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Multidimensional poverty and the Alkire-Foster method for its measurement

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Workshop on measuring poverty and vulnerability

Geneva, 4 May 2015

Motivation

"Human lives are battered and diminished in all kinds of different ways"

Motivation

Don't ask me what poverty is because you have met it outside my house. Look at the house and count the number of holes. Look at my utensils and the clothes that I am wearing. Look at everything and write what you see. What you see is poverty. —A poor man, Kenya 1997

In the evenings, eat sweet potatoes, sleep
In the mornings, eat sweet potatoes, work
At lunch, go without (Guatemala 1997)

The rich have one permanent job; the poor are rich in many jobs. —Poor man, Pakistan 2000

Water is life, and because we have no water, life is miserable. —Kenya 1997

I am illiterate. I am like a blind person. —Illiterate mother, Pakistan 1995

Why such interest?

This session will briefly introduce some of the reasons that multidimensional measures of poverty are on the upswing.

In addition to the moral or ethical motivations already covered, they can be divided into three types:

1. *Technical* – we can
2. *Policy* – we realize the value-added
3. *Political* – there is a demand

Why the new emphasis on measurement?

We can: ***Technical***

1) Data are increasing
2) Computational and Methodological developments

We need to: ***Policy***

3) Monetary and Non-Monetary Household Deprivation Levels
4) Income poverty trends
5) Associations across non-monetary deprivations
6) Economic Growth and Non-income Deprivations

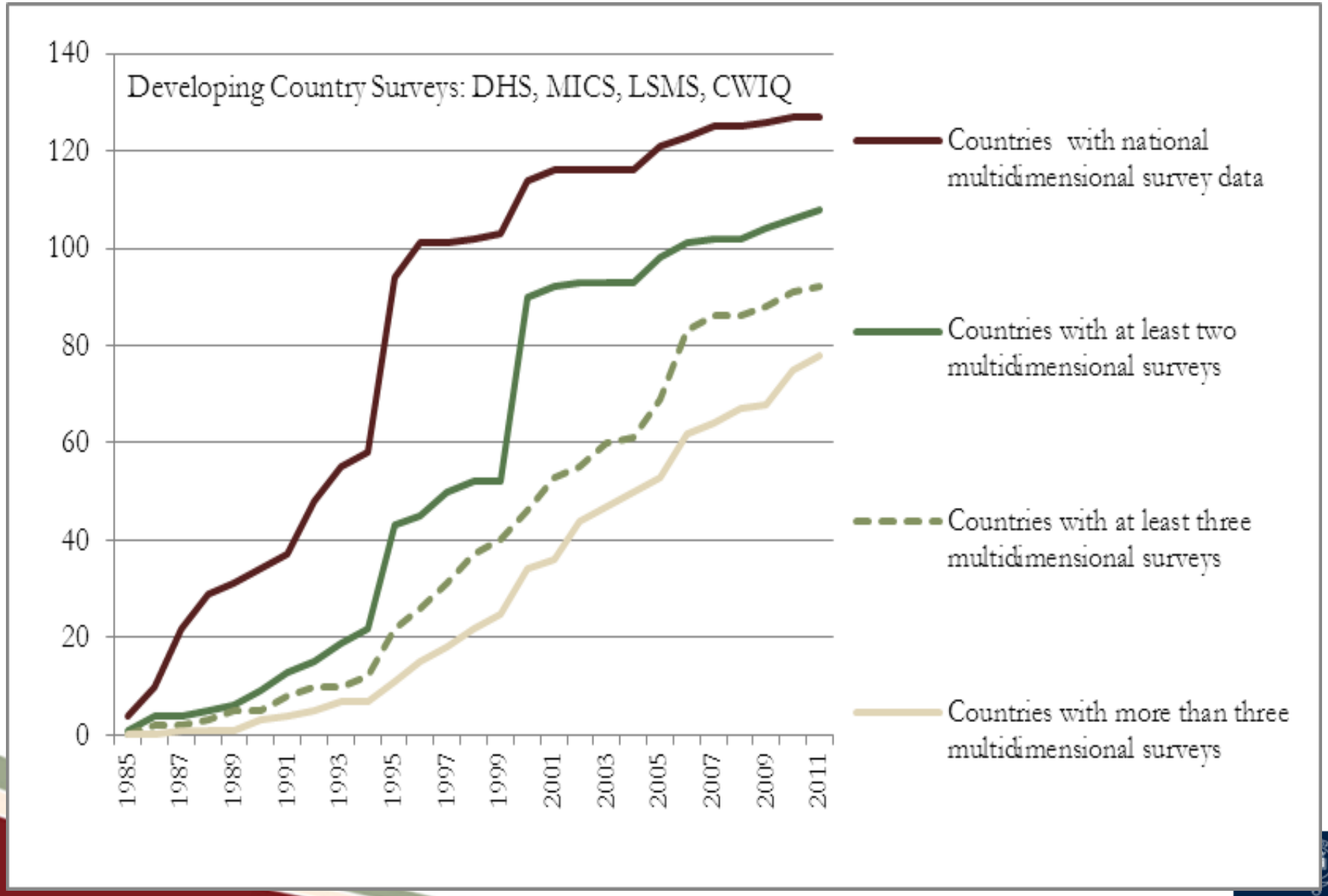
We are willing to: ***Political***

7) National and International 'demand'
8) Political space for new metrics

1. Relevant Data are Increasing

- Since 1985, the multi-topic household survey data has increased in frequency and coverage
- Even greater breath-taking increases have occurred with income and expenditure data
- Technology exists to process these data

1. Relevant Data are Increasing



2. Computational and methodological development

Increases of data availability together with increased computational power have led to the generation of new indices

- HDI, IHDI, Canada Index of Well-being, etc.
- Doing Business Index
- Good Governance
- Global Peace Index & related
- SIGI & other gender-related
- CDI Index

3. Income poverty is not a proxy for key non-income deprivations

Table 5. Lack of overlaps between monetary and CA poverty

Capability poverty measured as		Education		Nutrition/health	
		Children	Adults	Children	Adults
% of CA poor not in monetary poverty:	India	43	60	53	63
	Peru	32	37	21	55
% of monetary poor not CA poor:	India	65	38	53	91
	Peru	93	73	66	94

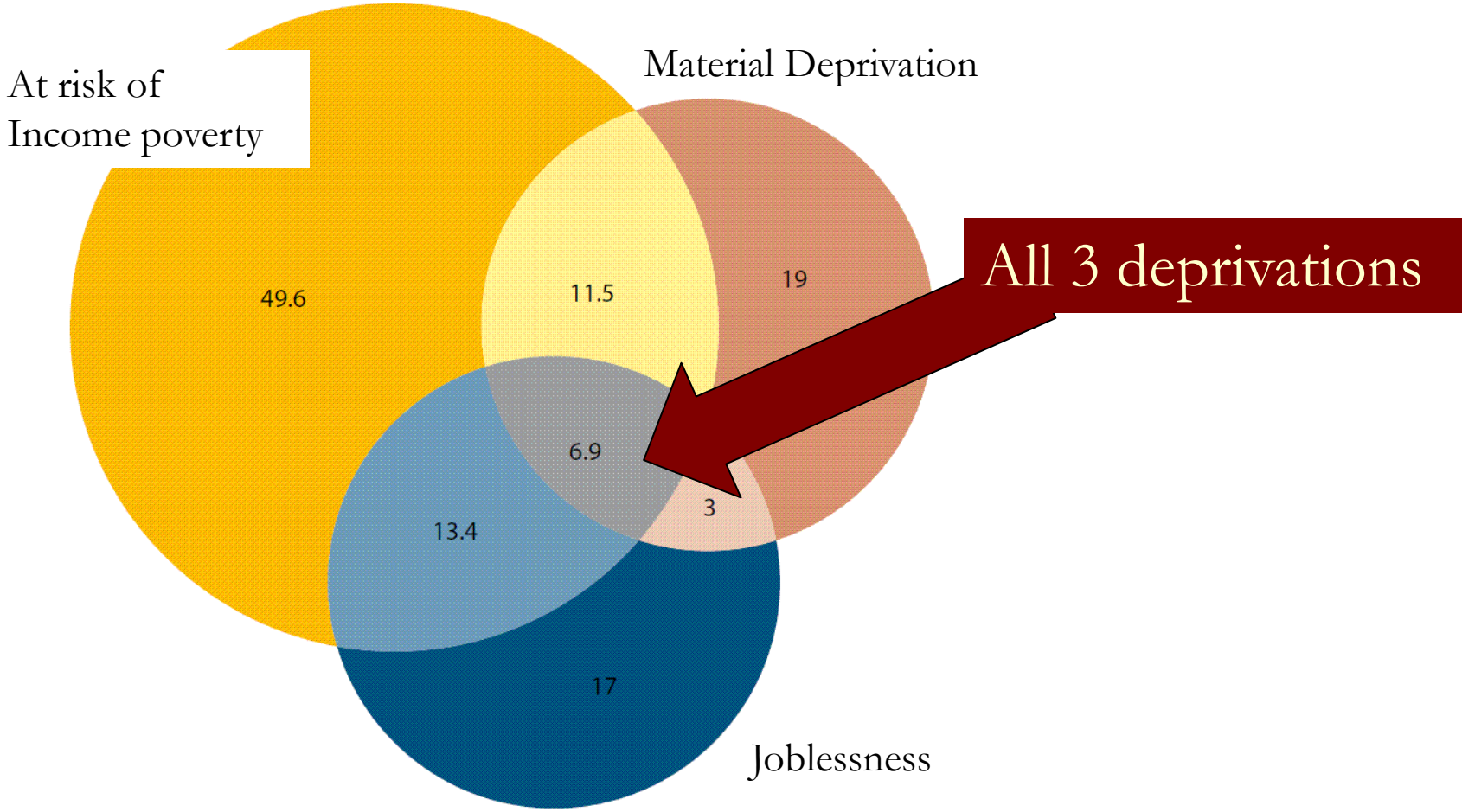
I (omission)

II (inclusion)

Source: Franco *et al.* (2002).

Ruggieri Laderchi Saith and Stewart 2003. 'Does It Matter That We Don't Agree on the Definition of Poverty? A Comparison of Four Approaches', *Oxford Development Studies* 31(3): 243-74

Europe 2020: Multidimensional Poverty



Atkinson, A. B., E. Marlier, F. Monatigne, and A. Reinstadler (**2010**) 'Income poverty and income inequality', in *Income and Living Conditions in Europe,* Atkinson and Marlier (eds), Eurostat.

