Making a Measure: Dimensions, Indicators, Cutoffs, Weights, etc

Sabina Alkire, 9 Mar 2011
Checklist and Plan

1. Clarify Data Source – old or new
2. Clarify the primary purpose of the measure.
3. Think through criteria
4. Think about the processes
5. Think about the weights.
6. Choose your *dimensions*.
7. Choose your unit of analysis
8. Choose the indicators.
9. Choose the deprivation cutoffs
10. Choose the weights.
Data Source

1. New or existing?
2. Respondent(s)
3. Data on whom?
4. Questions implemented
5. Missing values
6. Representativeness
Purpose of Measure

1. Particular objectives of the exercise
   - The purpose of the evaluation
   - The region, or sector, or years of interest
   - The methodologies

2. Unchangeable constraints (might include)
   - Data
   - Political powers
   - Time and Costs (e.g. of participation)
Sample purposes for MD measures

• to replace, supplement, or combine with the official measures – (of poverty, of health, of governance, etc) that show the level and composition of poverty, and the reduction of poverty, over time

• to monitor or evaluate the impact of programmes

• to predict poverty or vulnerability in the future

• to target the poorest more effectively
• to identify vulnerable or excluded groups in the population
Choice of Unit of Analysis

- Individual
- Household
- Municipality
- Nation

Choice depends upon data, and purpose.
Ideally use a combination of methods

- *Existing Data or Convention*
- *Theory (in part – not alone)*
- *Public ‘consensus’*
- *Ongoing Deliberative Participatory Processes*
- *Empirical Evidence regarding people’s values*
Ideally use a combination of methods

• **Example:** - a national measure
  
  – *Findings of a recent participatory study*
  – *The MDGs, or a National Plan*
  – *Set of variables in dataset, or survey design*
  – *Some theory (e.g. SSF list)*
Procedural justification of dimensions (Robeyns)

• 1. Explicit formulation: In your paper explain why each dimension is claimed to be something people value and have reason to value.

• 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, 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.
# Possible dimensions becoming clear

<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>Health</td>
<td>Health</td>
<td>Bodily Wellbeing</td>
<td>Health &amp; Security</td>
</tr>
<tr>
<td>Education</td>
<td>Education</td>
<td>Material Wellbeing</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Economic security</td>
<td>Material Std</td>
<td>Social Wellbeing</td>
<td>Work &amp; Play</td>
</tr>
<tr>
<td>Personal Security</td>
<td>of living</td>
<td>Security</td>
<td>Agency &amp;</td>
</tr>
<tr>
<td>Balance of Time</td>
<td>Time Use</td>
<td>Psychological</td>
<td>empowerment</td>
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<tr>
<td>Political Voice &amp; Governance</td>
<td>Governance</td>
<td>Wellbeing</td>
<td>Relationships</td>
</tr>
<tr>
<td>Social Connections</td>
<td>Community</td>
<td>Bodily Wellbeing</td>
<td>Harmony - Art,</td>
</tr>
<tr>
<td>Environmental Conditions</td>
<td>Environment</td>
<td>Material Wellbeing</td>
<td>Religion, Nature</td>
</tr>
<tr>
<td>Subjective measures of quality of life</td>
<td>Culture &amp; spirituality</td>
<td>Social Wellbeing</td>
<td>Inner peace</td>
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<td></td>
<td>Emotional</td>
<td>Psychological</td>
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<tr>
<td></td>
<td>Well-being</td>
<td>Wellbeing</td>
<td></td>
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</tbody>
</table>
Choice of Variables/Indicators

1. Normative 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 individual level data for hh or hh level data for individual
Deprivation Cutoffs

Now you must identify *every* person (or household) as either deprived or non-deprived in *every* indicator.

For example, an adult with less than **5 years** of schooling is deprived (or 6 years, or 8, or 10?)
Deprivation Cutoffs

Note: you have to decide how to ‘convert’ individual indicators to reflect household deprivation, or household indicators to reflect individual deprivation

**Individual:** if A lives in a household that is not income deprived, A am not income deprived.

**Household:** if noone in my household has more than 5 years of schooling then I am deprived.
# Deprivation Cutoffs

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Cutoff</th>
<th>HH-Individual conversions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>18.5</td>
<td>If any hh member is deprived, hh is deprived</td>
</tr>
<tr>
<td>Yrs School</td>
<td>5</td>
<td>If any hh member above 10 yrs does not have 5 yrs schooling, hh is deprived</td>
</tr>
</tbody>
</table>
Weights

1. Explicit weights: only part
2. Do weights reflect Priority or Importance?
3. How are normative weights set?
   • Equal weights
   • Expert Opinion
   • Participation and Public Deliberation
   • Survey based – subjective
   • Survey based – necessities
Different kinds of weights:

Weights *between* dimensions, for a poverty measure based on capabilities, are *normative* value judgements, guided by the purpose of the measure.

