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Multidimensional Poverty Measures: Motivations and Properties

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What is Poverty?

- "you can't think of the future because you can only see how to survive in the present" (Urban youth, Ecuador)
- "When food becomes scarce, we only eat once a day to allow our children and husbands to eat" (Women, Philippines)
- "Those without money have to wait" (Bangladesh)
- "Our parents did not go to school and so we are poor today. Education can change this." (Youth, Nigeria)
- "I am afraid that they might kill my son for something as irrelevant as a snack." (Brazilian woman).

Voices of the Poor: *Can Anyone Hear Us?* 2000

What is Poverty?

- Poverty consists of many **interlocked dimensions**. [First,] although poverty is rarely about the lack of one thing, the bottom line is **lack of food**. Second, poverty has important **psychological** dimensions such as powerlessness, voicelessness, dependency, shame, and humiliation …Third, poor people lack access to basic **infrastructure**—roads…transportation, and clean water. Fourth …poor people realize that **education** offers an escape from poverty. …Fifth, **poor health and illness** are dreaded almost everywhere as a source of destitution. Finally, the poor people rarely speak of income, but focus instead on managing **assets**—physical, human, social, and environmental—as a way to cope with their vulnerability. In many areas this vulnerability has a **gender** dimension.

Narayan et al. Voices of the Poor: *Can Anyone Hear Us?* 2000

Why Multidimensional Poverty?

This session will briefly introduce some of the reasons that multidimensional measures of poverty (and well-being) are on the upswing.

In addition to **moral or ethical** motivations, they can be divided into three types:

1. *Technical* – they can be constructed
2. *Empirical* – they add useful information
3. *Policy* – they meet policy demands

Why multidimensional poverty measurement?

We can: ***Technical***

1) Data availability
2) Computational and Methodological developments

It adds information: ***Empirical***

3) Monetary and Non-Monetary Household Deprivation Levels
4) Trends in monetary and non-monetary deprivations
5) Associations across non-monetary deprivations
6) Economic Growth and Non-income Deprivations

It improves action: ***Policy***

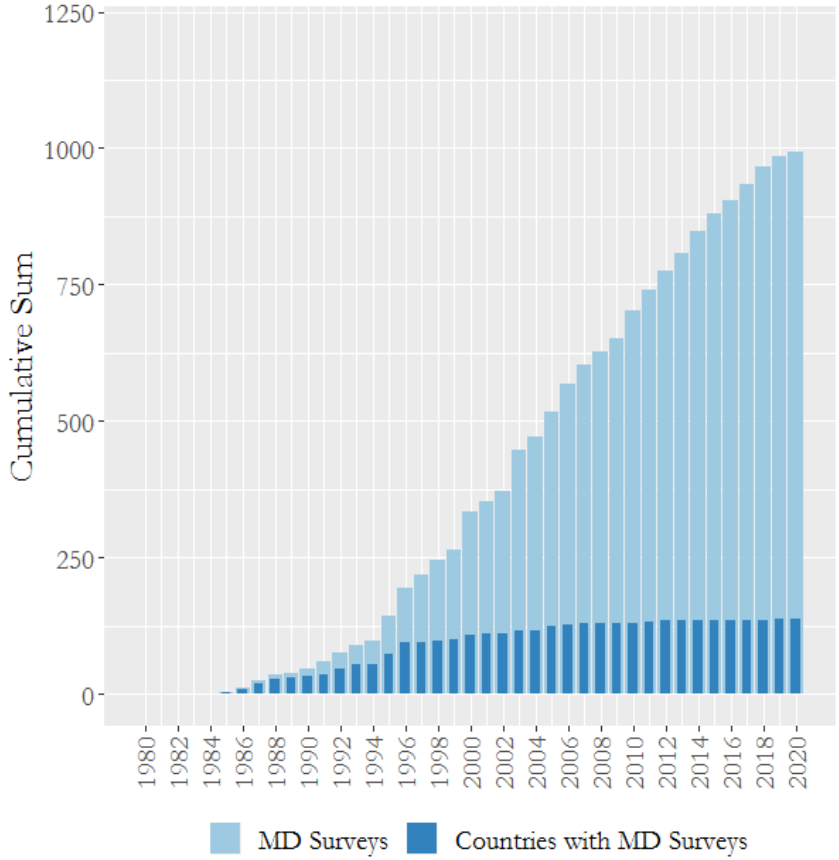
7) National and International policy 'demand'
8) Political space for new metrics

