Normative Issues in Multidimensional Poverty Measurement

Sabina Alkire Oct 2013, IDB Jeddah
What is Poverty?
What are ‘Normative’ choices

Normative choices are *Value judgements*, rather than choices based on technical or political forces.

Clearly consider the value to people and society (capabilities) as deeply as possible.

Relevance and Usability

There are two major challenges in developing an appropriate approach to the evaluation of the standard of living. First, it must meet the motivation that makes us interested in the concept of the living standard, doing justice to the richness of the idea. It is an idea with far-reaching relevance, and we cannot just redefine it in some convenient but arbitrary way. Second, the approach must nevertheless be practical in the sense of being usable for actual assessments of the living standard. This imposes restrictions on the kinds of information that can be required and the techniques of evaluation that may be used.

These two considerations – relevance and usability – pull us, to some extent, in different directions. Relevance may demand that we take on board the inherent complexities of the idea of the living standard as fully as possible, whereas usability may suggest that we try to shun complexities if we reasonably can. Relevance wants us to be ambitious; usability urges restraint. This is, of course, a rather common conflict in economics, and while we have to face the conflict squarely, we must not make heavy weather of it” (Sen 1987: 20).
Seven Essential Choices for your own AF Measure:

1. Purpose
2. Unit of Analysis - person or household
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
Seven Essential Choices for your own AF Measure:

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5. Deprivation Cutoffs for each Indicator
6. Weights for each Indicator
7. Poverty cutoff to identify the poor
   (Whether to use $M_0$, $M_1$, or $M_2$)

These are guided by
- Purpose & Anticipated Uses, Data available
- Legal, political, and institutional constraints
Other questions to consider at startup: e.g. National MPI

1. Legal/institutional basis? (to endure)
2. Who has authority to update (Institution)
3. When/how to update survey; methodology
4. What Incentives it provides (Ministries)
5. Process of developing measure.
   a. Public Consultations?
   c. International/Regional Experts?
6. Political Considerations (not today)
1. Purpose of poverty measure:

“The range of objective features to be considered in any assessment of quality of life will depend on the purpose of the exercise…. While the question of which elements should belong to a list of objective features inevitably depend on value judgements, in practice most of these themes are shared across countries and constituencies, and there is a large degree of consistency…”

Stiglitz Sen Fitoussi
1. Purpose(s) - what is the measure for?

Particular objectives of the exercise

- The purpose of the evaluation
- The region, or sector, or years of interest
- Who will use the measure, e.g. for policy
- Key comparisons
Common purposes

1. to develop official measures – that show the level and composition of poverty, by regions/groups, and are updated regularly.
2. to monitor or evaluate the impact of activities
3. to compare poverty across regions or groups
4. to target the poorest more effectively
Sample Purposes

**National Poverty Measure** – to span decades; cultures

**Youth Poverty Measure** – once, to profile youth issues

**Targeting exercise** – to benefit poorest of the poor

**Monitoring measure** – to track progress to given goals

**Diagnostic tool** – to guide interventions and policy design

**International Comparisons** – to learn across nations

**Community Development** – show changes locally
Exercise

• Think of one concrete situation in which you have developed a measure: What was the purpose? What were the constraints?

1. Particular objectives of the exercise
   • The purpose of the evaluation
   • The region, or sector, or years of interest
   • The policy actors * Key comparisons

2. Unchangeable constraints (*might include*)
   • Data
   • Political powers
   • Time and Costs (e.g. of participation)
The purpose of the measure guides...

1. **Choice of Unit of Analysis** (order of aggregation)
2. **Choice of Dimensions**
3. **Choice of Variables/Indicator(s) for dimensions**
4. **Choice of Dimension Cutoffs** for each indicator
5. **Choice of Weights** across indicators
6. **Choice of Poverty Cutoff** across indicators
7. **Identification** (who is poor)
8. **Aggregation** (How much poverty does a society have)
2. Unit of Analysis

Could be:

• Individual
• Household
• Institution or
• Village / District / Datazone / Municipality

Choice depends upon *data*, and *purpose*.
Unit of Analysis

• **Person:**
  – Best: to look at gender, age, diversity, intrahousehold
  – Most expensive: most datasets don’t have
  – Need to allocate household variables to people.