Weights *within* dimensions might be normative or statistical or based on prices.
Effective weights are influenced by

- Number of indicators
- Deprivation headcount of indicators
- Transformation of variables (if relevant)
- Direct weights set on dimensions
Consider equally weighted dimensions

“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”

Atkinson
Equal weights – really equal?

Equal weights represent value judgements

What about the number of indicators?
What about the headcounts in each?

Example:

BMI, years of school (0.5)
BMI, yrs school, caloric intake, anaemia, (0.25)

Weight on BMI?

Weight on Health vs Education?
What if you replaced BMI with sister’s death?
Value Judgements of what/ Priority or Importance?

*Kinds of value judgements* required to set weights vary

**Importance:** Absolute importance of a dimension for poverty (national poverty measure across time)

**Priority:** Urgency of making progress in a dimension at a given time (3-year plan)
Example: Priority

“For example, the ability to be well nourished cannot in general be put invariably above or below the ability to be well sheltered, so that the tiniest improvement of one will always count as more important than a large change in the other. We may have to give priority to the ability to be well nourished when people are dying of hunger in their homes, whereas the freedom to be sheltered may rightly receive more weight when people are in general well fed, but lack shelter.” (Sen 2004, p.78 – Feminist Econ.)
Example: Importance

In some situations, such as the development of a long term multidimensional poverty measure to replace an income poverty line, the weights should reflect the importance of each dimension relative to the other dimensions.

- Long term poverty measure
- Comparative
Need to Justify rationale: 1) priority or 2) importance

Priority
- Time-specific
- M&E
- Institutional powers
- Planning exercises

Importance
- Long term
- More
- Comparative
All weights: open to critical scrutiny

It is not so much a question of holding a referendum on the values to be used, but the need to make sure that the weights – or ranges of weights – used remain open to criticism and chastisement, and nevertheless enjoy reasonable public acceptance. **Openness to critical scrutiny**, combined with—explicit or tacit—public consent, is a central requirement of non-arbitrariness of valuation in a democratic society. (Sen 1997: 206)
A range of weights, not a value?

Disagreement is likely to be durable ~ so maybe choose instead a range of plausible weights.

“There is no need here for different people, making their respective judgments, to agree on the same list, or on the same weight for the different items; we are individually free to use reason as we see fit. A framework for the analysis of well-being is just that – not a complete solution of all evaluation problems, nor a procedure for interpersonal agreement on relevant judgments.”
But who will bell the cat?

How set weights *in practice*???
Expert Opinion

Expert opinion has been used to:
• Set priorities in health care
• Devise lists of capabilities, needs and rights.
• Scrutinize HDI weights (Chowdhury and Squire, 2006).

Advantages:
• relatively quick and cheap
• experts grasp complex ideas easily and respond appropriately
• experts to have extensive relevant knowledge
Process:

1. Select Experts (number, competence, uncertainty)

2. Select Choice Procedures
   - E.g. Voting or external aggregation procedure
   - Consensus building through discussion, reasonable argument and deliberation

3. Challenges

   Expertise on values of people?
   How assess expertise vs own views
3. Challenges, cont’d

Tension: experts vs democracy

How revise expert weights?
How often revis expert weights?

Clarifying ‘expertise’ is political (the experts well placed to comment on local value judgments or needs – NGO staff, facilitators, judges – may not be those considered ‘experts’ in academia or development.

Empirical comparisons (Ch & Sq – no difference)
Participatory weights

- Voices of the poor and other aspects
- Groups can be asked to **name and rank** the most important aspects of deprivation and they said:
  - Different groups can do this in different regions, by age, gender, cultural group etc.
  - They then need to be compiled somehow (how?)
  - Takes time but builds consensus and legitimacy
Key issues if you choose participation:

- How translate the *rankings* information into *weights*?
- Quality of participation
- When revise?
- Disagreements between groups
The Contribution of Deliberation

In addition to gathering information, participatory approaches provide a mechanism for public discussion and deliberation, in which participants:

• exchange views and information
• influence proceedings by ‘offering reasons others can accept’
• learn from the experiences of other people and revise their opinions accordingly;
• pool their capacity to analyse the relative merits of different arguments and options; and
• move towards a consensus grounded in the common good.
Survey Data: e.g. S. Africa

• 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’
Percentage 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%
- Having an adult from the hh at home at all times when children under 10 from the hh are at home: 81%
- Having police on the streets in the local area: 80%
- Tarred roads close to the house: 80%
For the same items, cross-check to double check value vs feasibility

• ‘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]
Socially perceived necessities

• Individual level responses
  + Democratic
  – Not informed by discussion
  ? Accurate reflection of their values?

• Aggregate – how? Take the weighted mean?

• How update across time?

• Weights can be hard to interpret.
• Weights affect outcomes significantly
• Must consider not only explicit weights but also transformation, choice of dimensions, and dimensional headcount
• Methodologically:
  – Justify selection of weights clearly
  – Report different weights
  – Perform Robustness tests