3. Monetary poverty: important yet incomplete

Other issues:

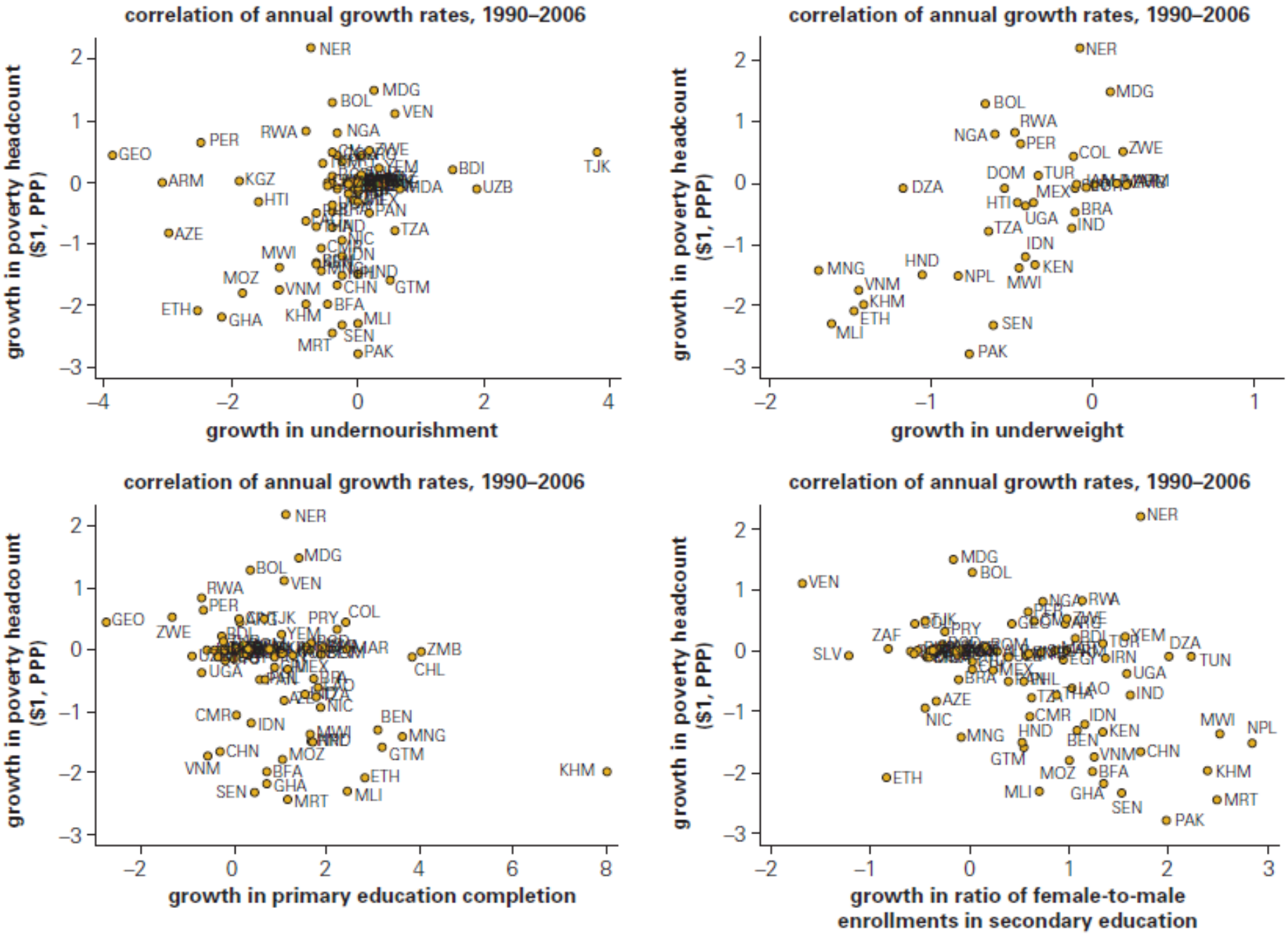
- does not show *how* people are poor
- non-sampling measurement error (accuracy)
- time and cost of survey (data collection)
- comparability (rural-urban, international)

4. Income poverty trends

François Bourguignon, Agnès Bénassy-Quéré, Stefan Dercon, Antonio Estache, Jan Willem Gunning, Ravi Kanbur, Stephan Klasen, Simon Maxwell, Jean-Philippe Platteau, Amedeo Spadaro (2010) 'Millennium Development Goals: An Assessment', in R. Kanbur and M. Spencer (eds.), *Equity and Growth in a Globalizing World*. World Bank, ch. 2.

A 2010 chapter by the above authors that reviewed trends in different MDGs 1990-2006 found that the trends of $1/day poverty did not match trends in other MDGs:

Figure 2.3 Heterogeneity across MDGs



5. Associations across indicators

Can we just choose a non-income indicator as a proxy of the main social deprivations? (*empirical question*)

5. Non-income deprivations

India NFHS data 2005-6, MPI set

% of people living in a hh where a child has died: **25.7%**
% of people living in a hh where no one has 5 yrs schooling: **18.2%**

Are they mostly the same people?

Child mortality	**Anyone has 5 yrs of schooling**		Total
	Non-depr	Deprived	
Non-deprived	61.8	12.5	74.3
Deprived	20.0	**5.8**	**25.7**
Total:	81.8	**18.2**	100

5. Non-income deprivations

India NFHS data 2005-6, MPI set

Another example: **mortality** and **school attendance**

Percentage of people living in a hh where a child has died: **25.7%**

Percentage of people living in a hh where a child is not attending school: **21.1%**

Are they mostly the same people?

Child mortality	**School Attendance**		Total
	Non-depr	Deprived	
Non-depr	61.2	13.0	74.2
Deprived	17.6	**8.1**	**25.7**
Total	78.8	**21.1**	100

6. Growth? Claims are strong

2008 Growth Commission

"Growth is not an end in itself. But it makes it possible to achieve other important objectives of individuals and societies. It can spare people *en masse* from poverty and drudgery. Nothing else ever has".

6. Growth Commission

The Growth Commission 2008 generated a nuanced set of observations on sustained economic growth based on case studies of countries that had 7% growth for over 25 years.

BUT after 25 years of growth:
- In **Indonesia**, 28% of children under five were still underweight and 42% were stunted.
- In **Botswana**, 30% of the population were malnourished, and the HDI rank was 70 places below the GDP rank.
- In **Oman**, women earned less than 20% of male earnings.

Yet some other countries with lower growth had made greater progress in social indicators.

6. Growth? Claims are strong …and debated

François Bourguignon, Agnès Bénassy-Quéré, Stefan Dercon, Mauricio Estache, Jan Willem Gunning, Ravi Kanbur, Stephan Klasen, Simon Maxwell, Jean-Philippe Platteau, Amedeo Spadaro

'The correlation between GDP per capita growth and non-income MDGs is practically zero…'

6. Growth? Insufficient.

India: strong economic growth since 1980s.

1998-9 NHFS-2: **47%** children under 3 were undernourished
2005-6 NHFS-3: **46%** were undernourished (wt-age)

"Growth, of course, can be very helpful in achieving development, but this requires active public policies to ensure that the fruits of economic growth are widely shared, and also requires (…) making good use of the public revenue generated by fast economic growth for social services, especially for public healthcare and public education."

Dreze and Sen 'Putting Growth in its Place' ***Outlook.*** **November 2011**

7. National and International demand

60+ countries - including:

- The New York Times (US)
- TIME Magazine (US)
- Xinhua (China)
- Al Jazeera (Qatar)
- The Hindu (India)
- Dawn (Pakistan)
- BBC (UK)
- The Daily Nation (Kenya)
- Agence France Presse (France)
- The Wall Street Journal (US)
- The Economist (UK)
- The Cape Times (South Africa)
- The Australian (Australia)
- The Guardian (UK)

- The Huffington Post (US)
- Foreign Policy (US)
- The Hindu (India)
- Christian Science Monitor (US)
- The Globe and Mail (Canada)
- The Times of India (India)

The Multidimensional Poverty Peer Network

Launched in June 2013 at University of Oxford with:

- President Santos of Colombia
- Ministers from 16 countries in person
- A lecture from Professor Amartya Sen
- Aim: South-South support for National MPIs & an improved Global MPI 2015+ engaging research.

MPPN has 30 countries plus 10 international agencies in 2014

Supported by the German Federal Ministry for Economic Cooperation and Development (BMZ)

OPHI Oxford Poverty & Human Development Initiative

BMZ Federal Ministry for Economic Cooperation and Development

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The MPPN agenda

- Support **National MPIs** that inform powerful policies
- South-South cooperation: sharing knowledge and experiences
- Suggest an improved **Global MPI 2015+** that reflects the SDGs (acute & moderate poverty versions)
- Strengthen the **data sources** for MPI metrics.

Motivations for new Multidimensional Measures

- Provide an **overview** of multiple indicators at-a-glance
- Show **progress** quickly and directly (Monitoring/Evaluation)
- Inform **planning** and **policy** design
- **Target** poor people and communities
- Reflect people's **own understandings** (Flexible)
- **High Resolution** – zoom in for indicator details

Alkire-Foster Methodology

Practical Steps

- **Select**
  - Purpose of the index (monitoring, targeting, etc.)
  - Unit of Analysis (persons, households, countries)
  - Dimensions
  - Specific variables or indicators for each dimension
  - Cutoff for each independent variable/dimension
  - Value of deprivation for each variable/dimension
  - Poverty cut-off
  - **Identification: who is poor?**
  - **Aggregation: how much poverty is there?**

Alkire-Foster methodology

(to simplify we assume equal weights in this example)

Matrix of deprivation scores for 4 persons in 4 dimensions

Who is deprived in what?

$y =$

	Health	Years of Education	Housing Index	Mal-nourished	
	ND	ND	ND	ND	**Sabina**
	D	ND	ND	D	**Emma**
	D	D	D	D	**John**
	ND	D	ND	ND	**Mauro**

Alkire-Foster methodology

(to simplify we assume equal weights in this example)

Matrix of deprivation scores for 4 persons in 4 dimensions

How much?

$y =$

Health	Years of Education	Housing Index	Mal-nourished	c
ND	ND	ND	ND	0
D	ND	ND	D	2
D	D	D	D	4
ND	D	ND	ND	1

Alkire-Foster methodology

(to simplify we assume equal weights in this example)

Who is poor?

Fix poverty cut-off k, identify as poor if ci >= 2

	Health	Years of Education	Housing Index	Mal-nourished	*c*
	ND	ND	ND	ND	0
	D	ND	ND	D	2
y =	D	D	D	D	4
	ND	D	ND	ND	1

→ Multidimensional Poverty Headcount (H)= 2/4

[50% of the population are poor]

Alkire-Foster methodology

(to simplify we assume equal weights in this example)

Who is poor?

