

# OPHI

OXFORD POVERTY & HUMAN DEVELOPMENT INITIATIVE

[www.ophi.org.uk](http://www.ophi.org.uk)



UNIVERSITY OF  
OXFORD

## Summer School on Multidimensional Poverty Analysis

11–23 August 2014

Oxford Department of International Development  
Queen Elizabeth House, University of Oxford

Tabita, Kenya



Rabiya, India



Stéphanie, Madagascar



Agathe, Madagascar



Dalma, Kenya



Ann-Sophie, Kenya



Valérie, Madagascar



# OPHI

OXFORD POVERTY & HUMAN DEVELOPMENT INITIATIVE

[www.ophi.org.uk](http://www.ophi.org.uk)



UNIVERSITY OF  
OXFORD

## Normative Choices in Measurement Design

Sabina Alkire

*Tabita, Kenya*



*Rabiyi, India*



*Stéphanie, Madagascar*



*Agathe, Madagascar*



*Dalma, Kenya*



*Ann-Sophie, Kenya*



*Valérie, Madagascar*



- The modern field of ... measurement grew out of the **intelligent application of quantitative methods to imperfect data in the hope of illuminating important social issues.**

(Cowell 2000, 133).

- Human beings are **diverse** in many and important ways: they vary in age, gender, ethnicity, nationality, location, religion, relationships, abilities, personalities, occupations, leisure activities, interests, and values.
- **Poverty measures** seek to identify legitimate, accurate, and policy-relevant comparisons across **people**, whilst fully respecting their basal diversity. Further, they seek to do so using **data** that are affected by several kinds of errors and limitations. This is no straightforward task.



# Diversity



# What are 'Normative' choices

Normative choices are **value judgements**.

Normative choices link measurement design **back** to poor people's lives and values, and **forward** to the policies that, informed by poverty analysis, will seek to improve these.

All measures require choices, explicitly or implicitly:

The need for selection and discrimination is **neither an embarrassment, nor a unique difficulty**, for the conceptualization of functionings and capabilities.

(Sen 1992:44).



# Normative Reasoning:

## High Level ~ 'Meta' ~ Coordination

Coordinates insights from different analyses of measurement to rule out suboptimal options and select among justifiable options.

Key sources of insight include:

- **Deliberative insights** (participatory work or documents)
- **Empirical assessments** (data quality, redundancy, robustness)
- **Expert assessments** (stakeholders, qualitative, historical)
- **Policy relevance** (timing, fit with planned activities).
- **Practicalities** (constraints of data, time, human resources, authority, political will, and political feasibility)
- **Theoretical assessments** (properties, legality, human rights)

# Normative Reasoning

You are the team leader of a new Commission tasked with constructing a national MPI. Which of these are relevant to the Commission and why?

- **Deliberative insights** (participatory work or documents)
- **Empirical and statistical assessments** (e.g. robustness)
- **Expert assessments** (stakeholders, qualitative, historical)
- **Policy relevance** (timing, fit with planned activities).
- **Practicalities** (constraints of data, time, human resources, authority, political will, and political feasibility)
- **Theoretical assessments** (properties, legality, human rights)



# 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. Space
3. Unit of Identification or Analysis
4. Dimensions (if helpful)
5. Indicators - columns in the matrix
5. Deprivation Cutoffs for each Indicator
6. Weights/Values for each Indicator
7. Poverty cutoff to identify the poor

# Alongside measurement design:

1. **Process** of developing measure.
  - a. Public Consultations?
  - b. Expert Groups – National Statistics, Academics, Technical experts by Sector, etc.
  - c. International/Regional Experts?
2. Legal/institutional **basis** (to endure)
3. Who has **authority** to update
4. When/how to **update survey; parameters**
5. What **incentives** it provides (Ministries)
6. **Political** Considerations





# Eight Essential Choices for your own AF Measure:

1. Purpose
2. Space
3. Unit of Identification and Analysis - person or hh
4. Dimensions (if helpful)
5. Indicators
5. Deprivation Cutoffs for each Indicator
6. Weights for each Indicator
7. Poverty cutoff to identify the poor