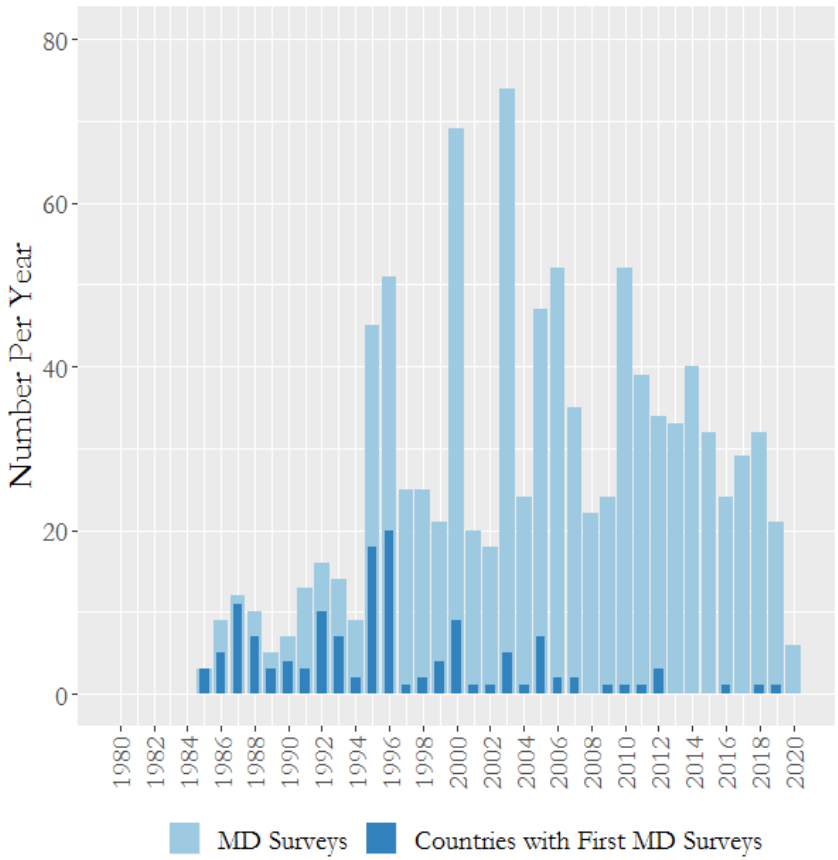
1. **Relevant Data are Increasing**

- Since 1985, the multi-topic household survey data has increased in frequency and coverage
- Similarly significant increases have occurred with income and expenditure data, censuses
- Other data sources can sometimes be merged
- Technology now exists to process and analyse these data immediately

1. Pre-Pandemic Data – MultiDimensional

Alkire & Robson 'Towards frequent and accurate data' 2021





2. Methodological developments

Increases of data availability together with increased computational power have led to the generation of new indices

- HDI, IHDI, Canada Index of Well-being, etc.
- Beyond GDP initiative
- Doing Business Index, Good Governance, Transparency, Mo Ibrahim
- Global Peace Index & related,
- SIGI & gender-related
- Social Protection, Global Hunger, Happiness, Social Progress, Legatum.