• **Household:**
  – Most common unit for existing survey data
  – Requires combining individual data from household members (e.g. education, health, work)

• **Person in a Subgroup:**
  – E.g. Children, Youth, Women
Unit of Analysis

• **Institution:**
  – E.g. School, Hospital, firm
  – One vector per institution, weighted

• **Local region:**
  – Assumes within-region equality of poverty
  – Can use multiple data sources so long as representative by that region.
  – Inform comparisons across local regions, not within
3. Choice of Dimensions

“There is no escape from the problem of evaluation in selecting a class of functionings in the description and appraisal of capabilities, and this selection problem is, in fact, one part of the general task of the choice of weights in making normative evaluation...

The need for selection and discrimination is neither an embarrassment, nor a unique difficulty, for conceptualizing functionings and capabilities.”

(Sen 2008).
Sen’s Criteria for Dimensions

• Purpose of the Evaluation (targeting, monitoring, measure quality of life, sectoral)
• Value and priority [for relevant group(s)]
  – basic importance (Sen 2004)
• Appropriateness for institutional response
  – social influenceability (Sen 2004)
How Researchers Choose Dimensions

• **Existing Data or Convention**
• **Theory**
• **Public ‘consensus’**
• **Ongoing Deliberative Participatory Processes**
• **Empirical Evidence regarding people’s values**
  – Based on Alkire 2008
How Researchers Choose Dimensions

- **Existing Data or Convention** – dimensions are selected because these are the only data available that have the required characteristics.

- [data limitations *always* influence measure]
How Researchers Choose Dimensions

• **Theory** – select dimensions based on implicit or explicit assumptions about what people do value or should value. These are commonly the informed guesses of the researcher; they may also draw on convention, social or psychological theory, philosophy, religion, and so on.
  - *E.g.* Nussbaum’s list of 10 central human capabilities
  - *E.g.* if you were to use Bhutan or SSF dimensions
How Researchers Choose Dimensions

• Public ‘consensus’ – select dimensions that relate to a list that has already achieved a degree of legitimacy due to public consensus.
  – National Plan
  – Constitution or Legal document
  – Universal human rights,
  – the MDGs, Sphere, etc
How Researchers Choose Dimensions

• *Ongoing Deliberative Participatory Processes* – select dimensions on the basis of ongoing purposive participatory exercises that periodically elicit the values and perspectives of stakeholders.
  – E.g. consultations and participatory exercises
  – E.g. working with NGOs, Unions, Businesses, and others
  – E.g. popular media campaigns
How Researchers Choose Dimensions

• **Empirical Evidence regarding people’s values** – select dimensions on the basis of empirical data on values, or data on socially perceived necessities, happiness, consumer preferences and behaviors, etc

• *E.g.* survey questions on perceived necessities

• *E.g.* survey questions ranking dimensions of poverty
Normally use a combination of methods

- *Existing Data or Convention*
- *Theory*
- *Public ‘consensus’*
- *Ongoing Deliberative Participatory Processes*
- *Empirical Evidence regarding people’s values*
Normally use a combination of methods

• Example: - a national measure
  – A recent participatory study
  – The MDGs, or a National Plan
  – Set of variables in dataset
  – Some theory (e.g. SSF list)
Write up your justification of dimensions

(Robeyns)

1. **Explicit formulation**: Explain why each dimension is claimed to be something people value and have reason to value (and instrumental?).

2. **Methodological justification**: Explain and defend how you generated the set of dimensions.

3. **Two stage process: Ideal-Feasible**: First say what dimensions you would have wanted, and explain why some were not feasible.