Choices 2-8 are guided by

- Purpose & Anticipated Uses, Data available
- Legal, political, and institutional constraints

# Eight Essential Choices for your own AF Measure:

- **Purpose(s) of the measure:** The purpose(s) of a measure may include its policy applications, the reference population, dimensions, and time-horizon.
- **The choice of space:** The choice of space determines whether poverty is measured in the space of resources, inputs and access to services, outputs, or functionings and capabilities.
- **The unit(s) of identification and analysis:** These are unit(s) for which the AF method reflects the joint distribution of disadvantages, identifies who is poor, and analyses poverty.
- **Indicators:** Indicators are the building blocks of a measure; they bring into view relevant facets of poverty and constitute the columns of the achievement and deprivation matrices.
- **Dimensions:** Dimensions are conceptual categories into which indicators may be arranged (and possibly weighted) for intuition and ease of communication.
- **Deprivation cutoffs:** The deprivation cutoff for an indicator shows the minimum achievement level or category required to be considered non-deprived in that indicator.
- **Weights:** The weight or deprivation value affixed to each indicator reflects the value that a deprivation in that indicator has for poverty, relative to deprivations in the other indicators.
- **Poverty cutoff:** The poverty cutoff shows what combined share of weighted deprivations is sufficient to identify a person as poor.

# 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

# Sample Purpose Statement

**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.

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

## 2. Choice of Space

Could be:

- Resources (Consumption/Assets) Money for healthcare
- Access to services Health clinic exists
- Having services/social protection Go to clinic
- Functionings and capabilities Have good health
- Subjective utility Happy with health status

No right answer. Choice depends upon *purpose*.

### 3. Unit(s) of Identification and Analysis

The **unit of identification** refers to who is identified as poor or non-poor (poverty status).

Examples:

- Person (all, children, women, elderly, workers, political leaders)
- Household
- Institution (school, clinic)
- Geographic Region (village, district)

Choice depends upon *data*, and *purpose*.

The **unit of analysis** refers to how data are reported (often individual level - % of poor people)



### 3. Unit(s) of Identification and Analysis

- *Person* :
  - Best: to look at gender, age, diversity, intrahousehold
  - Most datasets don't have
  - May allocate household variables to members equally
- *Household* :
  - Most common unit for multi-topic survey data
  - Requires combining individual data from household members (e.g. education, health, work)
- *Person in a Subgroup* :
  - E.g. Children, Youth, Women, Elderly, Adults

### 3. Unit(s) of Identification and Analysis

- *Institution:*
  - E.g. School, Hospital, firm
  - One vector per institution, weighted
  - Can be of tremendous useful for sectoral policy
- *Region:*
  - Assumes within-region equality of poverty
  - Can use multiple data sources so long as representative by that region.
  - Inform comparisons across regions, not within
- *Nation:*
  - Becomes a ‘marginal measure’.

## 4. 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).

# Terms: Dimensions & Indicators

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

By ‘**indicators**’ we mean the  $d$  variables that appear in columns of the achievement and deprivation matrices and are used to construct the deprivation scores and to measure poverty

Confusion prevention note: in AF JPubE 2011, indicators are termed ‘dimensions’

## 4. Choosing Dimensions (then Indicators, then z Cutoffs):

Please write down:

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

# Key Inputs into Choice of Dimensions

- Existing Data (constraint)
- **Deliberative/participatory exercise**
- **Enduring public ‘consensus’**
- **Theory of Well-being or Ill-being**



## Existing Data or Convention

- Dimensions are selected because available data permit their measurement.
- Other desirable dimensions are not in the dataset or are impossible to measure.