3. Is income poverty a proxy for key non-income deprivations?

Table 5. Lack of overlaps between monetary and CA poverty

Capability poverty measured as		Education		Nutrition/health	
		Children	Adults	Children	Adults
% of CA poor not in monetary poverty:	India	43	60	53	63
	Peru	32	37	21	55
% of monetary poor not CA poor:	India	65	38	53	91
	Peru	93	73	66	94

I (omission)

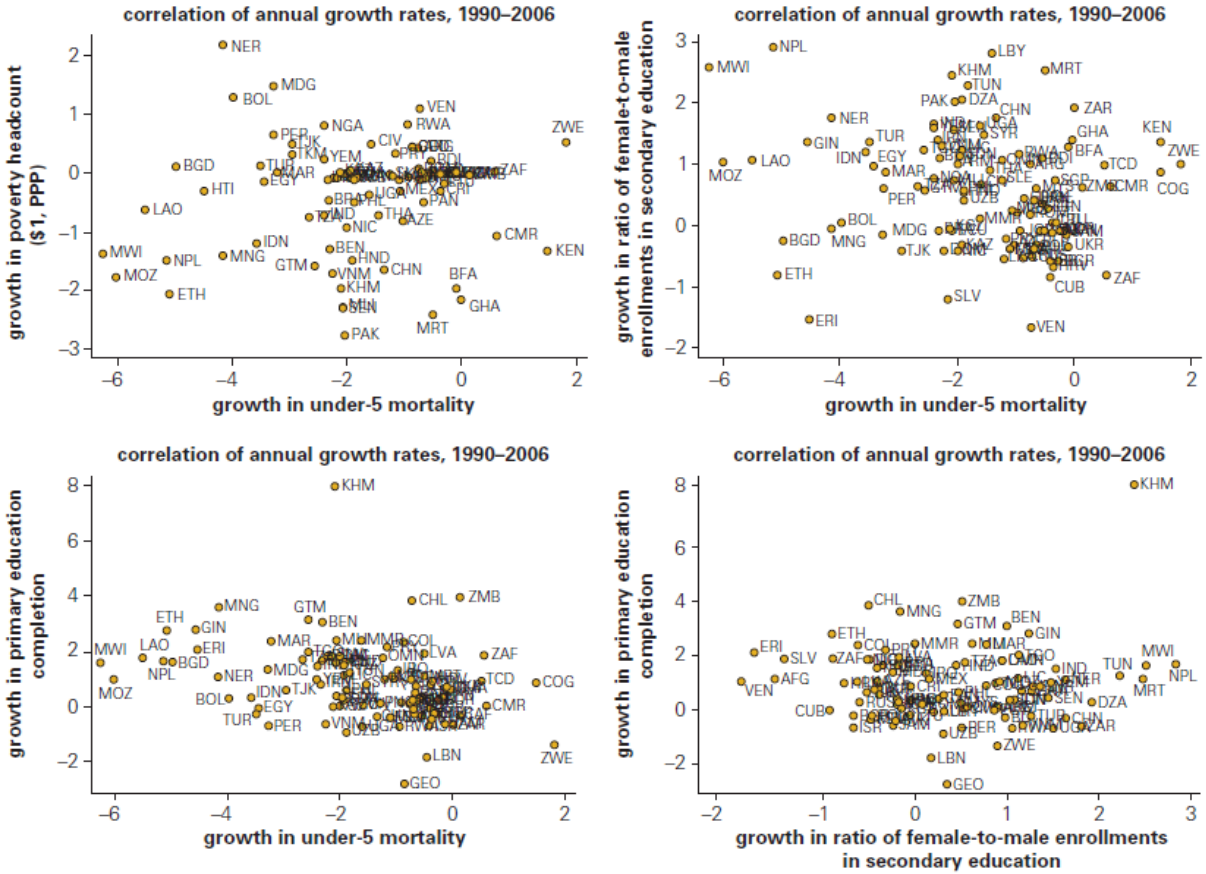
II (inclusion)

Source: Franco *et al.* (2002).

Ruggieri Laderchi Saith and Stewart 2003. 'Does It Matter That We Don't Agree on the Definition of Poverty? A Comparison of Four Approaches', *Oxford Development Studies* 31(3): 243-74

4. Trends in monetary poverty diverge from non-monetary deprivations

Figure 2.3 (continued)



Source: Survey means from POVCAL.