4. **Exhaustion and non-reduction**: Be diligent to include in the ideal list all relevant options including non-market or non-traditional ones.
Colombia’s National MPI: Dimensions emerge from National Plan

Educational Conditions
  - Schooling
  - Illiteracy
    - No Child Labour
      - School Attendance
      - At the right level
      - Access to infant services

Childhood & Youth
  - Absence of long-term unemployment
    - Formal work

Work
  - Coverage
    - Access to health care given a necessity

Health
  - Poverty cutoff = 33%

Housing & Public Services
  - Improved Water
  - Sanitation
  - Flooring
  - Exterior Walls
  - Overcrowding

Poverty cutoff = 33%
Mexico’s National Measure: Dimensions named by law

Population

Wellbeing

Income

Deprivations

Social Rights

Current income per capita

Six Social Rights:
- Education
- Health
- Social Security
- Housing
- Basic Services
- Food
Myth: The possible dimensions are endless

• Fact: Researchers regularly come up with VERY similar lists of dimensions.

• Example: a review of the 19 main international multidimensional indices of poverty and well-being find that all dimensions fall into 10 categories. A further review of 45 accounts corroborates this observed regularity.
### Sample Dimensions

<table>
<thead>
<tr>
<th>Stiglitz-Sen-Fitoussi</th>
<th>Bhutan’s GNH</th>
<th>Voices of the Poor</th>
<th>Finnis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Education</td>
<td>2. Education</td>
<td>2. Bodily Wellbeing: Being and Appearing Well</td>
<td>2. Knowledge</td>
</tr>
</tbody>
</table>

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**Voices of the Poor**

1. Material Wellbeing: Having Enough Food, Assets, work
2. Bodily Wellbeing: Being and Appearing Well
3. Social Wellbeing: Children, Self-respect and dignity; good relations in family/community
4. Security: Physical and Future-looking
5. Psychological Wellbeing: Peace, Happiness, Harmony (including a spiritual life and religious observance)
6. Freedom of Choice and Action

**Finnis**

1. Health & Security
2. Knowledge
3. Work & Play
4. Agency & empowerment
5. Relationships
6. Harmony - Art, Religion, Nature
7. Inner peace
End of 3. Look at what you wrote down:

• How were those dimensions chosen?
• How could you ‘justify’ the dimensions
  – Existing Data or Convention
  – Theory
  – Public ‘consensus’
  – Ongoing Participatory Processes
  – Empirical Evidence on people’s values
Seven Essential Choices for your own AF Measure:

✓ Purpose
✓ Unit of Analysis (person or household)
✓ Dimensions (if helpful)

4. Indicators
5. Deprivation Cutoffs for each Indicator
6. Weights for each Indicator (Dimension)
7. Poverty cutoff (to identify the poor) (Whether to use $M_0$, $M_1$, or $M_2$)

These are guided by
- Purpose (National measure, Targeting, M&E)
- Data Availability (now or from new survey)
- Legal, political, and institutional Constraints
4. Choice of Indicators

1. Normative & participatory Justification
2. Kind of indicator
   (functioning/resource/utility)
   (input/output/outcome; stock/flow)
3. Data Availability
4. Institutional/Historical Considerations
5. Literature on that indicator / database
6. Interrelations with other indicators
7. Accuracy of data for chosen unit of analysis
Indicators — Technical considerations

Constraints:
Finance & politics constrains content, periodicity, quality

Some Considerations are not purely normative:
• data exist or could exist;
• stock vs. flow
• individual vs. household vs cty
• comparability across all ages/ethnicities
• higher quality vs lower quality indicators (£ & survey)
• statistical associations across indicators
• can be changed by public policy
Selection of Indicators (Variables) Colombia’s MPI

Criteria for variable selection

- Frequent usage (national or international); literature review; discussion with experts; other indicators. IPM-OPHI Internacional, NBI, ICV y Sisbén III.

