

# Normative and Practical Issues in Multidimensional Poverty Measurement

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**Executive Education Course on Multidimensional  
Poverty for SADC Steering Committee members**

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# What is Poverty?



# Seven Essential Choices for a national MPI using AF method:

1. **Purpose**
2. **Unit of Analysis** (person or household)
3. **Dimensions** (if helpful)
4. **Indicators** (essential)
5. **Deprivation Cutoffs** for each Indicator
6. **Weights** for each Indicator (Dimension)
7. **Poverty cutoff** (to identify the poor)

Each is a normative choice, informed by  
analysis

# Other issues for a National MPI

1. Legal basis? (how endure across time)
2. How to update – Survey; Frequency
3. Who has authority to update (Institution)
4. What Incentives it provides (Ministries)
5. Political process of developing measure.
  - a. Public Consultations?
  - b. Expert Groups – National Statistics, Academics, Technical experts by Sector, etc.
  - c. International/Regional Experts?



# 1. Purpose - what is the measure for?

Particular objectives of the exercise

- The purpose of the evaluation
- The region, or sector, or years of interest
- The policy actors who will use the measure
- 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 *predict* poverty or vulnerability in the future
4. to *target* the poorest more effectively

# Sample Purposes

The purposes of the evaluative exercise shapes all choices, e.g.

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

**Youth Poverty Measure** – one-time study on youth issues

**Targeting exercise** – census to identify poorest of the poor

**M&E measure** – to track /evaluate progress to given goals

**International Measures**– compare across nations

**Community Development** – track outputs transparently



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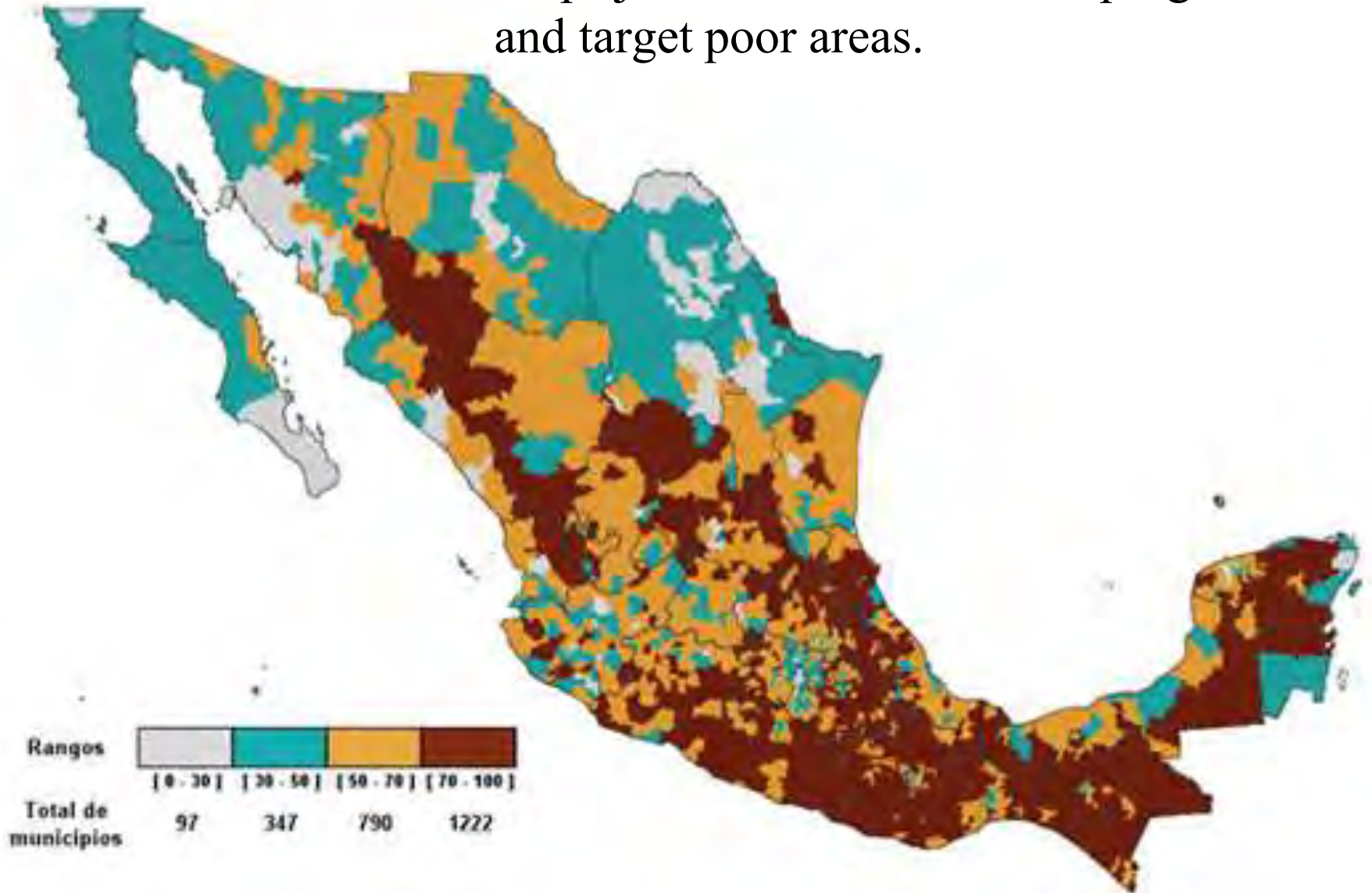
**National Development Plan 2010-2014: goals in the reduction of poverty using a complete profile (MPI & income)**