François Bourguignon, Agnès Bénassy-Quéré, Stefan Dercon, Antonio Estache, Jan Willem Gunning, Ravi Kanbur, Stephan Klasen, Simon Maxwell, Jean-Philippe Platteau, Amedeo Spadaro (2010) 'Millennium Development Goals: An Assessment', in R. Kanbur and M. Spencer (eds.), *Equity and Growth in a Globalizing World.* World Bank, ch. 2.

5. Non-income deprivations

An example: **mortality** and **school attendance**
Percentage of people living in a hh where a child has died: **25.7%**
Percentage of people living in a hh where a child is not attending school: **21.2%**

Are they mostly the same people? **Less than 40% of the time.**
Redundancy = 8.1/21.1 = 38.3%

Child mortality	**School Attendance**		Total
	Non-depr	Deprived	
Non-depr	61.2	13.0	74.2
Deprived	17.6	**8.1**	**25.7**
Total	78.8	**21.1**	100

6. Economic Growth and Non-income Deprivations

Seth and Alkire (2021) *Research on Economic Inequality: Poverty, Inequality and Shocks,* 29, p 105–137 update Dreze and Sen's table

Table 6.1. India's Performance in Income and Other Social Indicators.

Indicators	Year	India	Bangladesh	Bhutan	China	Nepal	Pakistan	Sri Lanka	South Asia
Gross national income per capita (in international $)	2000	2,070	1,370	2,690	2,890	1,[illegible]10	2,420	3,440	2,062
	2017	6,120	4,340	10,170	14,330	3,[illegible]40	4,820	12,250	5,763
	Growth p. a.	*6.6%*	*7.0%*	*8.1%*	*9.9%*	*6.[illegible]%*	*4.1%*	*7.8%*	*6.2%*
$1.90/day headcount ratio (%)	2000–2004	38.2	34.8	17.6	31.7	49.9	28.6	8.3	38.5
	2011–2017	21.2	14.8	1.5	0.5	15.0	3.9	0.8	16.1
	Change p. a.	*−8.1%*	*−5.[illegible]%*	*−16.[illegible]%*	*−25.7%*	*−11.[illegible]%*	*−13.3%*	*−15.4%*	*−7.6%*
Fertility rate (births per woman)	2000	3.3	3.[illegible]	3.[illegible]	1.6	4.[illegible]	5.0	2.2	3.5
	2017	2.2	2.[illegible]	2.[illegible]	1.7	2.[illegible]	3.6	2.2	2.4
	Change p. a.	*−2.4%*	*−2.4%*	*−3.2%*	*0.4%*	*−4.0%*	*−1.9%*	*0.0%*	*−2.2%*
Life expectancy at birth (in years)	2000	63	65	61	71	62	63	71	63
	2017	69	72	71	76	70	67	77	69
	Change p. a.	*0.5%*	*0.6%*	*0.9%*	*0.4%*	*0.7%*	*0.4%*	*0.5%*	*0.5%*
Under-5 mortality rate (per 1,000)	2000	92	87	78	37	81	112	17	94
	2017	39	32	31	9	33	72	8	44
	Change p. a.	*−4.9%*	*−5.7%*	*−5.3%*	*−8.0%*	*−5.1%*	*−2.6%*	*−4.3%*	*−4.4%*
DPT immunization rate (12–23 months)	2000	58	82	92	85	74	59	99	60
	2017	89	98	98	99	90	75	99	87
	Change p. a.	*2.6%*	*1.1%*	*0.4%*	*0.9%*	*1.2%*	*1.4%*	*0.0%*	*2.2%*
Literacy rate (% of people ages 15 and above)	1998–2001	61	47	..	91	49	43	91	58
	2017–2018	74	74	67	97	68	59	92	72
	Change p. a.	*1.1%*	*2.7%*	..	*0.4%*	*1.9%*	*1.9%*	*0.1%*	*1.3%*
Rural population with access to at least basic sanitation facility (%)	2000	4	20	41	44	12	14	85	..
	2017	53	47	67	76	61	50	96	..
	Change p. a.	*16.4%*	*5.2%*	*2.9%*	*3.3%*	*10.0%*	*7.8%*	*0.7%*	..
Rural population with access to at least basic water source (%)	2000	74	94	78	70	78	81	76	..
	2017	91	97	97	86	89	90	88	..
	Change p. a.	*1.2%*	*0.2%*	*1.3%*	*1.2%*	*0.8%*	*0.6%*	*0.9%*	..