1. Indicators can be affected by public policies.

2. Availability of information (in the survey of Quality of Life in Colombia).

Criteria to validate variables

Precision of the sample to estimate the variable - estimated coeff of variation <15%.

*EL DANE utiliza:
0-7: Estimación precisa
8-14: precisión aceptable
15-20 ó 15-25: Precisión regular y por lo tanto se debe utilizar con precaución.
Justification of Indicators

• Links to and proxy the dimensions/capabilities
  – E.g. water. health/asset/dimension/gender
  – E.g. indicators for health capabilities?
  – Recall: EFA discussion of literacy from day 1
  – Are they indicators of functionings (BMI, Ed) or their proxies – or of resources, or services, or mental states? Be clear on the space.

• Technical issues often require attention:
  – Accuracy, measurement error, expense, non-response
  – Tracks changes in poverty over place and time
  – Large debates even when clear analysis: stunting vs undernutrition
Justification of Indicators

• Things to mention in your write-up
  – Conceptual categorization (e.g. water)
  – Best proxy for definition of capability/dimension?
  – Choice of priority among technical criteria?
  – Take actual issues one by one (e.g. time use)
  – Is normative input ‘essential’ vs ‘possibly helpful’
  – Should the ‘choice of dimensions’ become ‘choice of indicators?’
    • But too technical for public debate?
5. Choice of Deprivation Cutoffs

- Purpose of exercise
- Legal documents
- Participatory exercises
- Consultation with measure users.
- Empirical examination of data/ robustness
Deprivation Cutoffs:

Clearly are value judgements:

**How much is enough** not to be deprived?
- Example: Income Poverty Line
- Example: MPI – MDG indicators

Clearly matter fundamentally:
- Affect ‘effective weights’
- Define possibility to be identified as poor
- Empirically, can be greater sensitivity
Justification of deprivation cutoffs

• Technical (although disputed)
  – E.g. safe water. Particular bugs absent (response codes)
  – E.g. malnutrition. Z scores and reference groups
  – Statistical properties

• Political & Legal
  – Promised / Required (e.g. compulsory education, plan)

• Constraints & Challenges:
  – Diversity – individual & group
  – Knowledge of data concerns & analyses
  – Knowledge of possibilities
  – Comparability (rural-urban; climatic zones)
Consider field studies in Bhutan

–Each field study was designed to give input into a draft national multidimensional poverty measure that was being designed by the National Statistics Bureau.
Field Studies: Participatory FGD

- The Participants:
  - Identified the focal problems of poverty
  - Ranked the dimensions of poverty
  - Identified ‘cutoffs’ – who is poor?
  - Provided feedback on the 3 trial measures
Participatory FGD – Dungna: Dimensions of poverty:

- Land
- Children’s Education
- Income & Livelihood
- Dependency Ratio
- Food Insecurity
- Domestic Violence
## Participatory FGD

### Dungna: Cutoffs

<table>
<thead>
<tr>
<th>Land</th>
<th>3-5 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s education</td>
<td>To class 13 or higher</td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>Not sure</td>
</tr>
<tr>
<td>Income and money</td>
<td>Ng 5,000/month [5]</td>
</tr>
<tr>
<td>Food Insecurity</td>
<td>Enough to eat</td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>Not sure – has improved</td>
</tr>
</tbody>
</table>
## Participatory FGD

### Dungna: Ranking

<table>
<thead>
<tr>
<th><strong>Most important</strong></th>
<th>Land</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Children’s education</td>
</tr>
<tr>
<td><strong>Next most important</strong></td>
<td>Dependency ratio</td>
</tr>
<tr>
<td></td>
<td>Income and money</td>
</tr>
<tr>
<td><strong>Third most important</strong></td>
<td>Food Insecurity</td>
</tr>
<tr>
<td></td>
<td>Domestic Violence</td>
</tr>
</tbody>
</table>
Participatory FGD