# Ongoing Deliberative Participatory Processes

- Dimensions reflect the outcomes of ongoing legitimate participatory exercises that 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 that include the marginalized*

# Public consensus

- Dimensions relate to a set that has already achieved a degree of legitimacy due to public consensus.
  - *National Development Plan*
  - *Constitution or Legal document*
  - *Universal Human Rights,*
  - *the MDGs*
  - *Sphere Project etc*

Colombia

Mexico

Global MPI

# Theory of Well-being or Ill-being

- Dimensions are based on an implicit or explicit theory of welfare. Sources may include social or psychological theory, philosophy, religion – or a synthetic exercise; they may also reflect a particular author's view.

- *Nussbaum's 10 central human capabilities*
- *Stiglitz Sen Fitoussi 8 dim. of Quality of Life*
- *Maslow's Hierarchy of Needs*
- *Maqasid-a-Sharia*
- *Finnis' Basic Goods*

Social Exclusion  
Human Rights  
Livelihoods  
Social Cohesion  
Well-being  
Capability  
Basic Needs  
Objective Lists

# Normally use a combination of inputs

- Existing Data (constraint)
- **Deliberative/participatory exercise**
- **Enduring public ‘consensus’**
- **Theory of Well-being or Ill-being**

# Often use a combination of methods

Example: - a national measure uses

- A recent participatory exercise
- The MDGs
- National Development Plan
- Set of variables in dataset (subj. pov?)
- Some theory (e.g. ubuntu)



# Interconnections: Dimensions & Weights

‘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 et al. 2002).

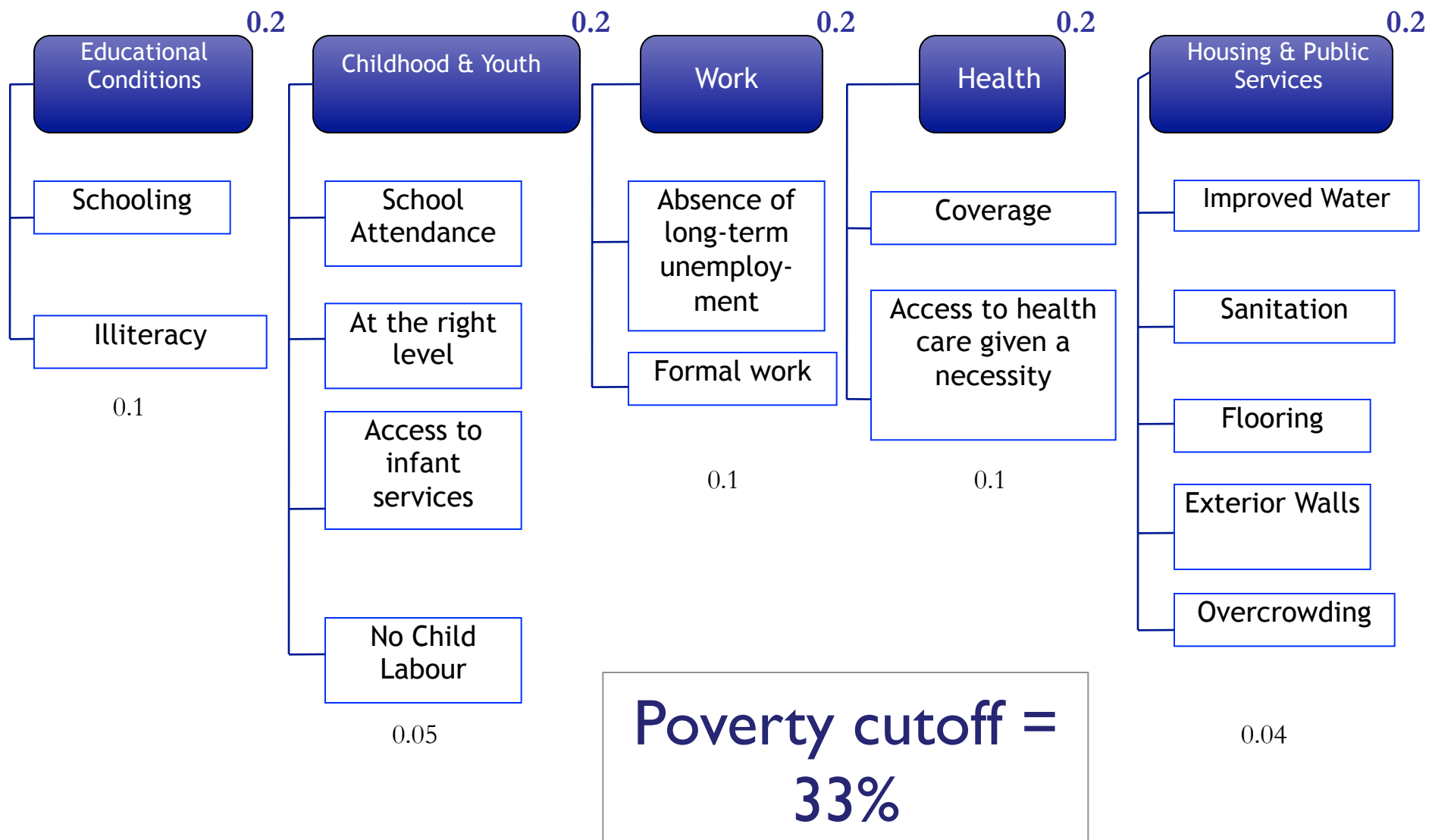
# Write up your justification of dimensions

