



# Normative Issues in Multidimensional Poverty Measurement

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#### 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

Then, revisit those normative choices

Informed by political considerations

Informed by data constraints

Informed by statistical and empirical analyses

Informed by timeline, budget, capacity, etc.





#### 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







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- 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?
  - b. Expert Groups National Statistics, Academics, Technical experts by Sector, etc.
  - 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
International Comparisons – across nations
Community Development – show changes transparently



## Purpose(s): can be challenged

To some extent, the purposes, having been determined, shapes the value judgements. But these may need to be re-considered

E.g. a measure designed to monitor progress towards a national development plan might systematically exclude public debate.

Should omission of public debate require justification?

E.g. a measure designed to document a given set of human rights from the universal declaration might ignore cultural values.

How justify the 'need' for contextual vs comparable measures?

E.g. a very rigorous measure designed to evaluate a small poverty intervention may cost more than the intervention itself.

E.g. a measure run in a famine-prone area may be framed to exclude malnutrition E.g. a measure may be designed to target 20% of people when 50% are destitute



### 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...

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



## 2. Unit of Analysis

#### Could be:

- Individual
- Household
- •Institution or micro Region
- Nation

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
- Can be of tremendous useful for policy

## • 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

#### • Nation:

Becomes a 'marginal measure'.



#### 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).



## 3. Choosing Dimensions:

### Please write down:

- Three dimensions of poverty used in any multidimensional measure you have made or worked on.
- The Indicators of poverty used, and
- The Deprivation cutoffs



### 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)



- Existing Data or Convention
- Theory
- Public 'consensus'
- Ongoing Deliberative Participatory Processes
- Empirical Evidence regarding people's values
  - -Based on Alkire 2008





• Existing Data or Convention —dimensions are selected because these are the only data available that have the required characteristics.

• [data limitations <u>always</u> influence measure]



- *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



- *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



- 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



- Empirical Evidence regarding people's values select dimensions on the basis of empirical data on values, or data on socially perceived necessities, consumer preferences and behaviors, etc
- E.g. survey questions on perceived necessities
- E.g. survey questions ranking dimensions of poverty



## Ideally use a combination of methods

- Existing Data or Convention
- Theory
- Public 'consensus'
- Ongoing Deliberative Participatory Processes
- Empirical Evidence regarding people's values





## Ideally use a combination of methods

## • Example: - a national measure

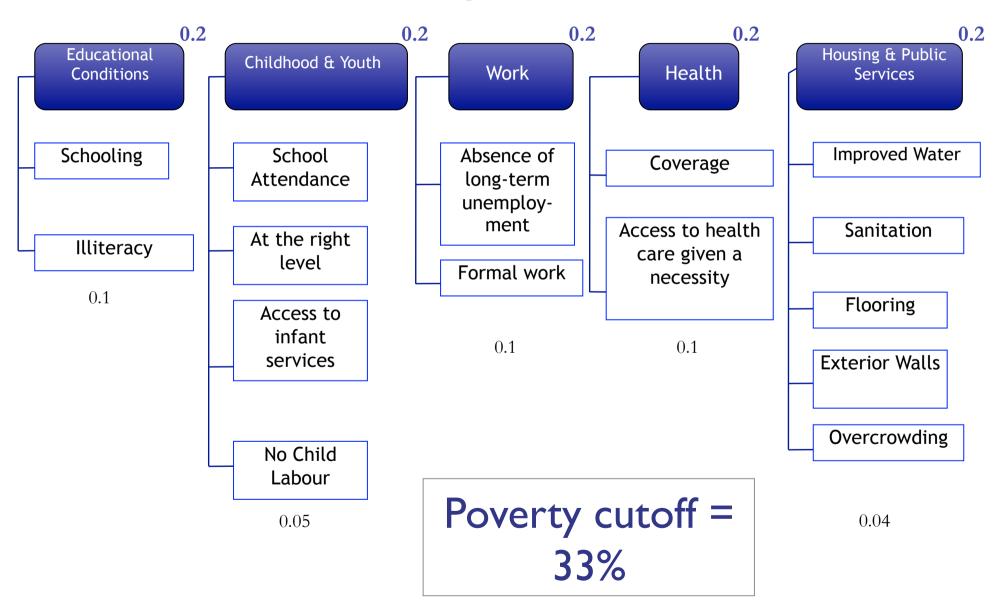
- -A recent participatory study
- -The MDGs, or a National Plan
- -Domains of policy action
- -Set of variables in dataset
- -Some theory (e.g. SSF list)