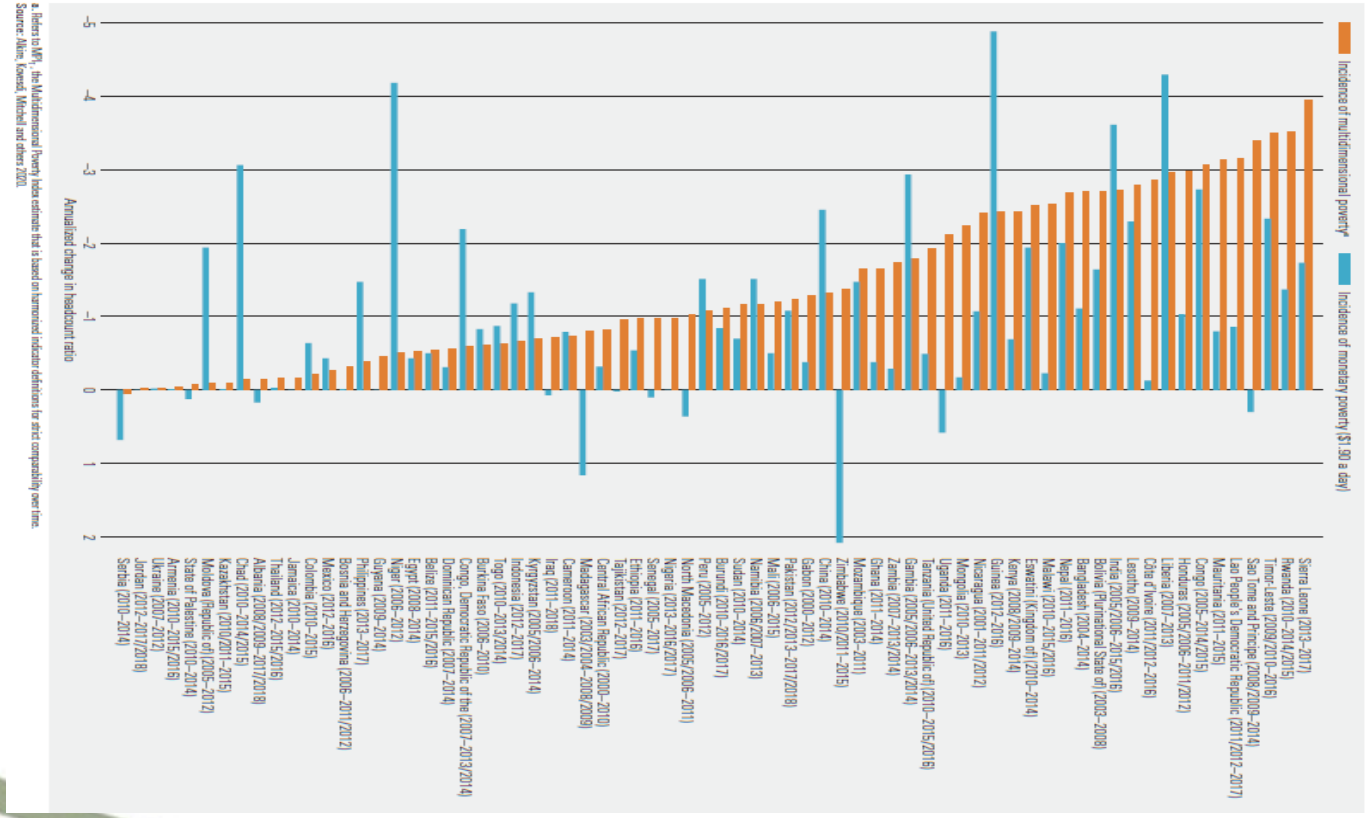
Source: Figures are based on World Bank Data Online accessed on July 3, 2020 at https://data.worldbank.org/indicator/ and the UNICEF website, for water and sanitation data, accessed on July 3, 2020 at https://data.unicef.org/topic/water-and-sanitation/sanitation/.