● 0%-10% avance    ● 10%-25% avance    ● >25% avance

Poverty	Base Line 2009	2011	Alert	Goal 2011	Goal cuatrienio
▪ Income poverty (% LP)	40.2%	34,1%	●	35.9%	32%
▪ Extreme income poverty(%LI)	14.4%	10.6%	●	11.6%	9.5%
▪ IPM (Multidimensional poverty) Base line 2008	34.6%	29.4%	●	25.7%	22.5%
▪ Graduated families from extreme poverty (Unidos)	0	581	●	10.000	350.000
▪ Gini (Income)	0.557	0.54	●	0.556	0.544

FUENTE: DNP-DDS-SPSCV

Mexico: Municipal Level Poverty  
Maps just released to monitor progress  
and target poor areas.



# 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

- Individual
- Household
- Institution or micro Region

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

# Bourguignon & Chakravarty 2003:

“a multidimensional approach to poverty defines poverty as a shortfall from a threshold on each dimension of an individual’s well being.

*In other words, the issue of the multidimensionality of poverty arises because individuals, social observers or policy makers want to define a poverty limit on each individual attribute: income, health, education, etc...”*

# Stiglitz Sen Fitoussi 2009

Some of the most important policy questions involved relate to how developments in one area (e.g. education) affect developments in others (e.g. health status, political voice and social connections), and how developments in all fields are related to those in income... For example, the loss of quality of life due to being both poor and sick far exceeds the sum of the two separate effects, implying that governments may need to target their interventions more specifically at those who **cumulate these disadvantages**. (p 55)

# Unit of Analysis

- *Person* :
  - Best: to look at gender, age, diversity
  - 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)
  - Overlooks intrahousehold inequality
- *Individuals in a Group* :
  - E.g. Children, Youth, Women



### 3. Choice of Dimensions

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

(Sen 2008).