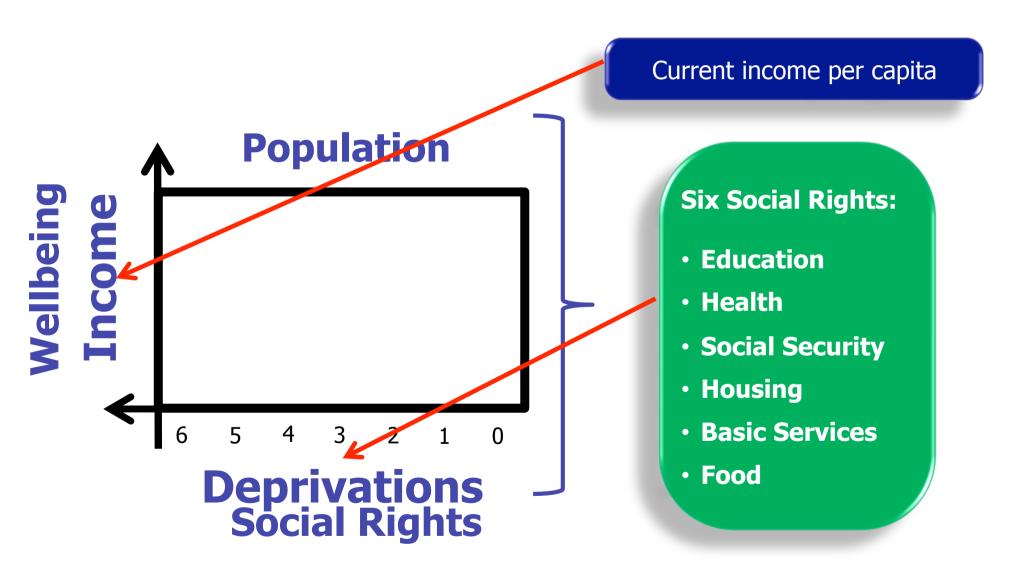
## Write up your justification of dimensions (Robeyns)

- 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



## Mexico's National Measure: Dimensions named by law



### 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

#### Stiglitz-Sen-Fitoussi

Health Education Economic security Personal Security Balance of Time Political Voice & Governance Social Connections Environmental Conditions Subjective measures of quality of life

## Bhutan's GNH

Health
Education
Material Std
of living
Time Use
Governance
Community
Environment
Culture &
spirituality
Emotional

Well-being

#### Voices of the Poor Finnis

Bodily Wellbeing
Material Wellbeing
Social Wellbeing
Security
Psychological
Wellbeing

Health & Security
Knowledge
Work & Play
Agency &
empowerment
Relationships
Harmony - Art,
Religion, Nature
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)



#### 4. Choice of Indicators

- 1. Normative & participatory Justification
- 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.
- 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 z

- 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



# Participatory FGD -Dungna: Dimensions of poverty:



- Land
- Children's Education
- Income & Livelihood
- Dependency Ratio
- Food Insecurity
- Domestic Violence







### Participatory FGD

**Dungna: Cutoffs** 

Land

Children's education

Dependency ratio

Income and money

Food Insecurity

Domestic Violence

Per hh of 5 persons:

3-5 acres

To class 13 or higher

Not sure

Ng 5,000/month [5]

Enough to eat

Not sure – has improved



### Participatory FGD

Dungna: Ranking

Most important Land

Children's education

Next most important Dependency ratio

Income and money

Third most important

Food Insecurity

Domestic Violence







### 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

Most important I

Electricity

Land

Sanitation

Health

**Drinking Water** 

Next most

Education

Housing

**Third** 

Income / Money

Fourth

Animal

Assets



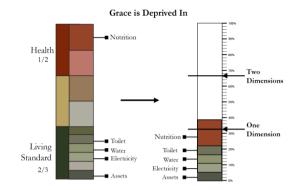








# 6. Poverty Cutoffs:



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)



#### Poverty Cutoff - Colombia.

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

	Media	
	n	Average
People who perceive themselves to be poor	5.0	5.0
Income poor people	5.1	5.2
Income poor people who perceive self as		
poor	5.4	5.6
Those who don't perceive themselves as		
poor	3.0	3.2
Those who are not income poor	3.0	3.2
All people	3.8	4.1