Note: The table is inspired by Drèze and Sen (2011, 2013). The $1.90/day poverty headcount ratio data were available for different range of time periods: India (2004–2011), Bangladesh (2000–2016), Bhutan (2003–2017), China (2002–2016), Nepal (2002–2010), Pakistan (2001–2015), Sri Lanka (2002–2016) and South Asia (2002–2013). The range of years for literacy rates for all countries except Bhutan and Pakistan is 2001–2018; the range is 1998–2017 for Pakistan and the year for Bhutan is 2017.

6. TRENDS: Income & global MPI

$1.90/day (Blue) and MPI incidence (Orange) do not trend together

Global MPI 2020 report: Charting Pathways out of Multidimensional Poverty



The MPI in the Era of the SDGs

- The Global SDGs, adopted on 25 Sept 2015, **address poverty in all its forms and dimensions**, opening official space for Multidimensional Poverty Indices.
- The first SDG target (1.1) is to **end $1.90/day** monetary poverty.
- The second target (1.2): to **halve multidimensional poverty.**

> **Target 1.2:** by 2030, reduce at least by half the proportion of men, women and children of all ages **living in poverty in all its dimensions** according to **national** definitions.

The National MPI is reported as **SDG Indicator 1.2.2,** which is the 3rd of the 232 SDG indicators and the only one for which countries are the custodian agency.

Normative Decisions

Seven Essential Choices for your own AF Measure:

1. **Purpose**
2. **Unit of Identification or Analysis**
3. **Dimensions** (if helpful)
4. **Indicators** - columns in the matrix
5. **Deprivation Cutoffs** for each Indicator
6. **Weights/Values** for each Indicator
7. **Poverty cutoff** to identify the poor
8. ***Identification*** *(who is poor)*
9. ***Aggregation*** *(How much poverty does a society have)*

Purpose Statement of a National MPI

The national poverty measure aims to assess the population-wide progress in capability poverty reduction every two years across states, rural-urban regions, ethnic and religious groups, in ways that are regarded as legitimate and accurate by the citizenry. The measure shall be disseminated across the public sector, NGOs, and academic institutions among others. Results will be communicated widely to citizen and social groups.

Data and Governance (data, authority, procedures)
The measure will use a newly-designed survey, to be fielded every two years. The National Statistics Bureau (NSB) has the authority to implement the survey, construct the measure, and release it as an official statistic. The NSB can propose to update the methodology roughly once per decade. A cross-institutional working group can be constituted to propose changes to the Statistical Advisory Council for approval.

Unit(s) of Identification and Analysis

Unit of Identification: Who is identified as poor or non-poor (poverty status): each person or all people in a household?

Examples:

- Person
- Household

The choice depends upon *data* and *purpose*.

The **unit of analysis**: how data are reported (preferred: percentage of population who are poor)

Choice of Dimensions

"…The need for selection and discrimination is **neither an embarrassment, nor a unique difficulty**…." (Sen 2008).

Indicators refer to the columns of the matrix: the actual variables that are measured for each person or household.

Dimensions refer to conceptual categorisations of indicators for ease of communication and interpretation of results.

Confusion prevention note: in AF JPubE 2011, indicators are termed 'dimensions'. From now on we use these definitions.