Fix poverty cut-off k, identify as poor if ci >= 2

	Health	Years of Education	Housing Index	Mal-nourished	*c*	
	ND	ND	ND	ND	0	
	D	ND	ND	D	2	2/4
y =	D	D	D	D	4	4/4
	ND	D	ND	ND	1	

→ Intensity of deprivation among the poor (A)=**(2/4+4/4)/2= 3/4**

[on average, the poor are deprived in 75% of the dimensions]

The MD Poverty Index

Health	Years of Education	Housing Index	Mal-nourished	*c*	Av. dep
ND	ND	ND	ND	0	
D	ND	ND	D	2	2/4
D	D	D	D	4	4/4
ND	D	ND	ND	1	

→ Multidimensional Poverty Headcount (H)= 2/4 = 50%

→ Intensity of deprivation among the poor (A)=(2/4+4/4)/2= ¾ =75%

MPI = H x A = (2/4)x(3/4) = 6/16 = 0.375

The MD Poverty Index

INTERVENTION

Health	Years of Education	Housing Index	Mal-nourished	*c*	Av. dep
ND	ND	ND	ND	0	
D	ND	ND	D	2	2/4
D	D	D	D	4	4/4
ND	D	ND	ND	1	

→ Multidimensional Poverty Headcount (H)= 2/4 = 50%

→ Intensity of deprivation among the poor (A)=**(2/4+4/4)/2= ¾ =75%**

MPI = H x A = (2/4)x(3/4) = 6/16=0.375

The MD Poverty Index

INTERVENTION

Health	Years of Education	Housing Index	Mal-nourished	*c*	Av. dep
ND	ND	ND	ND	0	
D	ND	ND	D	2	2/4
ND	D	D	D	3	3/4
ND	D	ND	ND	1	

→ Multidimensional Poverty Headcount (H)= 2/4

→ Intensity of deprivation among the poor (A)=**(2/4+3/4)/2= 5/8 = 62.5%**

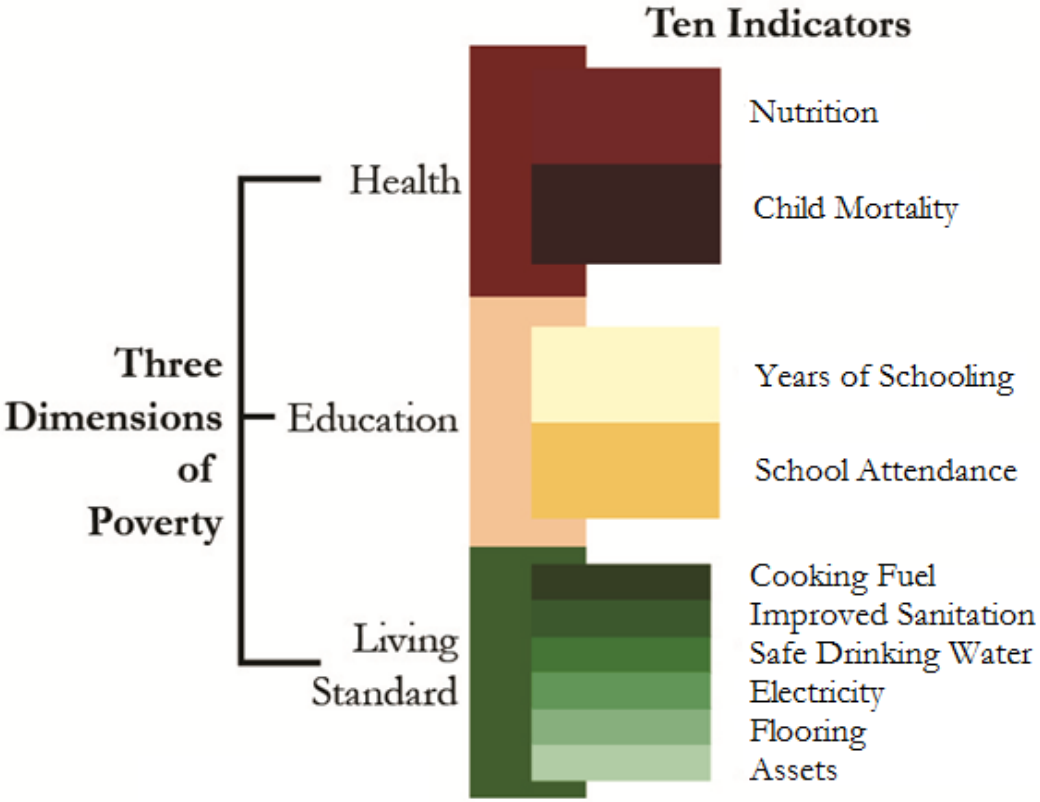
MPI = H x A = (2/4)x(5/8) = 10/32=0.3125

Global Multidimensional Poverty Index

UNDP *Human Development Report 2014* & Alkire, Conconi and Seth 2014

Develop a deprivation profile for each person, using a set of **indicators**, **cutoffs** and **weights**.

Example:



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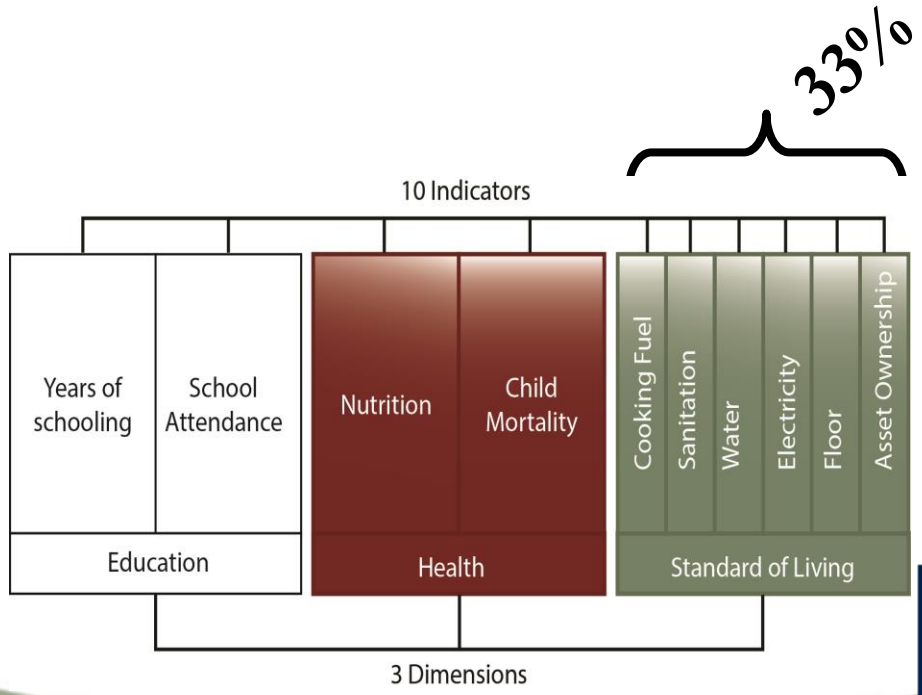
Identify who is poor

Global MPI: A person is multidimensionally poor if they are deprived in 33% or more of the dimensions.

Nathalie's deprivation score is 67%



Aggregation: Alkire & Foster

- Appropriate for Ordinal data -

The MPI is the product of two components:

$$MPI = H \times A$$

1) ***Incidence*** ~ the percentage of people who are poor, or the headcount ratio ***H***.

2) ***Intensity*** of people's deprivation ~ the average percentage of dimensions in which poor people are deprived ***A.***

Multidimensional Measurement Methods:

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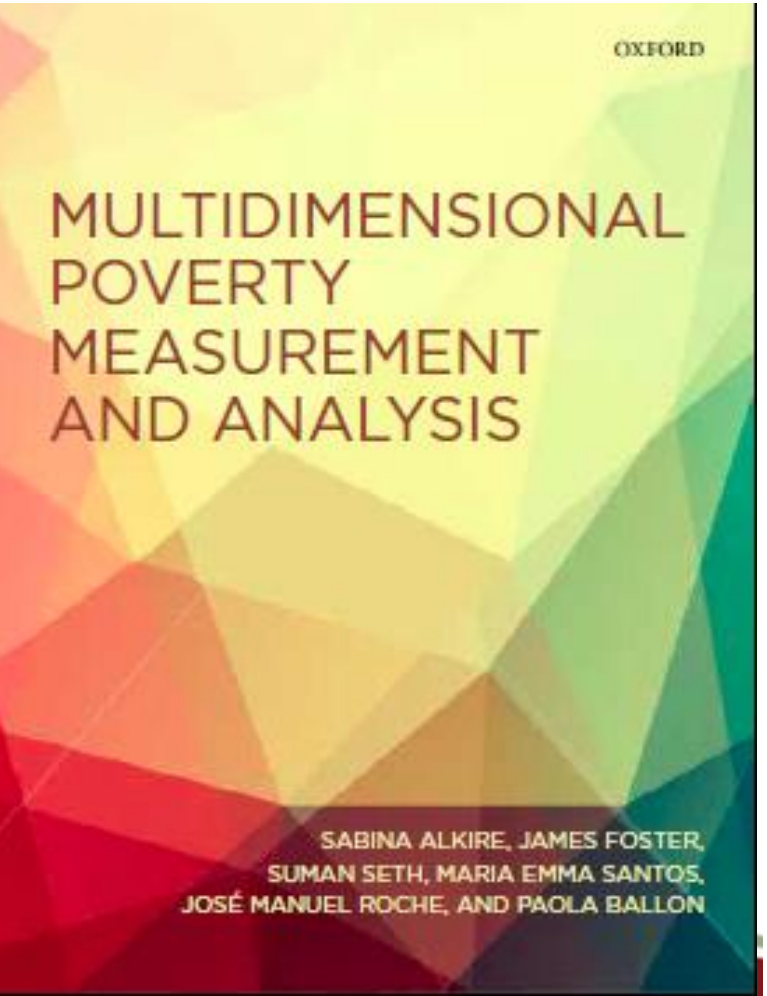

Multidimensional Poverty Measurement and Analysis

Sabina Alkire, James Foster, Suman Seth, Maria Emma Santos, Jose Manuel Roche, and Paola Ballon

- Comprehensive survey of methods used for measuring multidimensional poverty
- Illustrates state-of-the-art of quantitative techniques used in multidimensional poverty studies
- A unique guide to viewing poverty through a multi-dimensional lens

multidimensionalpoverty.org

June 2015

Multidimensional Measurement Methods:

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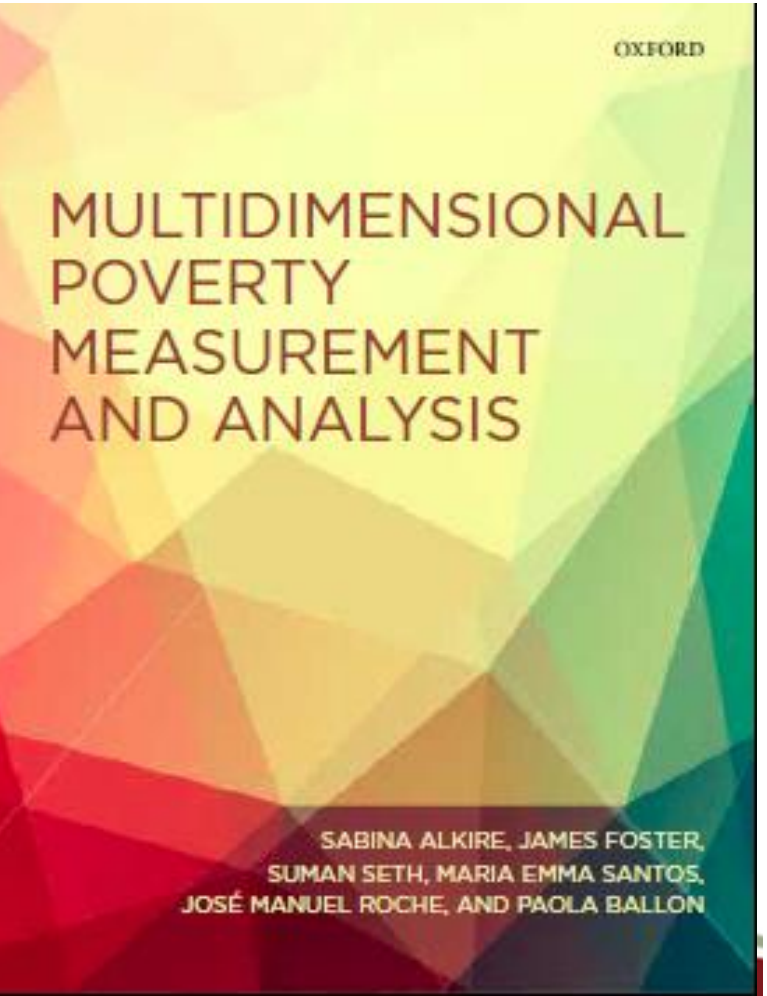