(Robeyns)

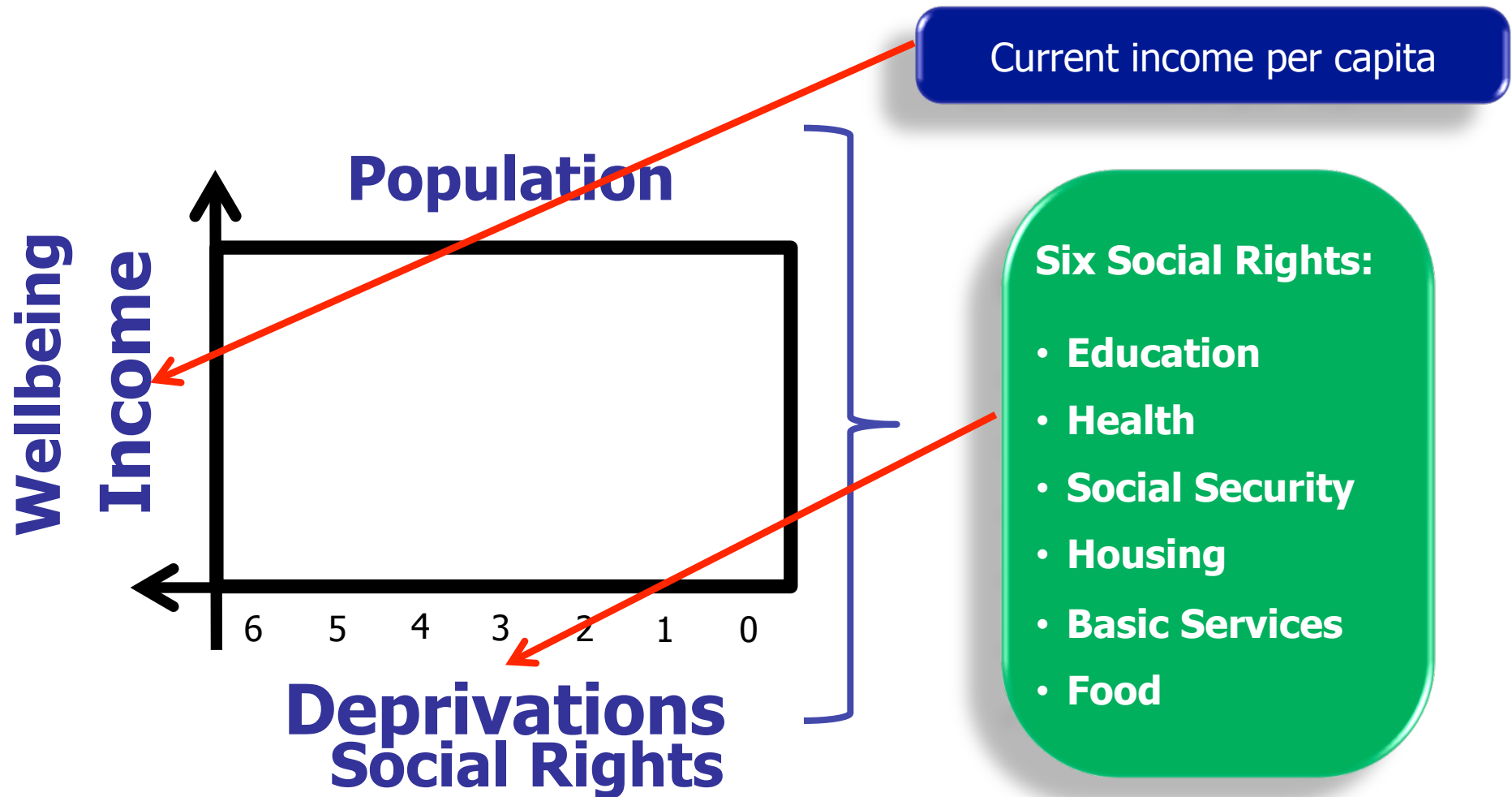
- 1. *Explicit formulation*: Explain **why each dimension is claimed to be something people value and have reason to value** (and instrumental?).
- 2. *Methodological justification*: Explain and defend how you generated the set of dimensions
- 3. *Two stage process: Ideal-Feasible* : First say what dimensions 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 of well-being.
- Hint: You may want to consider existing lists of dimensions when making your own.
- A poverty measure may be narrower than WB.