Key Inputs into Choice of Dimensions

- Existing Data
- **Deliberative/participatory exercise**
- **Theory: Well-being, Rights, etc**
- **Enduring public 'consensus'**
- **Law, National Development Plan**
- **SDG Priority areas**

Normally use a combination

Choice of Indicators:

-**Purpose** shapes indicator requirements

-**Indicators must be clear** (Atkinson and Marlier, 2010, 8–14)

- -essence of the problem
- -agreed normative interpretation
- -statistically robust.
- -show direction of change (not stock)
- -be susceptible to revision [every 10 years]
- -should not impose too large a burden on countries

Choice of Indicators: General

1. Reflects people's ideas of MD poverty
2. Policy Relevant – can be changed by policy
3. Relevant in Institutional/Historical Setting
4. Can be interpreted
5. Can be communicated
6. Data are good quality
7. Survey Cost is affordable

Choice of Indicators: Required:

1. Representative of deprivations for each unit of identification? (reference period, accuracy, volatility)
2. Converted to reflect the unit of identification (individual, hh)
3. Clear understanding of Non-Applicable populations (rare event, demographics)
4. Avoid Subjective data due to common issues:
   - Trends over time may not reflect objective trends
   - Representative of household? Sample design?
   - Accuracy over time may be weak

Deprivation Cutoffs

Deprivation cutoffs define a minimum standard or level of achievement, below which a person is deprived in each indicator

Deprivation cutoffs are a distinguishing feature of multidimensional poverty measures that reflect the joint distribution of deprivations. Bourguignon and Chakravarty 2003

Clearly matter fundamentally:

-Affect uncensored headcount ratio & 'effective weights'

-Define the possibility to be identified as poor

-Results may be sensitive to choice

Choice of Deprivation Cutoffs z

- Purpose of the MPI (moderate, acute, both?)
- Participatory exercises 'how much is enough'
- Data: Response structures and possibilities
- Legal documents (compulsory schooling)
- Plans, Goals, Targets (aim = ante-natal care)
- Empirical examination of data/ robustness
- Possible use of two cutoff vectors (destitution)

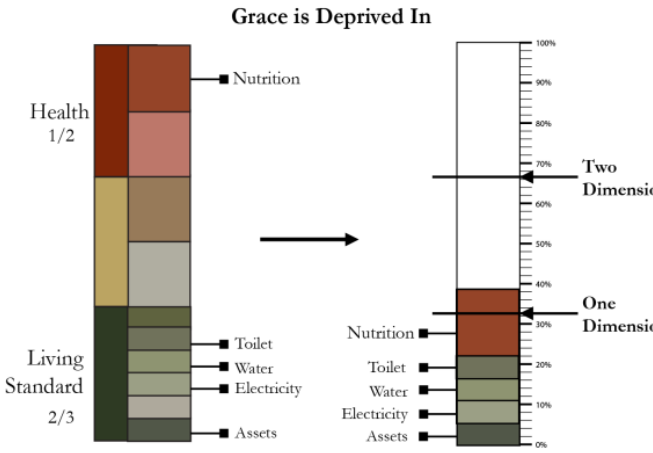
Weights reflect value judgments

- Early critics focused on the weights
  - Claiming they cannot be set in a defensible way
  - Claiming disputes on weights undermine legitimacy of measure
  - Prefer a 'mechanical' route – PCA/regression coefficients/prices
- The 2010 debate clarified:
  - Weights are **normative**
  - Weights are essential and **not embarrassing** to set
  - Weights of MPI (values) are *not* like weights on HDI
  - **Robustness tests** on weights are essential
  - Measures must be robust to a plausible ***range*** of weights

Poverty Cutoff:

The cross-dimensional poverty cutoff k identifies each person as poor or non-poor according to the extent of deprivations they experience, which are summarized in their deprivation score.

It is similar to the 'poverty line' in income space (but set across deprivation scores – more is worse)



Poverty Cutoff

A value judgment:

How much is enough to be poor?

–Often political interest because it creates the H

Has been justified by, or set to reflect:

- A participatory or subjective assessment
- A legal definition (Mexico)
- Policy promises
- **Ease of Communication** *most common*
- **Robustness** *most common*
- **Select from a short menu of options** *most common*