- Reflections on the proposed national indicators for Bhutan:
  1. Both educational variables are important
  2. Both health variables also important.
  3. Electricity they hope to have soon.
  4. Sanitation – without slab is fine.
  5. Cooking fuel wood – yes; women have eye problems and headaches when they are older.
  6. 3 livestock? depends on quality (Jersey cow)
  7. 1 acre of land is too little – depends on quality
## Another community: FGD

### Ruepisa: Ranking

<table>
<thead>
<tr>
<th>Most important</th>
<th>Electricity</th>
<th>Land</th>
<th>Sanitation</th>
<th>Health</th>
<th>Drinking Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next most</td>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>Housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td>Income / Money</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Animal Assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Poverty Cutoffs:

Clearly a value judgment:

**How much is enough** to be poor?

- Reflects purpose (targeting vs national measure)
- Often political interest

This is a new step – so not many precedents.

Has been set

- To match particular headcount ratio
- To reflect participatory or subjective assessments
- To match legal definition (Mexico)
- To match statistical ‘gaps’ in data points (Bristol)
The number of MPI deprivations experienced by those who were income poor, and those who perceived themselves to be poor, was compared with the number of deprivations among the non-income and non-subjective poor.

**Median and Average number of deprivations 2008**

<table>
<thead>
<tr>
<th>People who perceive themselves to be poor</th>
<th>Median</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income poor people</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Income poor people who perceive self as poor</td>
<td>5.1</td>
<td>5.2</td>
</tr>
<tr>
<td>Those who don’t perceive themselves as poor</td>
<td>5.4</td>
<td>5.6</td>
</tr>
<tr>
<td>Those who are not income poor</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>All people</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>3.8</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Fuente: Cálculos DNP-SPSCV, con datos de la ECV2008

A non-poor person on average has 3 deprivations, which suggests that a low value of $k$ would capture deprivations that were not related to or sufficient to identify poverty.
Mexico’s Poverty Cutoffs:
poverty = (income + 1); extreme = (lower income + 3)

With Deprivations

Vulnerable by social deprivations

MULTIDIMENSIONALLY POOR

Moderate Multidimensional

EXTREME
Multidimensional Poverty

Poverty

Basic Needs £

Food £

Income

Deprivations

Social Rights
7. Choice of Weights

1. Where are weights applied?

2. Setting Weights: Rationales

3. How are normative weights set?
   • Equal weights
   • Expert Opinion
   • Participation and Public Deliberation
   • Survey based – subjective
   • Survey based – necessities
In evaluating this summerschool how do we weight expansions in:

1. Understanding of each lecture topic
2. Understanding the Capability Approach
3. Completion of paper & group exercises
4. Collegial Relationships (social capital)
5. Ability to complete your own research
6. Understanding of poverty in IDB MCs
7. Future earning potential across 20 years
8. Your satisfaction with life as a whole
7. Weights (Values)

• 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/eigen vectors/regression coefficients/prices

• The debate has clarified
  – Weights are normative, and not embarrassing to set
  – We will disagree hence need a plausible range of weights
  – Robustness tests are essential.
  – Weights are also a function of deprivation cutoffs / associations
Setting weights: state them clearly

“Since any choice of weights should be open to questioning and debating in public discussions, it is crucial that the judgments that are implicit in such weighting be made as clear and comprehensible as possible and thus be open to public scrutiny” (Anand and Sen 1997 p. 6)
Equal weights

• Most commonly used approach
• *Not* ‘non-weighting’
• Equal weights represent value judgements
• Example:
  1. BMI, years of school (0.5)
  2. BMI, yrs school, caloric intake, anaemia, (0.25)
• What is the:
  – Weight on BMI in each example?
  – Weight on Health vs Ed in each example?
Weights and Choice of Dimension

• Choice of dimensions & weights may both be value judgements; and the choices are interlinked.
• So we could choose dimensions to be equal in importance
  – e.g. Atkinson (2002): “the interpretation of the set of indicators is greatly eased where the individual components have degrees of importance that, while not necessarily exactly equal, are not grossly different”
• this is particularly relevant when the same exercise might address the choice of dimensions and of weights – eg expert opinion, participatory exercises
But who will bell the cat?