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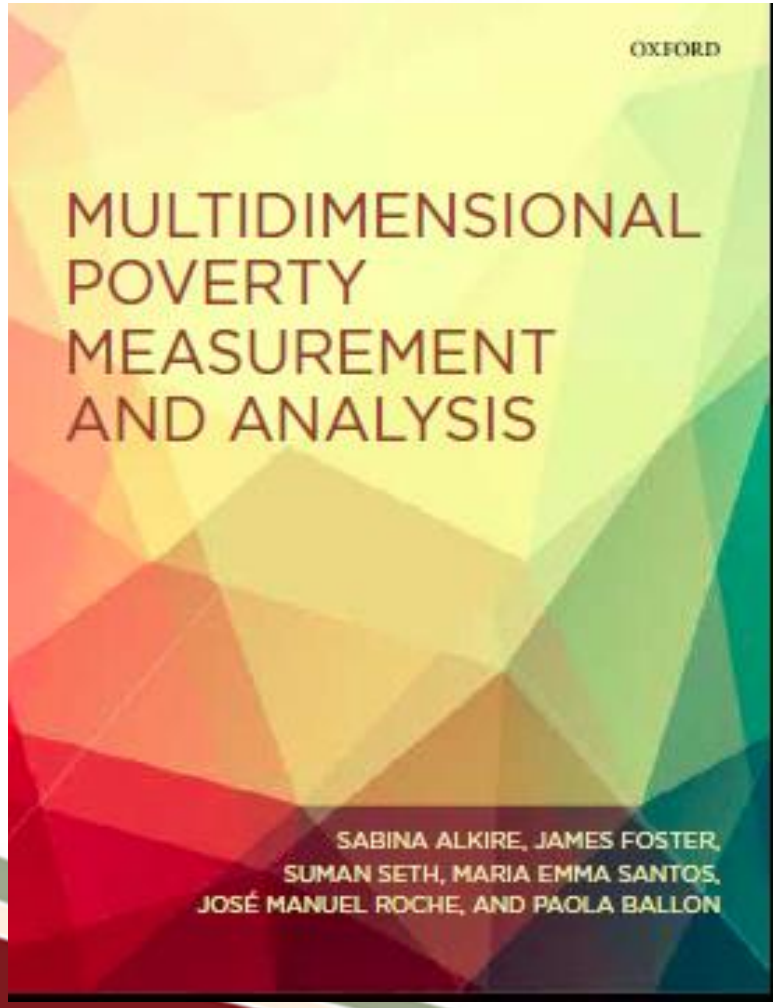

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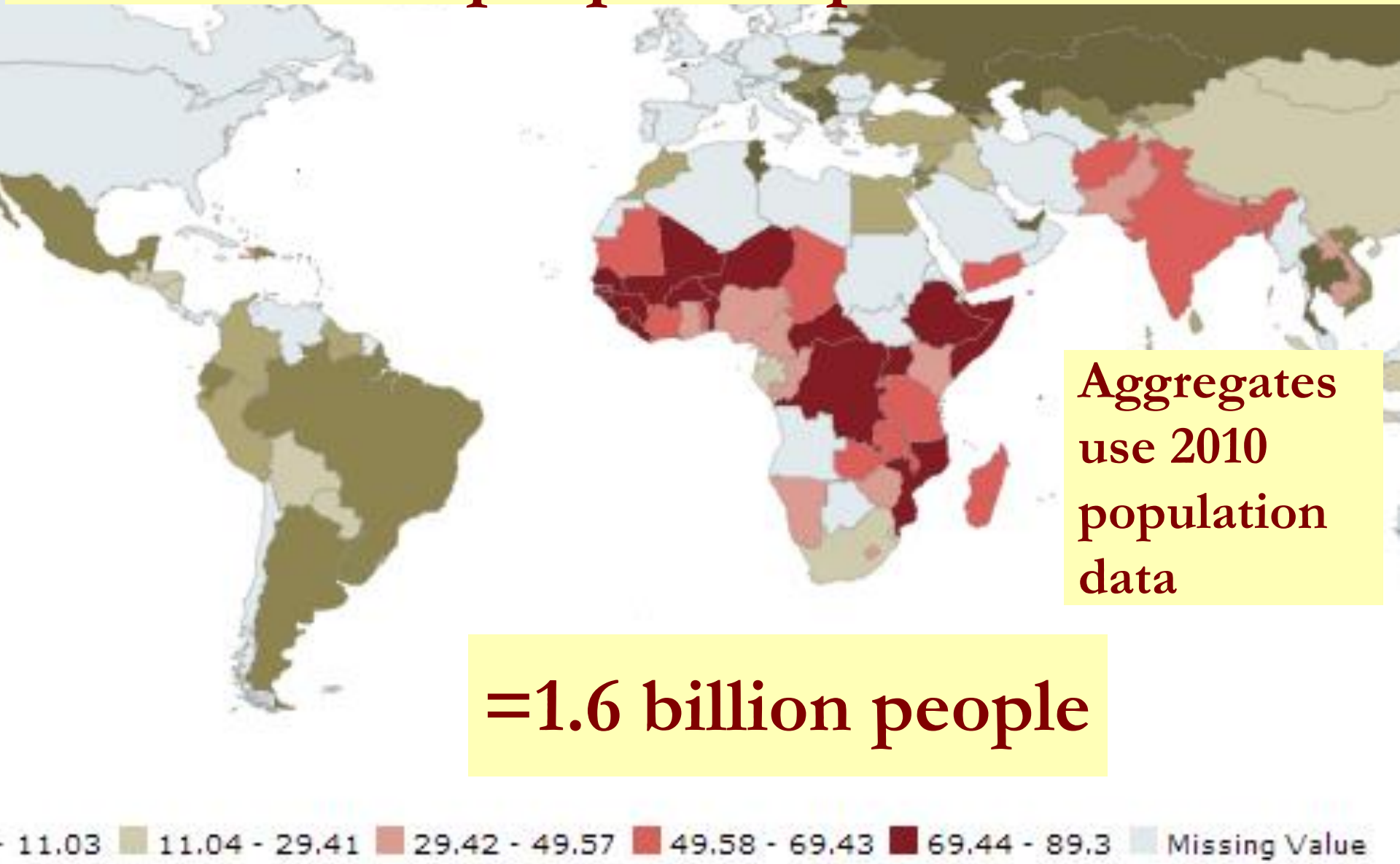
Chapter 6 – Normative Choices in Measurement Design
Chapter 7 – Data and Analysis
Chapter 8 – Robustness Analysis and Statistical Inference
Chapter 9 – Distribution and Dynamics
Chapter 10 – Some Regression models for AF measures