# Sample Dimensions

Stiglitz-Sen-Fitoussi	Bhutan's GNH	Voices of the Poor	Finnis
Health	Health	Bodily Wellbeing	Health & Security
Education	Education	Material Wellbeing	Knowledge
Economic security	Material Std	Social Wellbeing	Work & Play
Personal Security	of living	Security	Agency &
Balance of Time	Time Use	Psychological	empowerment
Political Voice & Governance	Governance	Wellbeing	Relationships
Social Connections	Community		Harmony - Art,
Environmental Conditions	Environment		Religion, Nature
Subjective measures of quality of life	Culture & spirituality		Inner peace
	Emotional Well-being		



## End of 4. Look at what you wrote:

- How were those dimensions chosen?
- How could you ‘justify’ the dimensions?
  - Existing Data or Convention
  - Ongoing Deliberative/Participatory Processes
  - Public ‘consensus’
  - Theory

# Eight Essential Choices for your own AF Measure:

- ✓ Purpose
- ✓ Space
- ✓ Unit of Analysis (person or household)
- ✓ Dimensions (if helpful)
- 5. Indicators
- 6. Deprivation Cutoffs for each Indicator
- 7. Weights for each Indicator (Dimension)
- 8. Poverty cutoff (to identify the poor)

**Half way!**

## 5. Choice of Indicators: Technical Issues

- **statistical techniques** to assess aspects such as the reliability, validity, robustness, and standard errors of economic and social indicators,
- indicators' **comparability** across time and for different population subgroups,
- dataset-specific issues such as **data quality**, sample design, seasonality, and missing values,
- the justification of indicators as **proxies** for a hard-to-measure variable of interest.

**Covered in a separate session**

## 5. Choice of Indicators

*Purpose* determines indicator requirements:

- stock or flow
- static or dynamic
- input or output or outcome
- subjective or self-report or objective
- relative or absolute

Atkinson and Marlier (2010, 8–14)

## 5. **Choice of Indicators: Considerations**

1. Reflects people's ideas of MD poverty
2. Policy Relevant
3. Relevant in Institutional/Historical Setting
4. Can be interpreted
5. Can be communicated
6. Data/Survey Cost is affordable

## 5. Choice of Indicators: Sample Justification

Five criteria for internationally comparable indicators of deprivation:

1. An indicator should identify the **essence of the problem** and have an agreed normative **interpretation**.
2. An indicator should be **robust and statistically validated**.
3. An indicator should be **interpretable** in an international context.
4. An indicator should reflect the **direction of change** and be susceptible to revision as improved methods become available.
5. The measurement of an indicator should **not impose too large a burden** on countries, on enterprises, or on citizens.