How set weights *in practice*???

Survey Methods?  Participatory Methods?  Combination?
Participatory Exercises

• Often used for other purposes
• Groups are asked to **name and rank** the most important aspects of deprivation or ill-being.
• Exercise generates a list of deprivations and an ordinal ranking (usually) or cardinal weighting (rarely).
Using Participatory Data:

- How translate ordinal *rankings* into cardinal *weights*?
- How assess the quality of participation?
- How assess the test-retest validity?
- How combine different rankings from different participatory groups? (voting)
- How often revise?
Using survey data to set weights: Socially Perceived Necessities

• Is this item ‘essential for everyone to have in order to enjoy an acceptable standard of living in South Africa today’.

• Yes
  No

• Percentage saying ‘yes’
% of people defining an item as ‘essential’

Mains electricity in the house 92
Someone to look after you if you are very ill 91
A house that is strong enough to stand up to the weather 90
Clothing sufficient to keep you warm and dry 89
A place of worship in the local area 87
A fridge 86
Street lighting 85
Ability to pay or contribute to funerals 82
Separate bedrooms for adults and children 82

Gemma Wright, Socially Perceived Necessities
Survey data: value vs capability

• ‘Please say whether you have each of the following. If you do not have the item please say whether you don’t have it and don’t want it, or don’t have it and can’t afford it.’
  – ‘have’
  – ‘don’t have and don’t want’ [not valued]
  – ‘don’t have and can’t afford’ [capability poor]
How to fix \( w \) and \( k \)?

Participatory Normative:

- **Pros:** Explicitly involves public debate to make informed value judgements; are made *as* value judgements; provides a deep legitimacy.

- **Cons:** Incomplete without additional considerations; the process may be costly; is the public actually consulted representative; how to aggregate across participatory exercises, how often update?
How to fix \( w \) and \( k \)?

Statistical Methods:

**Pros:** Makes use of information in the dataset; easier, as can be done alone in your office.

**Cons:** Difficult to defend (though claimed oddly to be ‘scientific’): one cannot derive an ‘ought’ from an ‘is’; may deliver values that are unreasonable or politically indefensible; has difficulties with variation over time; has difficulties with transparency; can be manipulated very easily.
How to fix $w$ and $k$?

- **Axiomatic:** Propose axiomatic principles that embody underlying value judgements re: identification, to narrow the possible range identification methods, or to select one.
  - **Pros:** General principles can be clear and transparent, easily communicated to policymakers, and are explicitly normative.
  - **Cons:** It may be difficult to obtain agreement on the basic principles; a given set of axioms may not lead to a unique identification method.
How to justify weights

• Make the rationale for weights explicit
• Ensure robustness to a range of weights
• Use procedures self-critically
  – Equal Weights
  – Normative weights set transparently
  – Participatory Approaches
  – Survey data
“A choice procedure that relies on a democratic search for agreement or a consensus can be extremely messy, and many technocrats are sufficiently disgusted by its messiness to pine for some wonderful formula that would simply give us ready-made weights that are ‘just right.’ However, no such magic formula does, of course, exist, since the issue of weighting is one of valuation and judgment, and not one of some impersonal technology.” (Sen 1999:79)
Exercise: Normative Weights

An academic paper or a policy report should justify the following choices with some normative content:

1. Purpose
2. Unit of Analysis
3. Dimensions
4. Indicators
5. Deprivation Cutoffs
6. Weights
7. Poverty Cutoff

Define a measurement problem relevant to your work at IDB. Design a measure with the 7 features. How do you justify each?