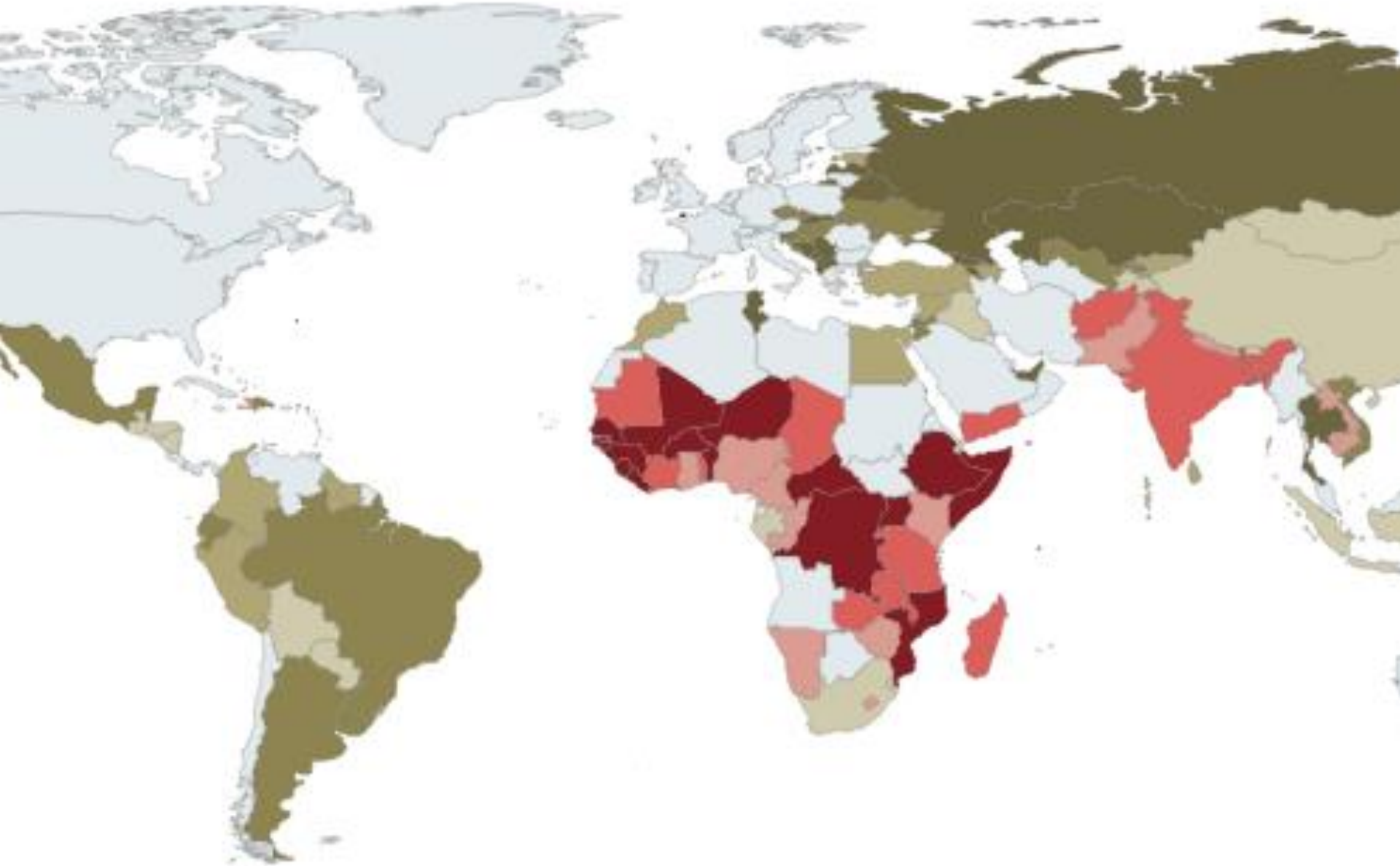
MPI 2014 FINDINGS

Across 108 countries & 5.4 billion people
30% of people are poor



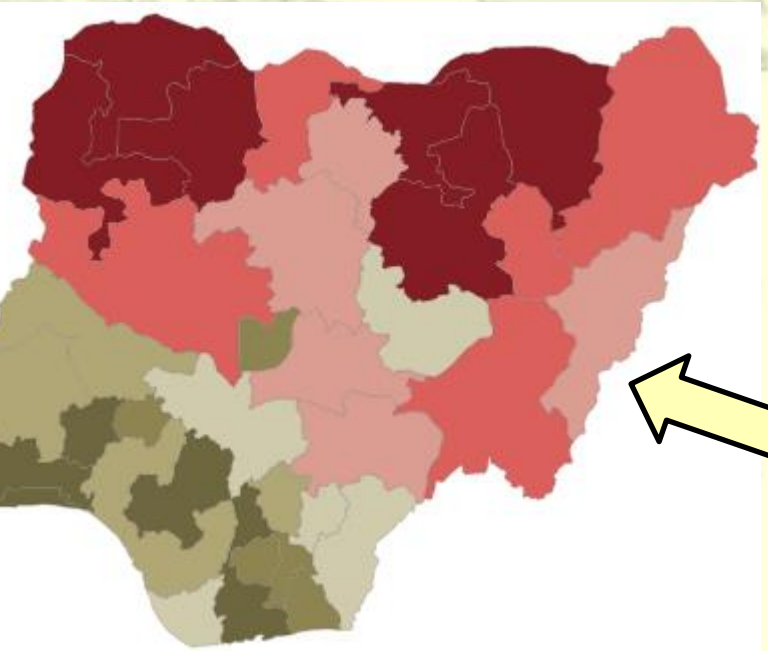
Aggregates use 2010 population data

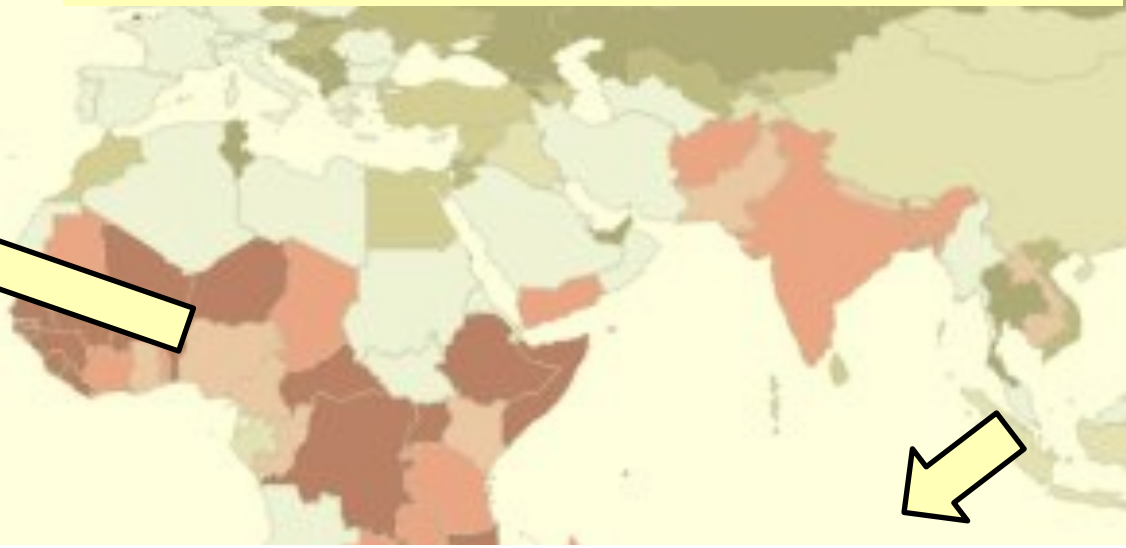
=1.6 billion people

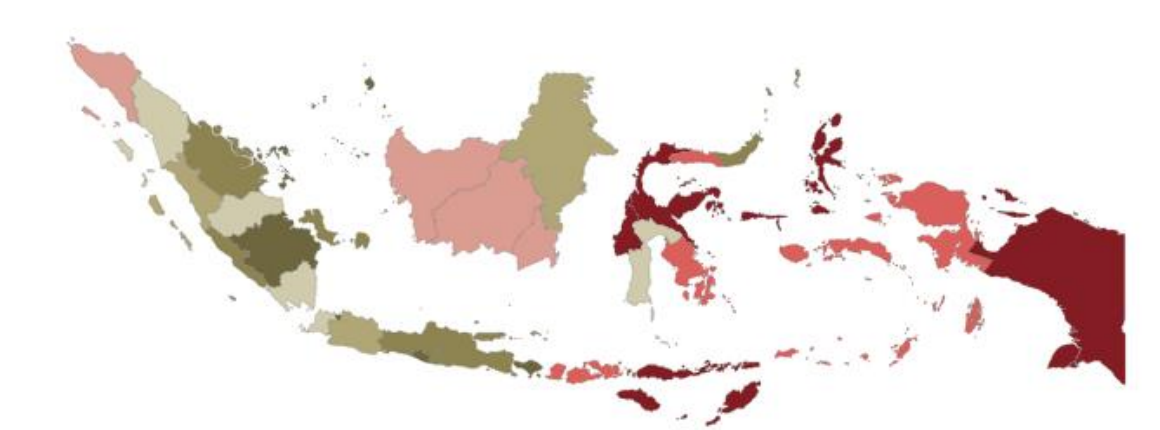


- 11.03 11.04 - 29.41 29.42 - 49.57 49.58 - 69.43 69.44 - 89.3 Missing Value

Disaggregated Data



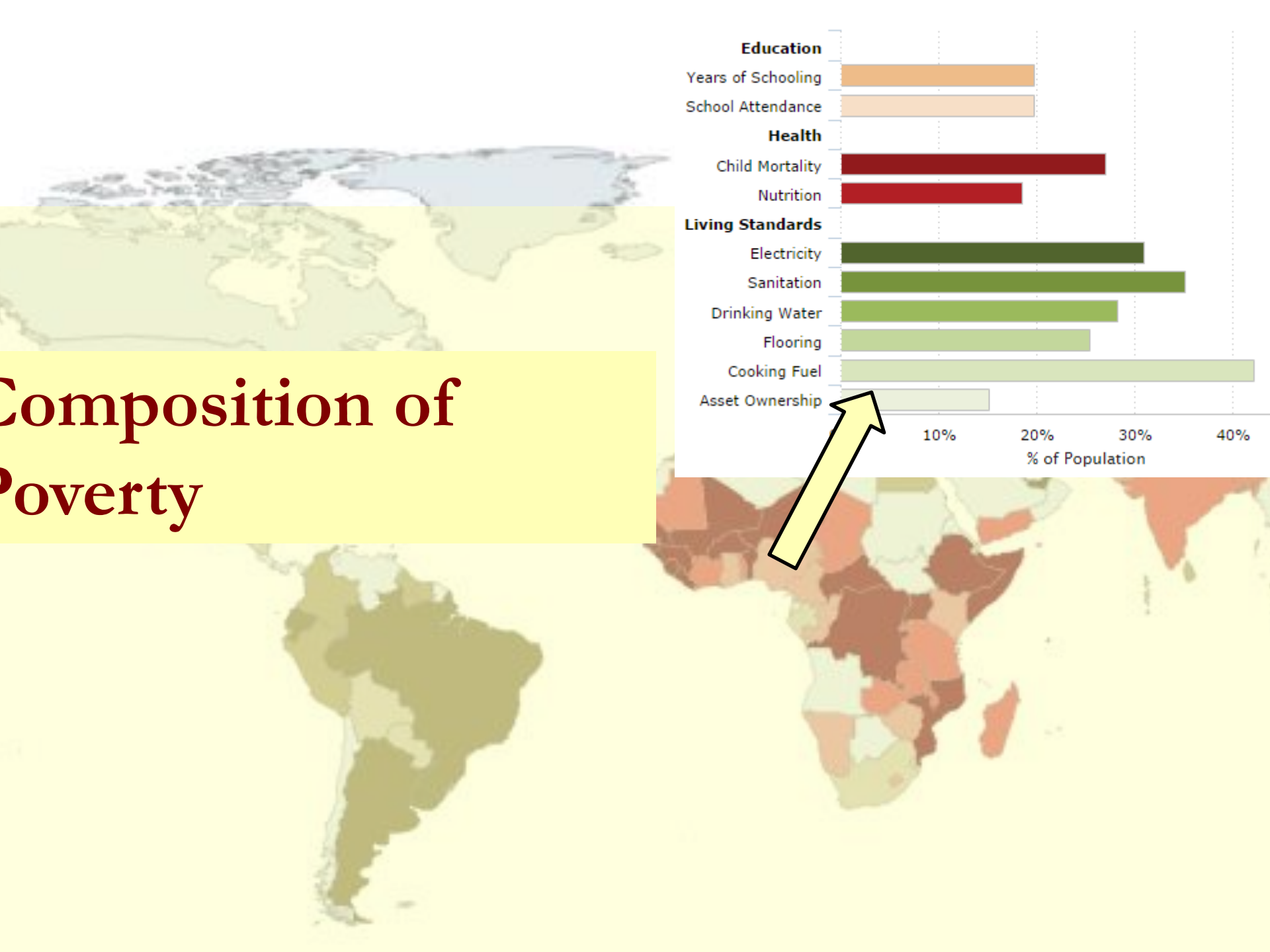




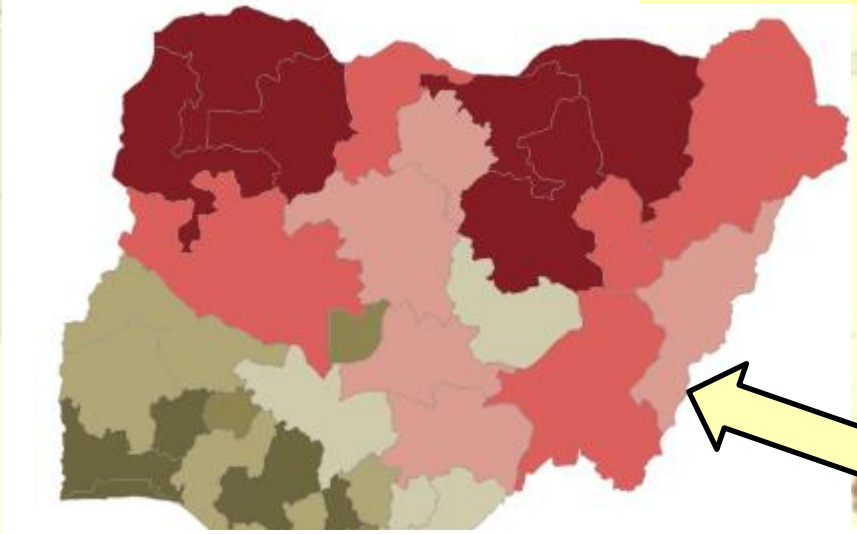
11.03 11.04 - 29.41 29.42 - 49

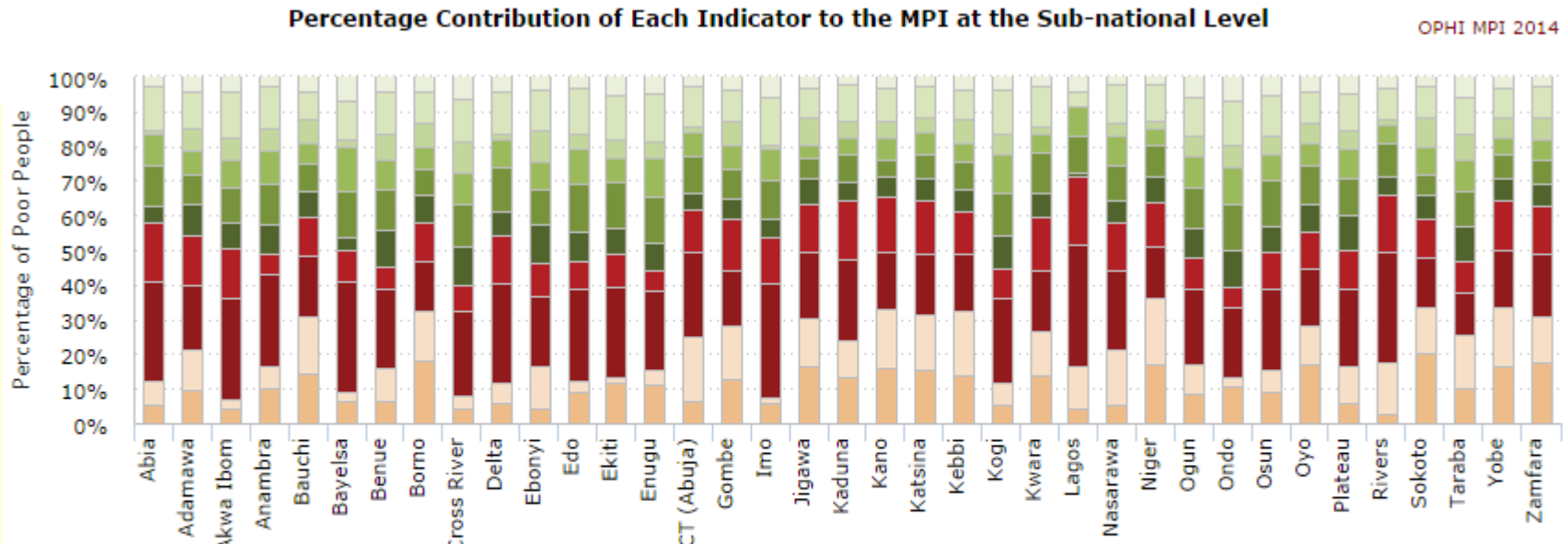
