, & \text{if score} < k \end{cases}$$

Intensity of development, I , reflects the average proportion of weighted component indicators in which children are well in multi-dimensional aspects. For multi-dimensional well-off children only (those with a better-off score k greater than or equal to 33.3 tercile from the top), the development score is summed and divided by the total number of multi-dimensionally well-off children.

$$I = \frac{\sum_{i=1}^d s_i}{d}$$

Where s_i is the well-off score that the i^{th} multi-dimensionally well-off children experiences. d is total number of multi-dimensionally well-off children.

The headcount, WoC, or incidence of multi-dimensionally well-off children can be estimated as

$$\text{WoC} = \frac{d}{n}$$

Where d is the number of children who are multi-dimensionally well-off and n is the total child population.

Thus, the CDI is the product of two components: the intensity of well of children (I) and the incidence of multi-dimensionally well-off children (WoC):

$$\text{CDI} = \text{WoC} * I$$

Table 1: List of Dimension and Indicators for CDI Calculation

Dimension	Indicator	A child is well-off if
Economic Wellbeing (1/7)	Assets (Agri)	A child is well-off (assigned score 1) if household contains each of the listed item assets: ownership of various durable goods# (27); health insurance coverage (1); land ownership (1); own a house (1)
	Assets (Non-Agri)	A child is well-off (assigned score 1) if household contains each of the listed item assets: ownership of various durable goods# (27); health insurance coverage (1); land ownership (1); own a house (1)
Education (1/7)	Currently attending any preschool	Any child aged 2-4 years attending pre-school
	Educational attainment standardized for age	Any school-aged child (5+) attending school up to the age and he or she would complete class of age as per prescribed norms.
	Sexual and reproductive knowledge	If he/she in the age group (15-18) has a knowledge on ovulatory cycle knowledge and she has knowledge on sanitary practices during menstrual period.
Health and disability (1/7)	Any disability	If any person in the household has any kind of disability
	Full immunization coverage (vaccinated by Appropriate age)	Received by age 12 months for all vaccines except MCV 2, which should be received by age 18 months and Japanese encephalitis by 24 months. For children age 12-23 months, BCG, MCV/measles/MMR/MR, and three doses each of DPT/Penta and polio vaccine (excluding polio vaccine given at birth). For children age 24-35 months, BCG, two doses of MCV/measles/MMR/MR, four doses of hepatitis B, three doses each of DPT/Penta and polio vaccine (excluding polio vaccine given at birth), three doses of rotavirus vaccine, and two doses of Japanese encephalitis vaccine.
	Post-natal care of infant	New-born received first postnatal check during the first 2 days after birth
	Diarrhoea	Any child (0-5 years) has diarrhoea in last two weeks.
	ARI	Any child (0-5 years) suffered from cough accompanied by fast/ short/rapid breathes or difficulty in breathing at any time in last two weeks.
	Skilled attendant at birth	Births delivered with the assistance of doctors, auxiliary nurse, midwives nurses, midwives, and lady health visitors.
Nutrition (1/7)	Duration of exclusive breastfeeding	Exclusive breastfed is recommend as feeding of breastmilk in the first six months of their life and nothing else.
	Nutritional status (stunting, wasting, underweight)	Children in the age group 0-5 years are categorised as stunted if their height-for-age z-score is below -2SD, wasted if their weight-for-height z-score is below -2SD, and underweight if their weight for age z-score is below -2SD.

	Body Mass Index	Body Mass index (BMI) for children in the age group (15-18) are defined as weight in kilograms by height in meters squared (kg/m ²). If a children BMI is below 18.5 then they are considered as thin, normal is between 18.5-24.9, overweight is between 25-29.9 and Obese is greater than 30.
	Anaemia	A child is said to be anaemic if their haemoglobin levels are below 11 grams per decilitre.
Safety and Security (1/7)	Social wellbeing (Child marriage)	If he/she gets married below 18 years, they are considered as child marriage.
	Social wellbeing (Exposure to violent environment)	If a child (0-18) years of age are considered in violent exposure, if their mother are exposed to domestic, sexual or emotional violence in the household.
	Social wellbeing (Exposure to risky behaviours)	A child (0-18) years of age are considered in exposure to risky behaviours, if their mothers/father or any member of the household are consuming any form of tobacco.
	Birth registration	Child (0-5 years) has a birth certificate or child does not have a birth certificate, but his/her birth is registered with the civil authorities.
Caregiving (1/7)	Provision of adequate diet	Children in the age group (6-59 months and 15-18 years) had a followed a minimum meal frequency and minimum diet diversity.
	Health care provision	Children (0-18 years) When gets sick, where do they generally go for treatment
	Children living arrangement	Whether child lives with the both the parents or an orphan
	Technical assistance (mothers' education)	Educational Status of the mother
Household environment (1/7)	Source and access to drinking water	Households having access to improved source of drinking water.
	Sanitation facility	Improved non-shared toilets of the household.
	Type of cooking fuel	Whether a household has access to clean source of cooking fuel along with proper ventilation in the kitchen.
	Housing conditions	Material used in construction of roof, wall and floor the house.
	Crowding	Number of persons (de jure residents of the household along with servants and maid) living in the household and number of rooms available in the household.
	Child Death	Death of any child under the age of 18 years of age.

*numbers in the bracket represents weights for respective dimensions.