Atkinson and Marlier (2010, 45)



# 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

## 6. Deprivation Cutoffs

Deprivation cutoffs define a minimum 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 possibility to be identified as poor
- Results may be sensitive to choice

## 6. Choice of Deprivation Cutoffs $z$

- Purpose of exercise
- Participatory exercises ‘how much is enough’
- Consultation with measure users
- Legal documents (compulsory schooling)
- Plans, Goals, Targets (aim = ante-natal care)
- Empirical examination of data/ robustness

# 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

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

Electricity  
Land  
Sanitation  
Health  
Drinking Water

### Next most

Education  
Housing

### Third

Income / Money

### Fourth

Animal  
Assets













## 7. Weights

- In  $M_0$ , weights (also called deprivation values) reflect the relative impact that the presence or absence of a deprivation has on the person's deprivation score and thus on their identification and, for poor people, on poverty. Weights are applied to the 0–1 deprivation status entry. Weights create cardinal comparability across dichotomized

# In evaluating this summerschool how do we weight expansions in:

1. Understanding Stochastic Dominance
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 British poverty
7. Future earning potential across 20 years
8. Your satisfaction with life as a whole

# 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 1997:6



## 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 on weights are essential.
  - Weights are *also* a function of deprivation cutoffs / headcounts
  - Weights are *also* influenced by association among indicators

# Equal weights

- Most commonly used approach
- *Equal weights are NOT* ‘non-weighting’
- Equal weights represent value judgements
- **Problem:**
  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



# Weights can reflect different judgements:

*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.*

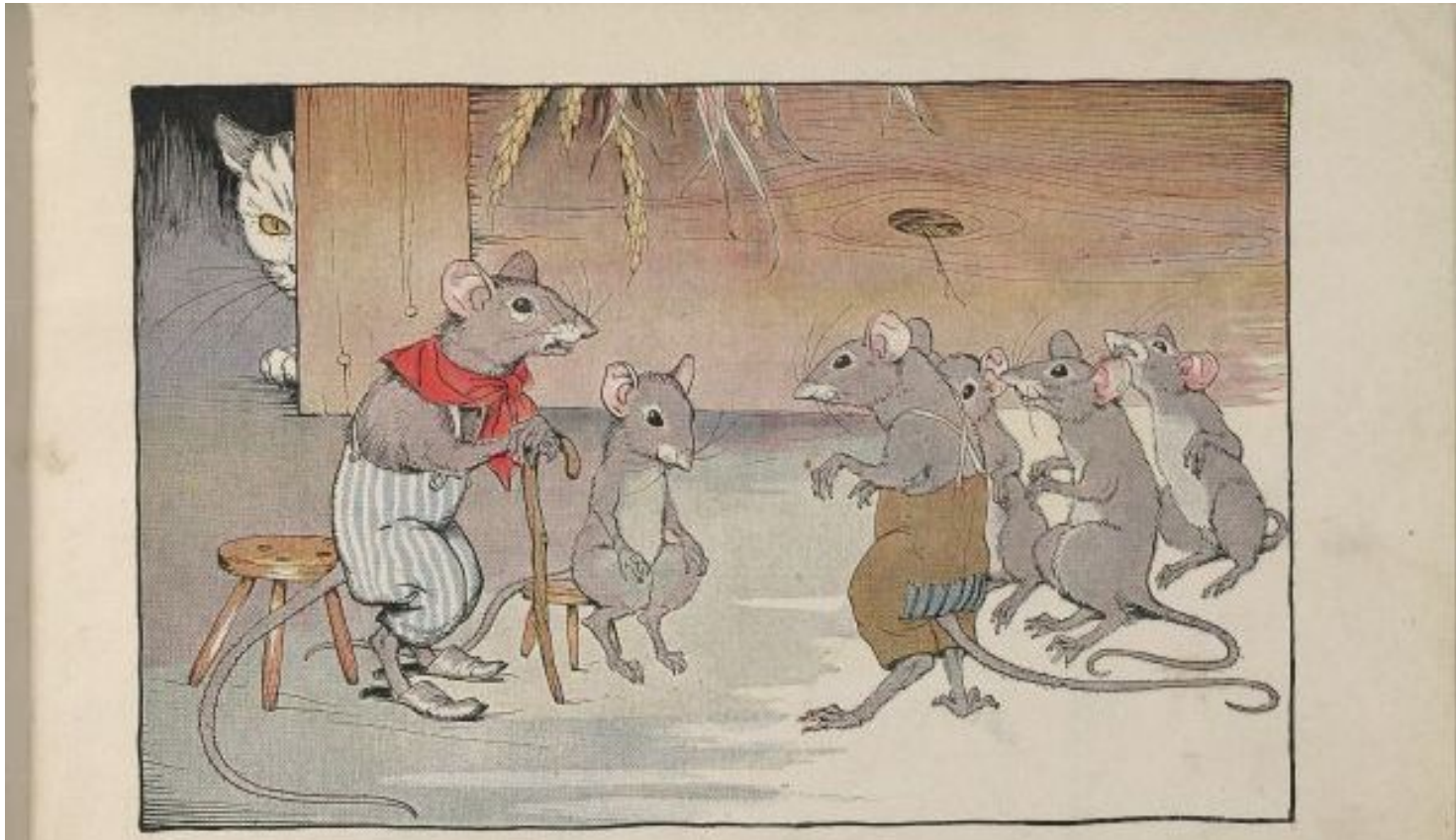
## Sen: Criteria for setting normative weights (theory)