12.82 - 13.4 13.41 - 14.97 14.98 - 17.73 17.74 - 22.44 22.45 - 27.11 27.12 - 44.6 Missing

Composition of Poverty



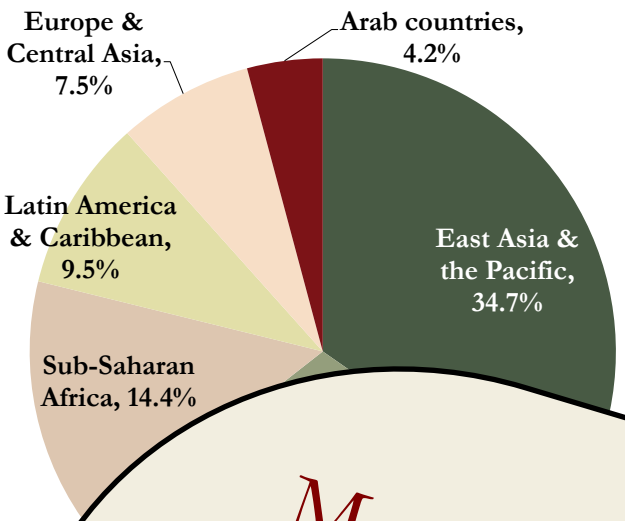
Composition by region



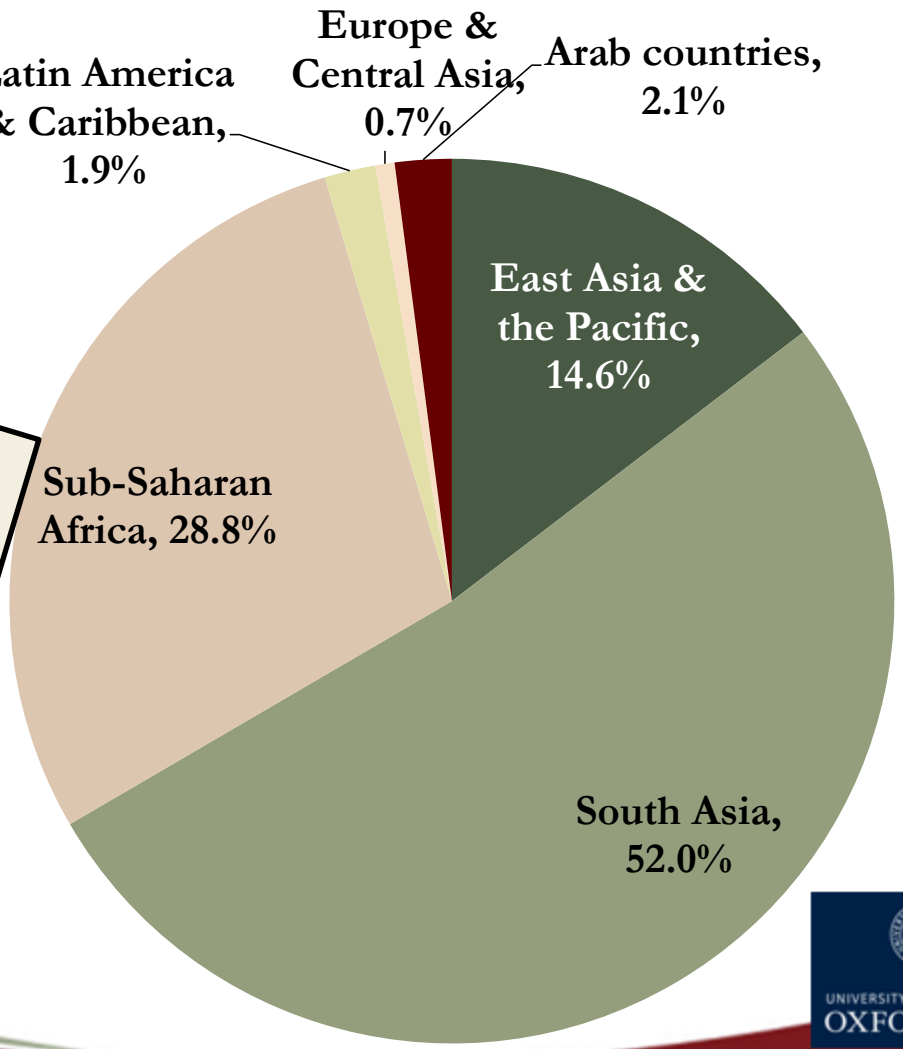


Of the 1.6 billion MPI poor people, 29% live in Sub-Saharan Africa, and 52% in South Asia

Total Population



MPI Poor



Most MPI poor live in South Asia and SS Africa

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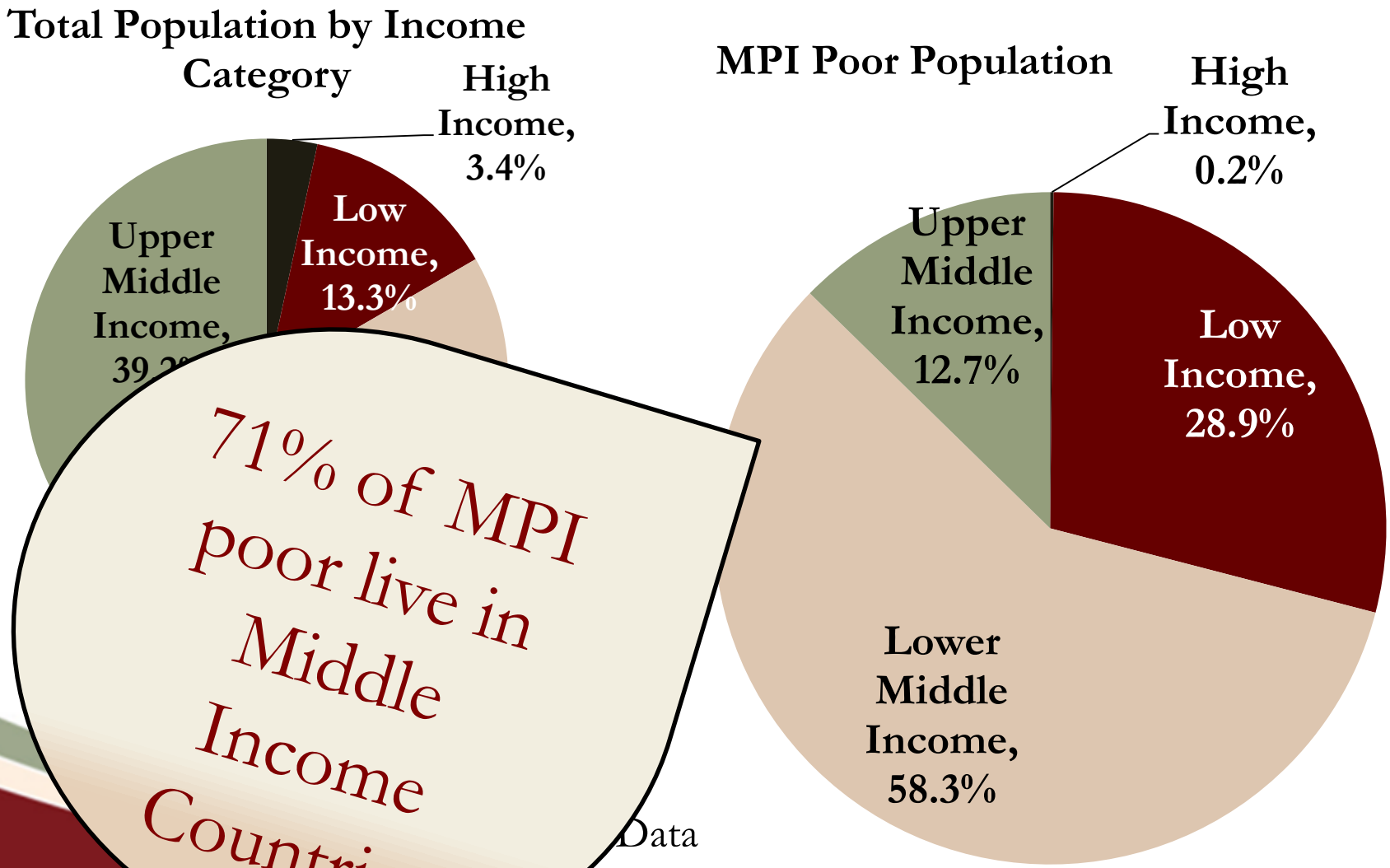
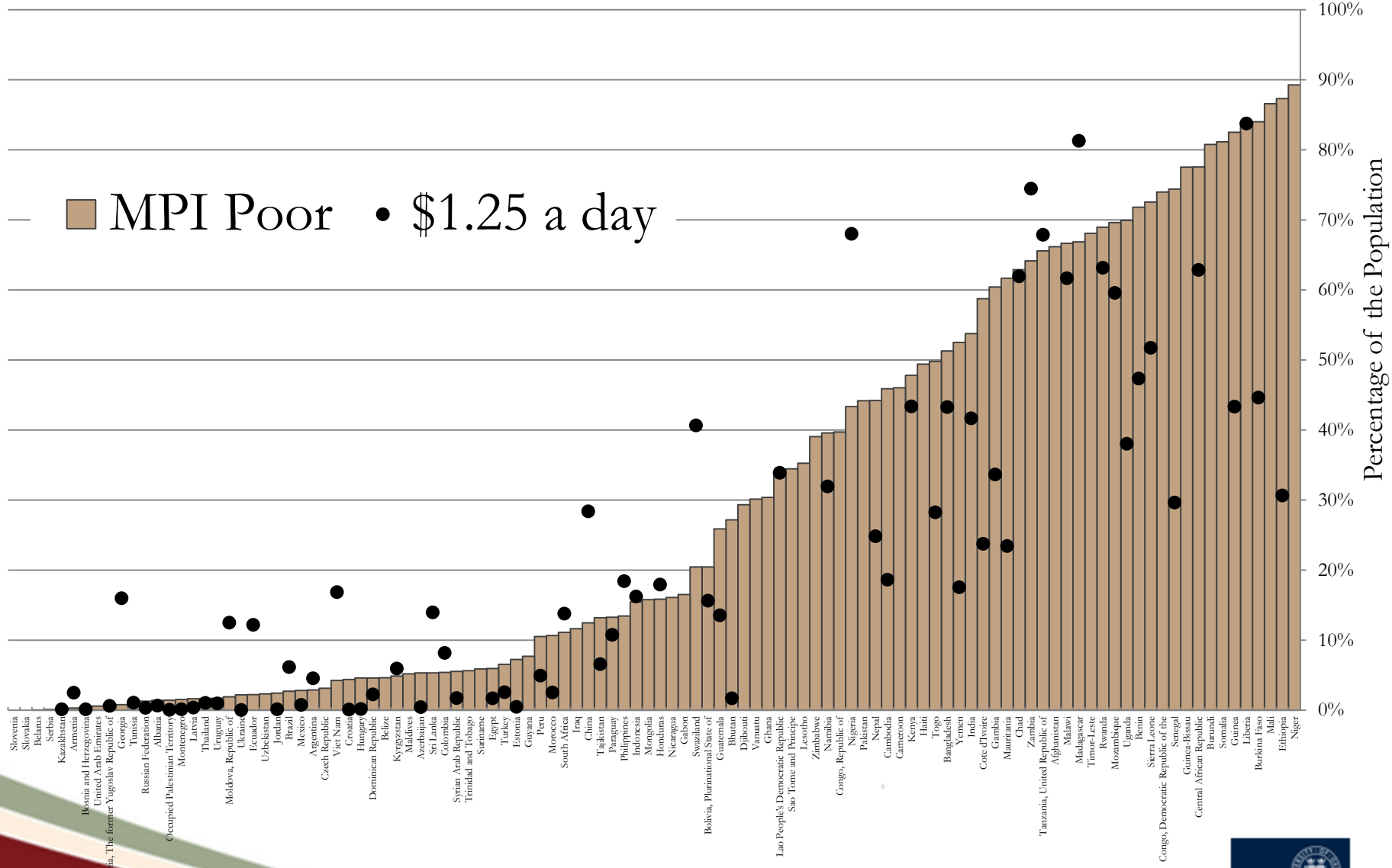
Most MPI poor people (71%) live in middle-income countries