Ideally use a combination of methods

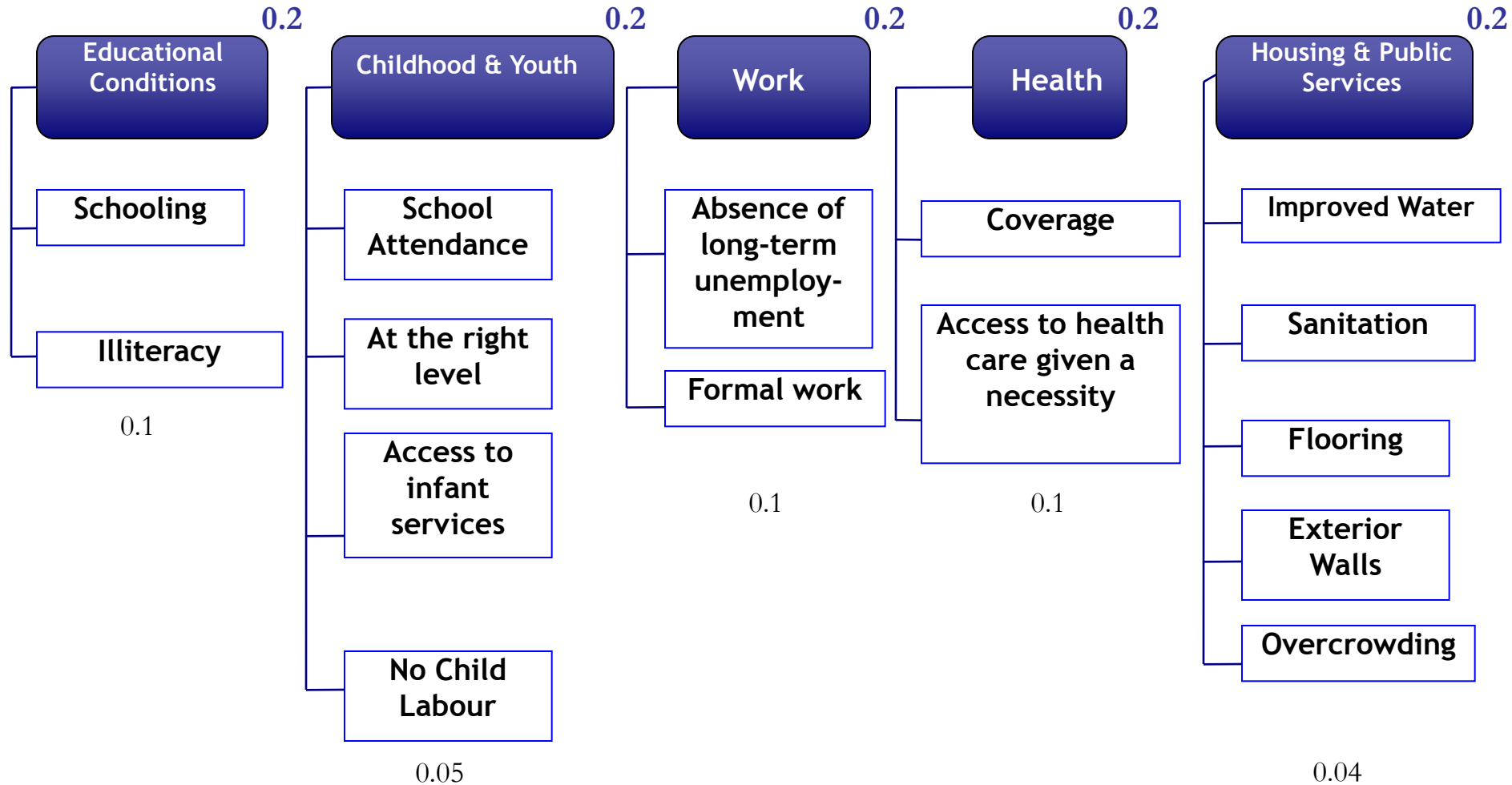
- *Existing Data or Convention*
- *Theory & Expert views*
- *Public 'consensus' (policy)*
- *Ongoing Participatory Processes*
- *Empirical Evidence regarding people's values*