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 1996:397

But who will bell the cat?

How set weights *in practice*???



Survey Data?

Experts?

Participatory Methods?

Combination?

# Participatory Exercises

- Often used
- Focus 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 justify choice of weights

- Make the rationale for weights explicit
- Check robustness to a range of weights
- Use procedures self-critically (maybe  $>1$ )
  - 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)

## 8. 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 establishes the **minimum eligibility criteria** for poverty in terms of breadth of deprivation.

Normatively it reflects a judgement regarding the maximally acceptable set of deprivations a person may experience and **not be considered poor**.

## 8. Poverty Cutoff:

Clearly a value judgment:

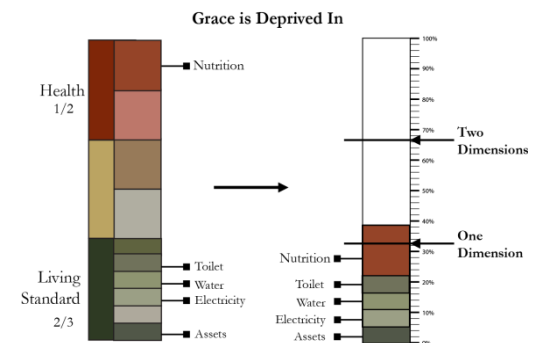
**How much is enough** to be poor?

- Reflects purpose (targeting vs national measure)
- Often political interest because it creates the H

This is a new step – so not many precedents.

Has been set

- To match particular headcount ratio (in income)
- 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