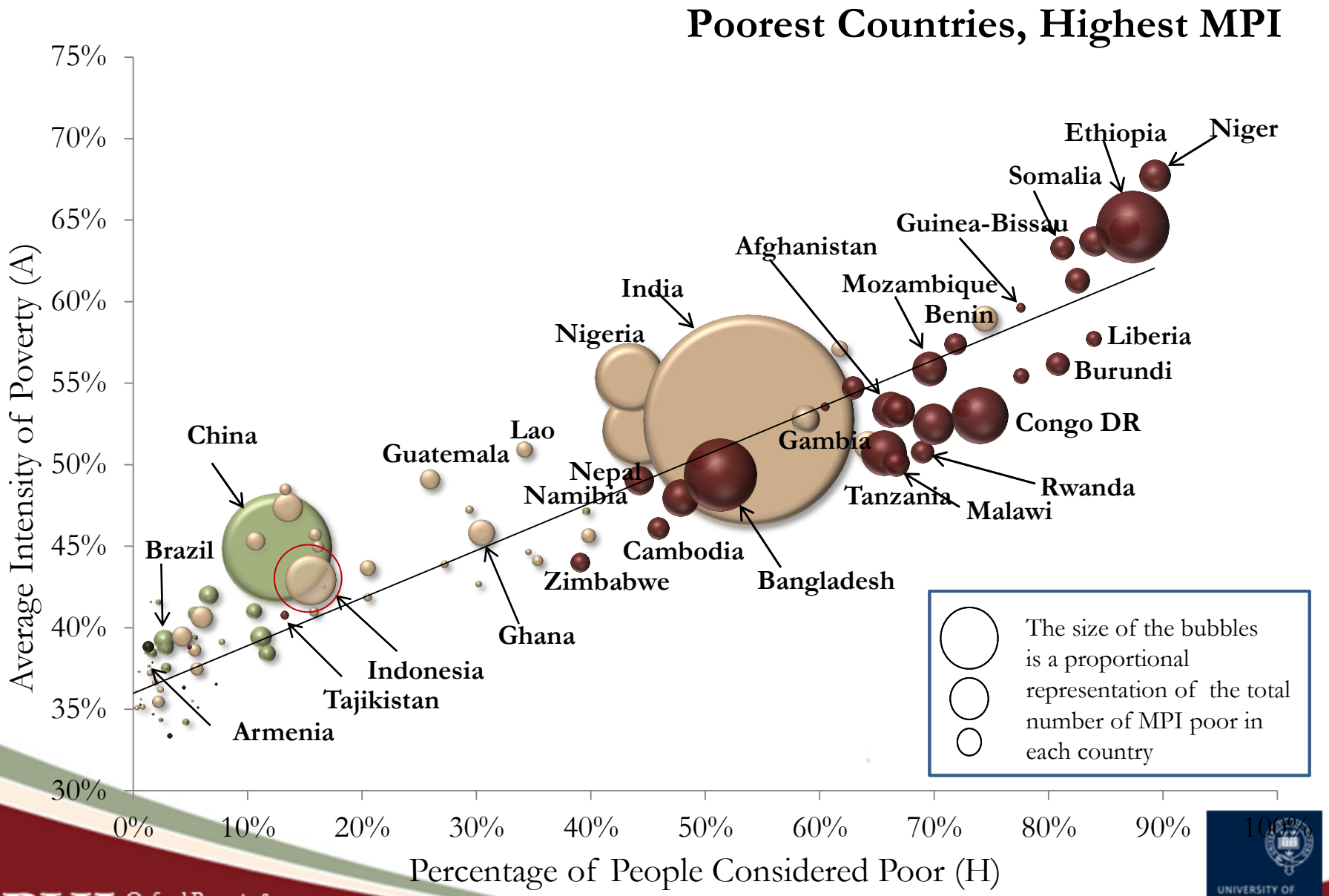
71% of MPI poor live in Middle Income Countries