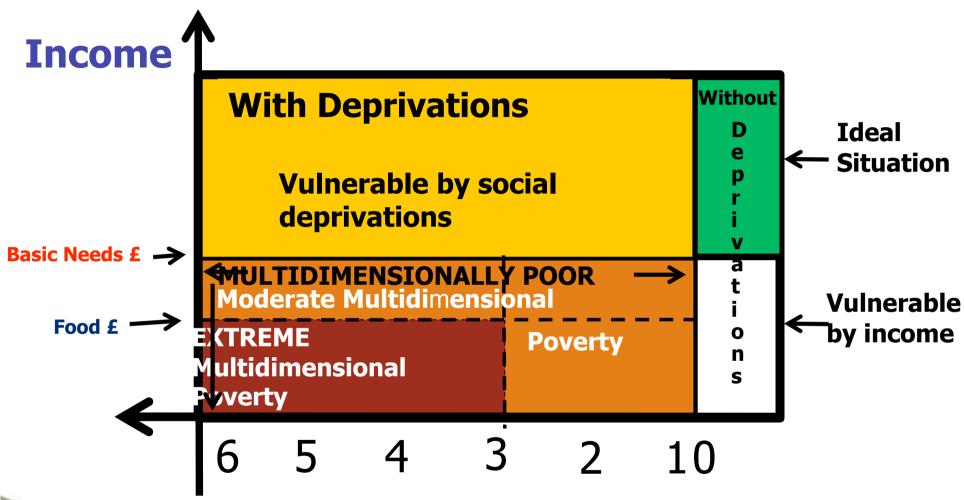
Fuente: Cálculos DNP-SPSCV, con datos de la ECV2008

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)



Deprivations
Social Rights



#### 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

- Economic Deprivation (ED): A person is economically deprived if the person's income falls below the income cutoff.
- *Social Deprivation (SD):* A person is socially deprived if *any* social achievement falls below its respective cutoff.
- *Identification (I):* A person is multidimensionally poor if and only if the person is both economically deprived and socially deprived.

• These three axioms are sufficient to identify the poor:

• Theorem 1 Suppose that the identification function  $\rho_{wk}(y_i)$  satisfies axioms ED, SD, and I. Then  $\rho_{wk}(y_i) = \text{ for all } y_i$ .



To set weights: two more axioms required.

- *Balance* (*B*): The weight on economic deprivation should be no greater than the aggregate weight on social deprivations; the aggregate weight on social deprivations should not exceed the weight on economic deprivation.
- Equal Rights (ER): No social dimension should receive greater weight than any other social dimension.

**Theorem 2** Suppose that the identification function  $\rho_{wk}(y_i)$  satisfies axioms ED, SD, I, B, and ER.

Then 
$$w = \overline{w}$$
 and  $\overline{k} = k < \overline{k} + \overline{w}_2$ .



# Axiomatic Example: Alternatives

- Use more discriminating dimension-specific thresholds on social dimensions.
- Apply dimension-specific weights that represent the probability that someone deprived in that social attainment is actually deprived.
- Alter the social deprivation (SD) principle to require two or more social deprivations rather than one.



# 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 & stata exercises
- 4. Collegial Relationships (social capital)
- 5. Ability to complete your own research
- 6. Understanding of Indonesian poverty
- 7. Future earning potential across 20 years
- 8. Your satisfaction with life as a whole



# 7. Weights (Values)

- Early critics have 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 / headcounts
  - Weights are also influenced by association among indicators





# 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



### What do weights 'mean' normatively?

Kinds of value judgements required to set weights vary depending on the evaluative exercise.

**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)

Recall: weights or values are used to create cardinal comparability across dichotomised deprivations in  $M_0$  poverty measures.





#### Sen: Criteria for setting normative weights (theory)

It is thus crucial to ask, in any evaluative exercise... how the weights are to be selected. This judgmental exercise can be resolved only through reasoned evaluation. For a given person who is making his or her own judgments, the selection of weights will require reflection... However, in arriving at an agreed range for social evaluations (e.g. in social studies of poverty), there has to be some kind of a reasoned consensus on weights or at least on a range of weights. This is a social exercise and requires public discussion and a democratic understanding and acceptance (Sen, 1996, p. 397)





#### 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 illbeing.
- 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 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

Consider one of two 'case studies' (MPI or Colombia). What were the normative justifications provided? How could they have been improved?