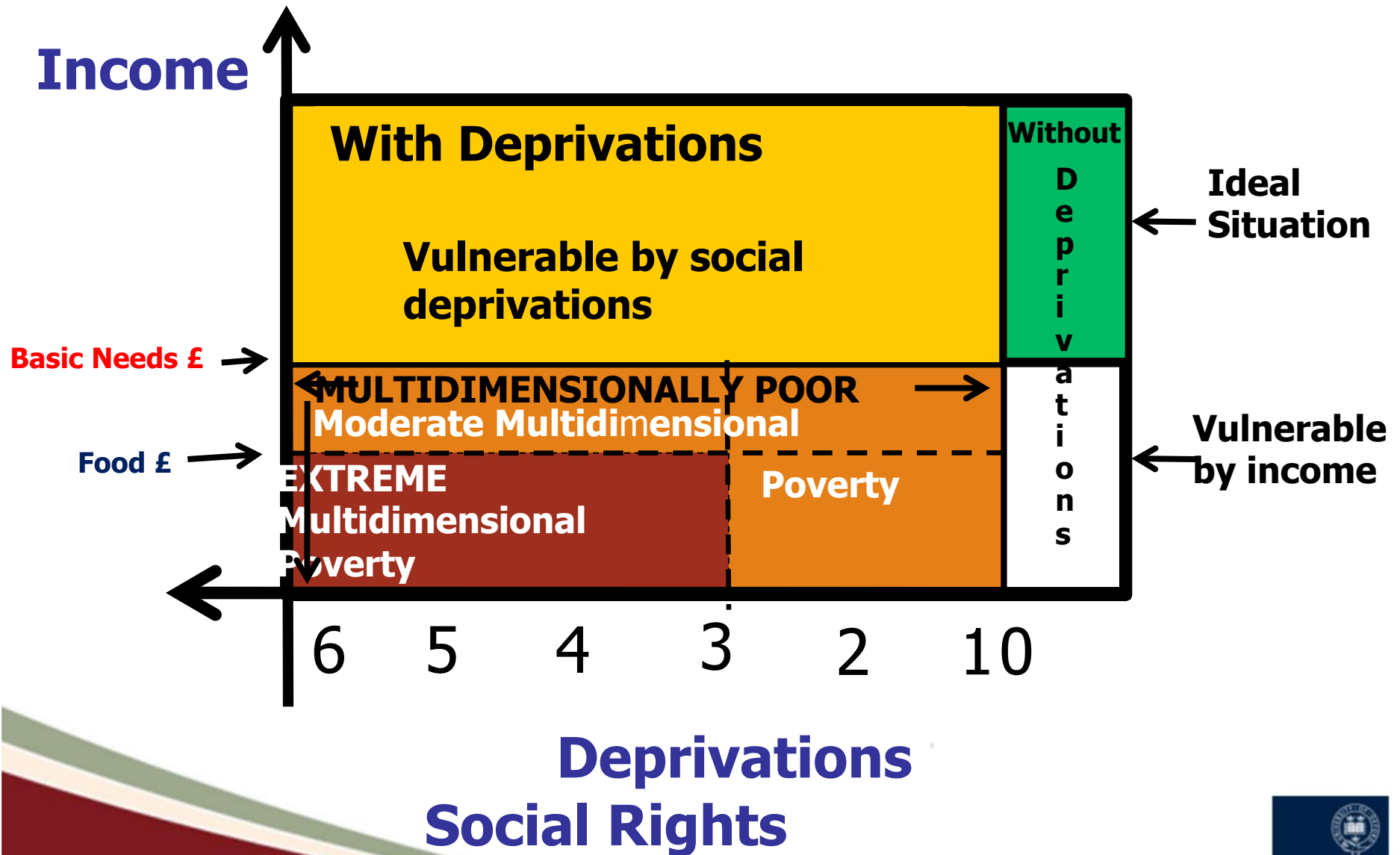
Fuente: Cálculos DNP-SPSCV, con datos de la ECV2008

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)



## Communicating $k$ -

- $k$  can take any value technically.
- But its intuition is in terms of  $c$  (depr. score)
- **Example:** Five indicators with equal weights  
 $k = 21\%, 25\%, 33\%, 40\%$ .

Which is easiest to communicate?

- 40% most intuitively conveys the fact that poor people are deprived in at least two out of the five (2/5) deprivations.

# Justifying $k$

- Normative and Intuitive
- Robustness tests for different values of  $k$ 
  - Dominance
  - Pairwise comparisons
  - Rank correlations
  - Sensitivity analysis



# 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.

# Axiomatic Example: Mexico

- *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.

# Axiomatic Example: Mexico

- *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  $\rho_{wk}(y_i) =$  for all  $y_i$ .

# Axiomatic Example: Mexico

*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.

# Axiomatic Example: Mexico

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

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

# 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.