Ideally use a combination of methods

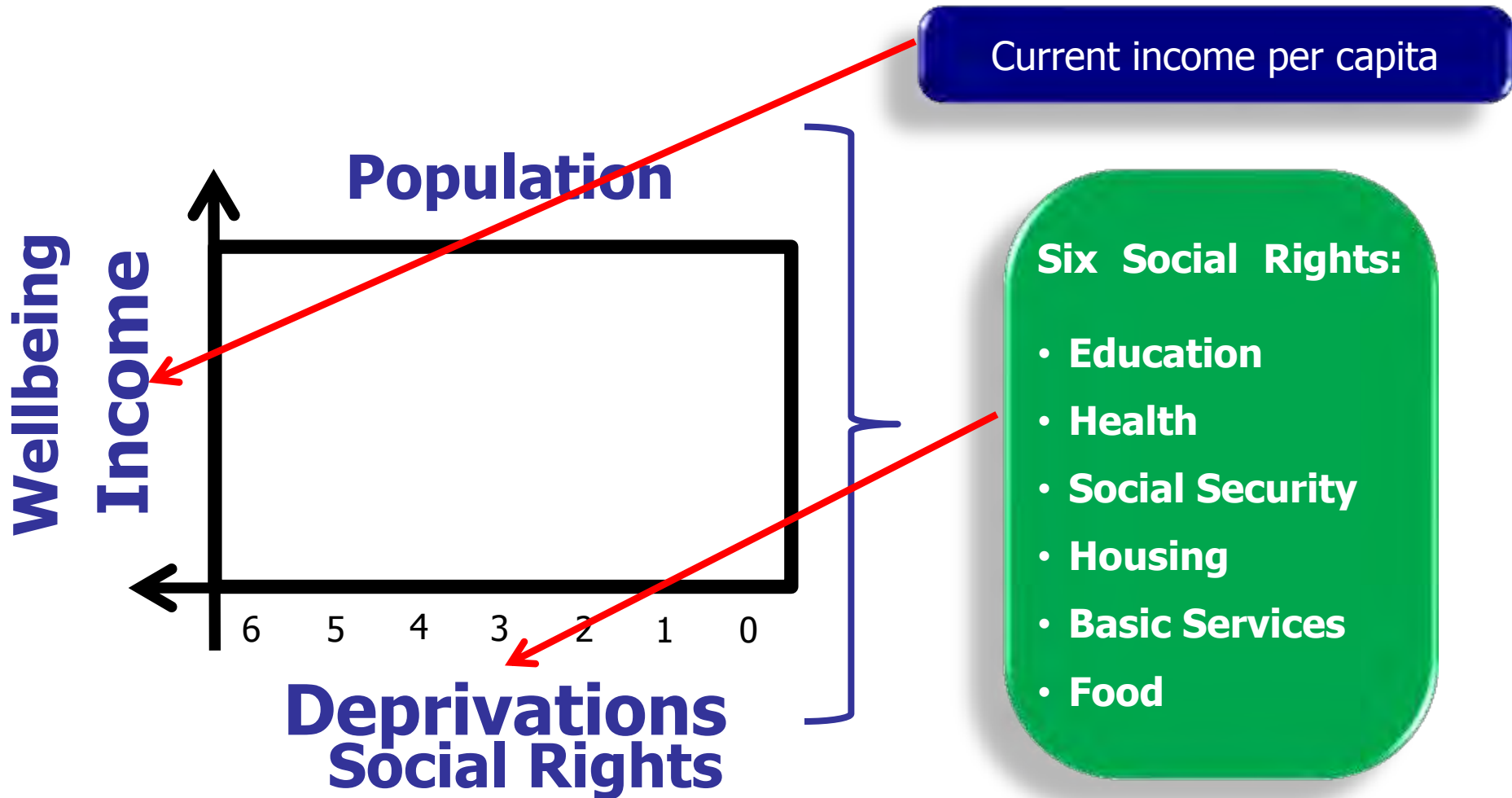
- **Example:** - a national measure

- *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)*

# Colombia's National MPI: Dimensions emerge from National Plan



# Mexico's National Measure: Dimensions named by law



# Myth: The possible dimensions are endless

- Fact: Measures 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

Bodily Wellbeing  
Material Wellbeing  
Social Wellbeing  
Security  
Psychological  
Wellbeing

## Finnis

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

# Seven Essential Choices for A National MPI (using AF):

✓ **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)

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

# 5. Choice of Deprivation Cutoffs $z$

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

# 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
  - Comparability (rural-urban; climatic zones)

# Participatory Input

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



# 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





## 6. Poverty Cutoffs:

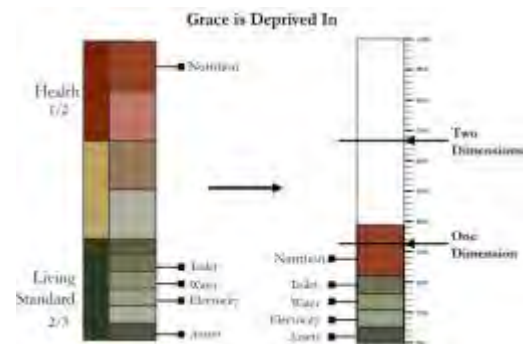
Clearly a value judgment:

- **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

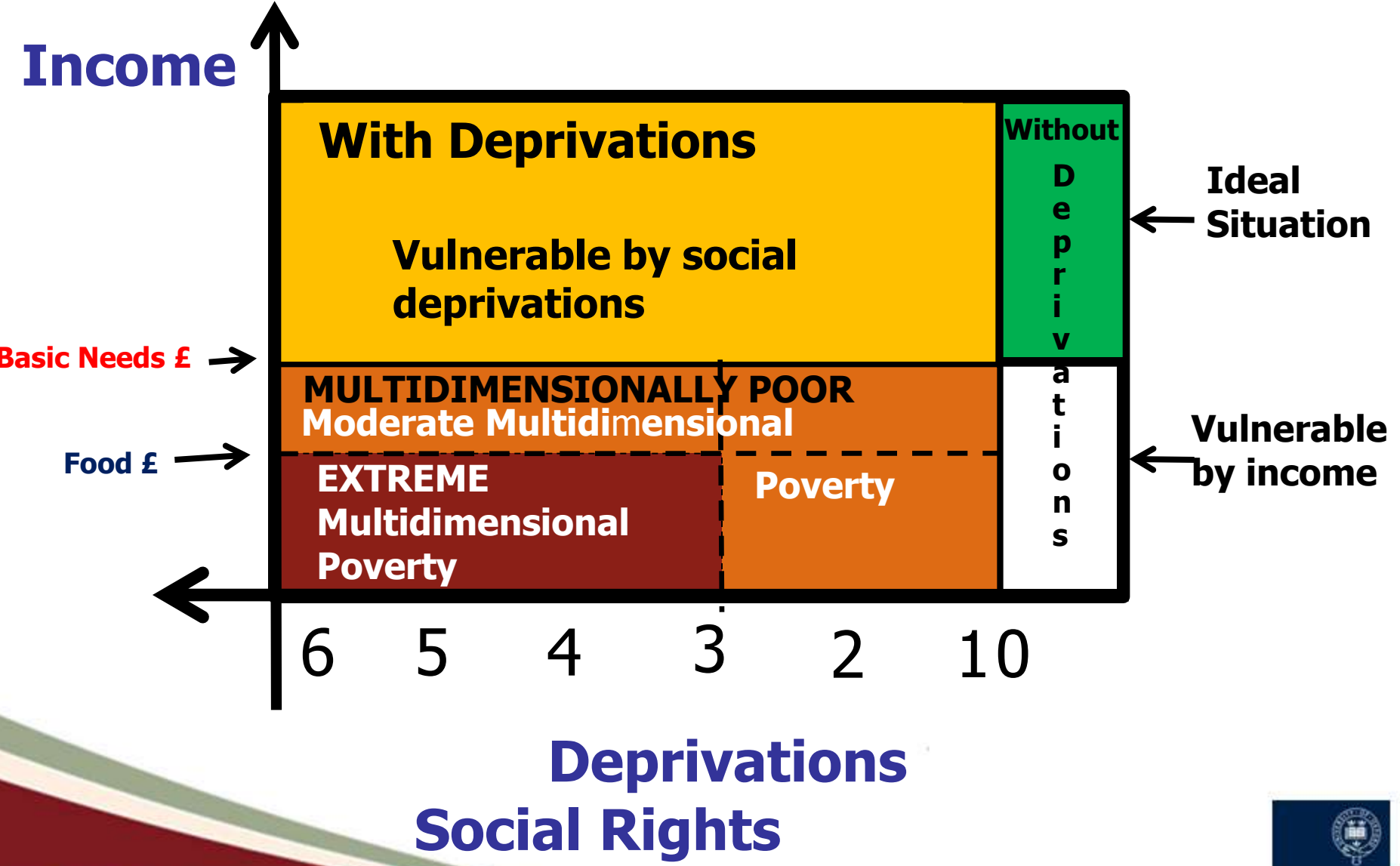
	Median	Average
<b>People who perceive themselves to be poor</b>	5.0	5.0
<b>Income poor people</b>	5.1	5.2
<b>Income poor people who perceive self as poor</b>	5.4	5.6
<b>Those who don't perceive themselves as poor</b>	3.0	3.2
<b>Those who are not income poor</b>	3.0	3.2
<b>All people</b>	3.8	4.1

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)



# 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

# 7. Weights (Values)

- Early critics focused on weights
  - Claiming disputes on weights undermine legitimacy of measure
  - Prefer a ‘mechanical’ route – PCA/eigen vectors/regression coefficients/prices
- This debate has been clarified
  - Weights are normative, and essential to set
  - We will disagree hence need a plausible *range* of weights
  - There are some technical considerations: effective weights.



# Setting weights: be clear

“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
- *Not* 'non-weighting'
- Atkinson: equal weights good for policy.
- 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?

# 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).

# Survey data:

## 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

“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)

# Measures used in policy:

Used equal weights across dimensions

Used equal or variable weights within dimensions

Justified weights in two or three ways

Did robustness tests for a range of weights.

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