Data

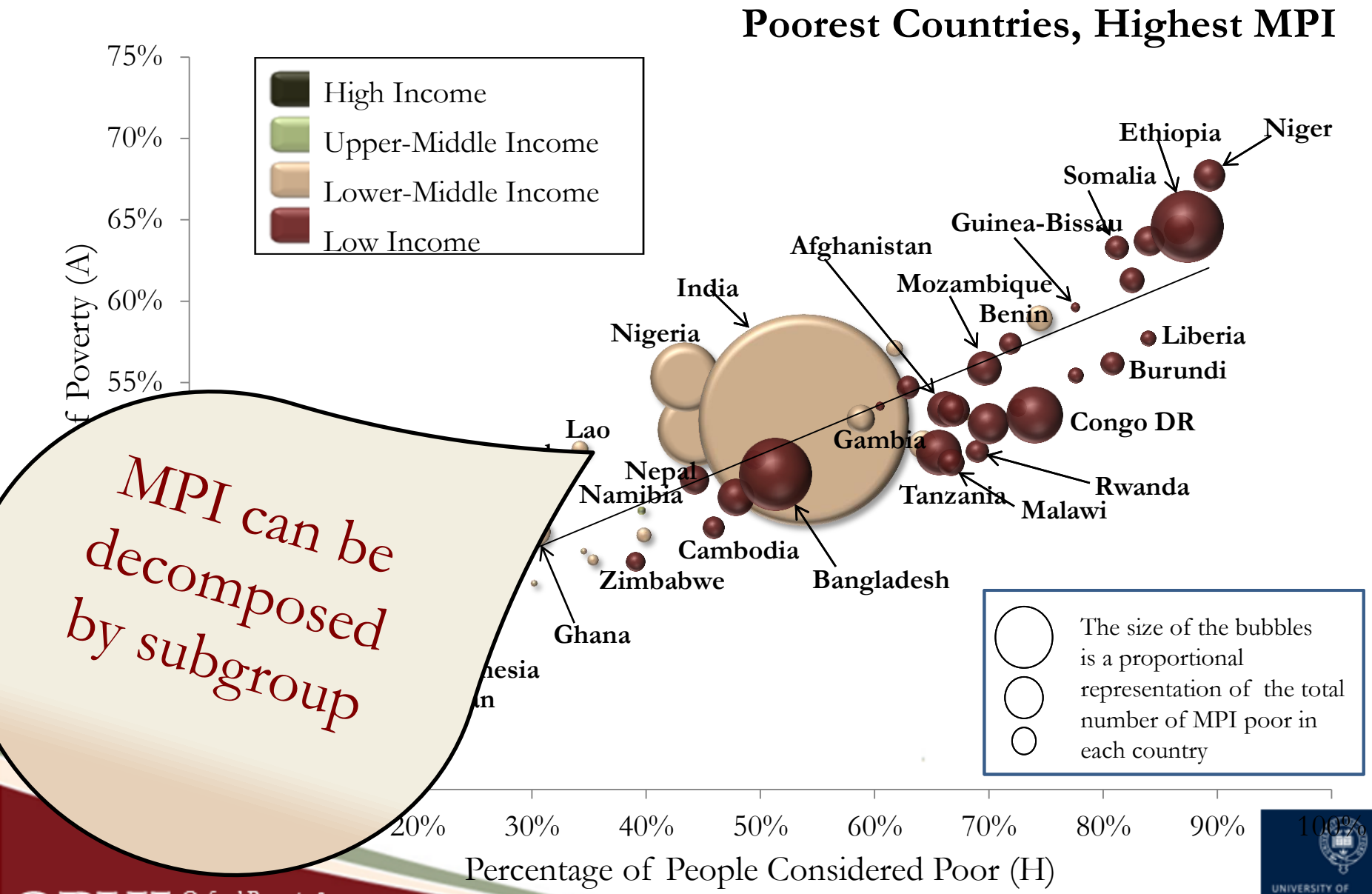
MPI and $1.25/day poverty rates



Incidence and Intensity by Country

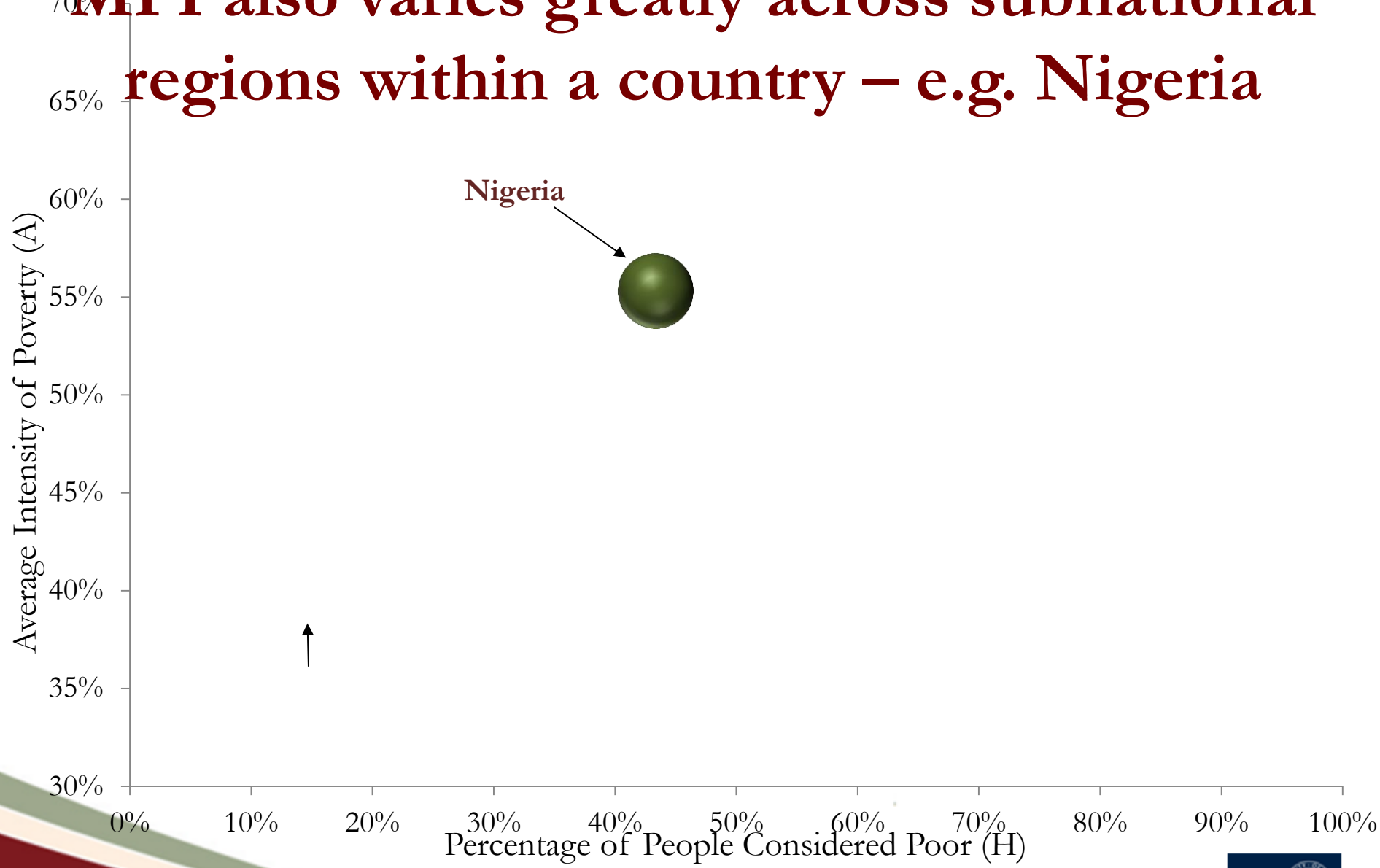


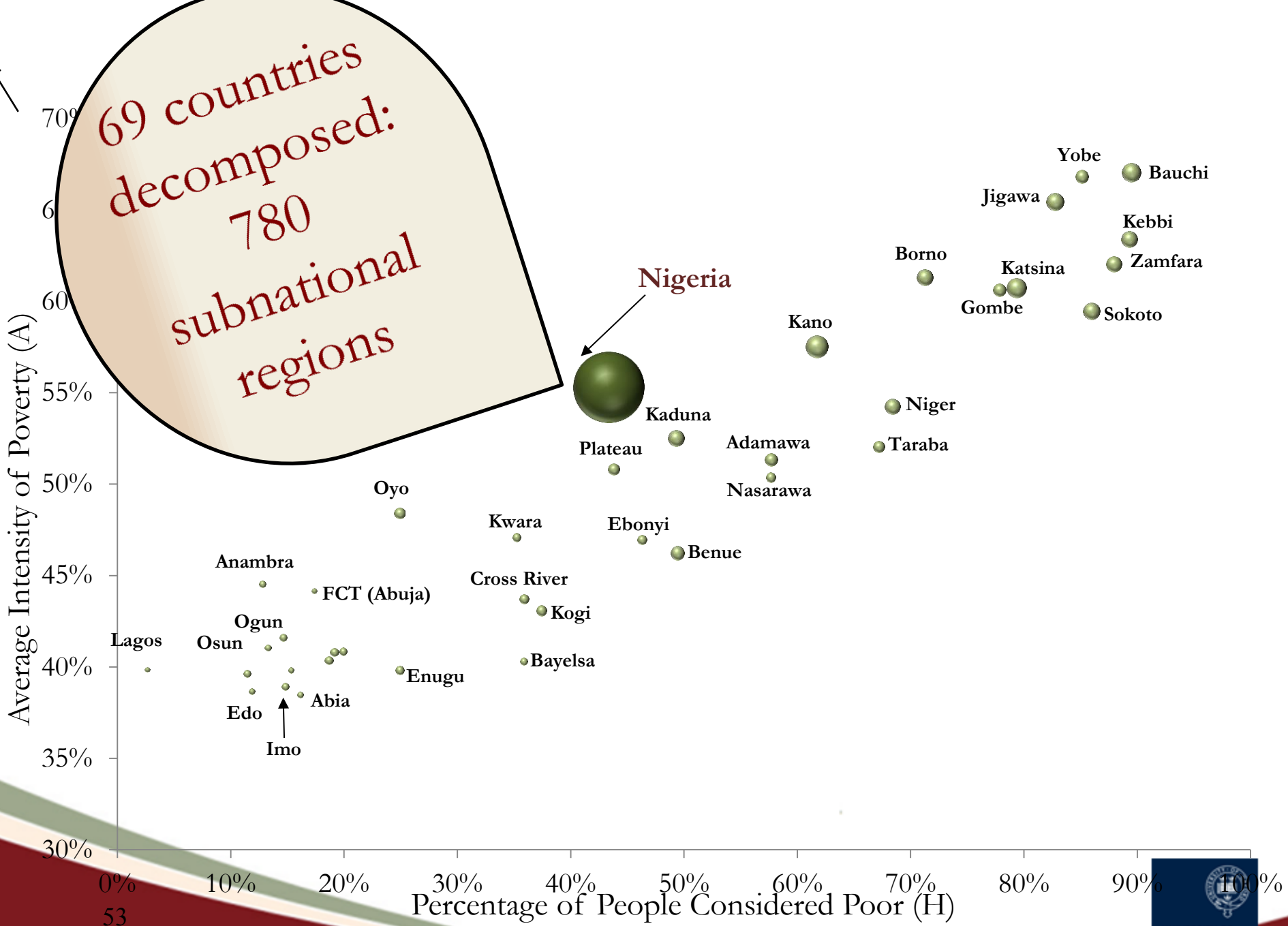
MPI varies subnationally too



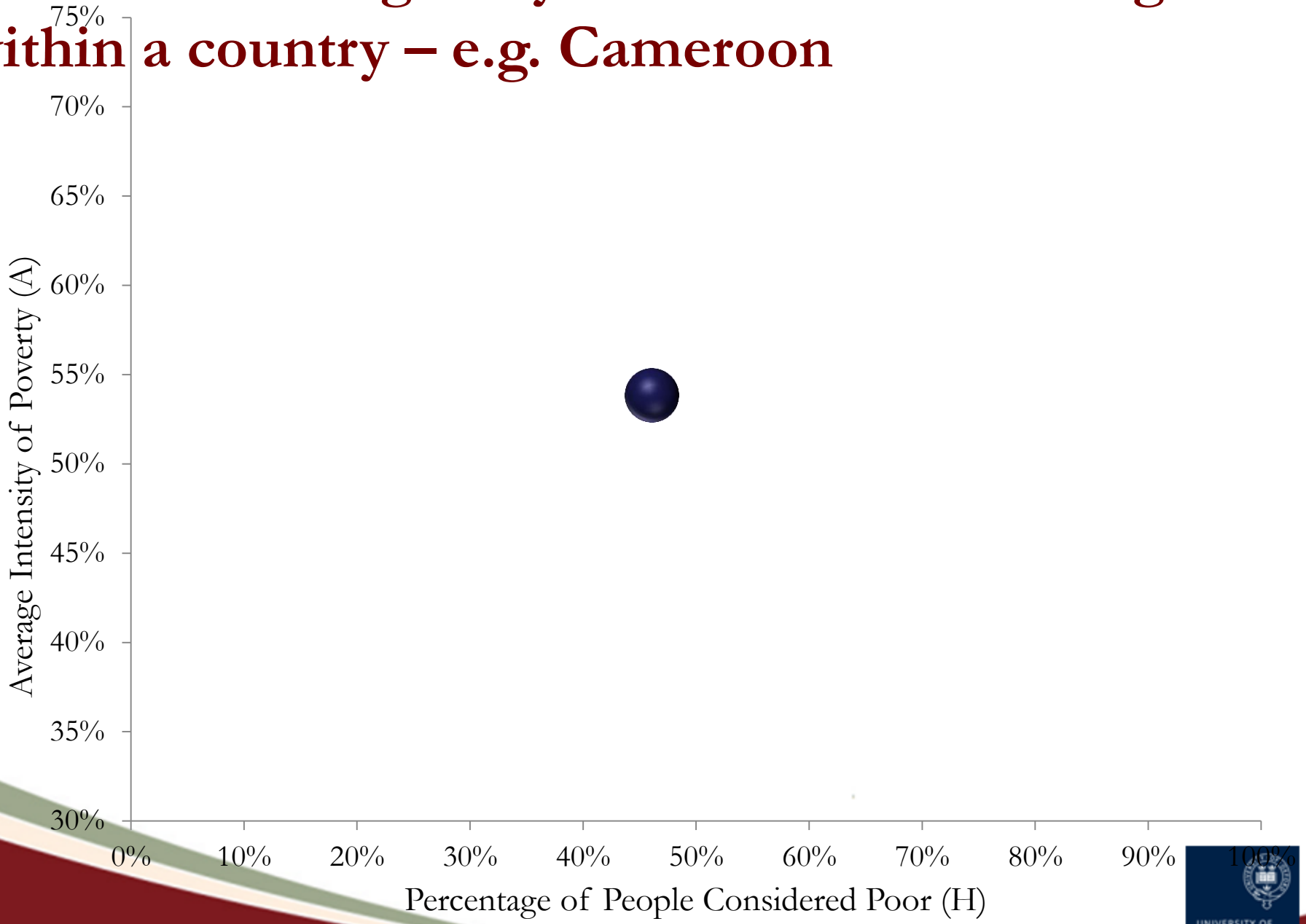
MPI can be decomposed by subgroup

MPI also varies greatly across subnational regions within a country – e.g. Nigeria

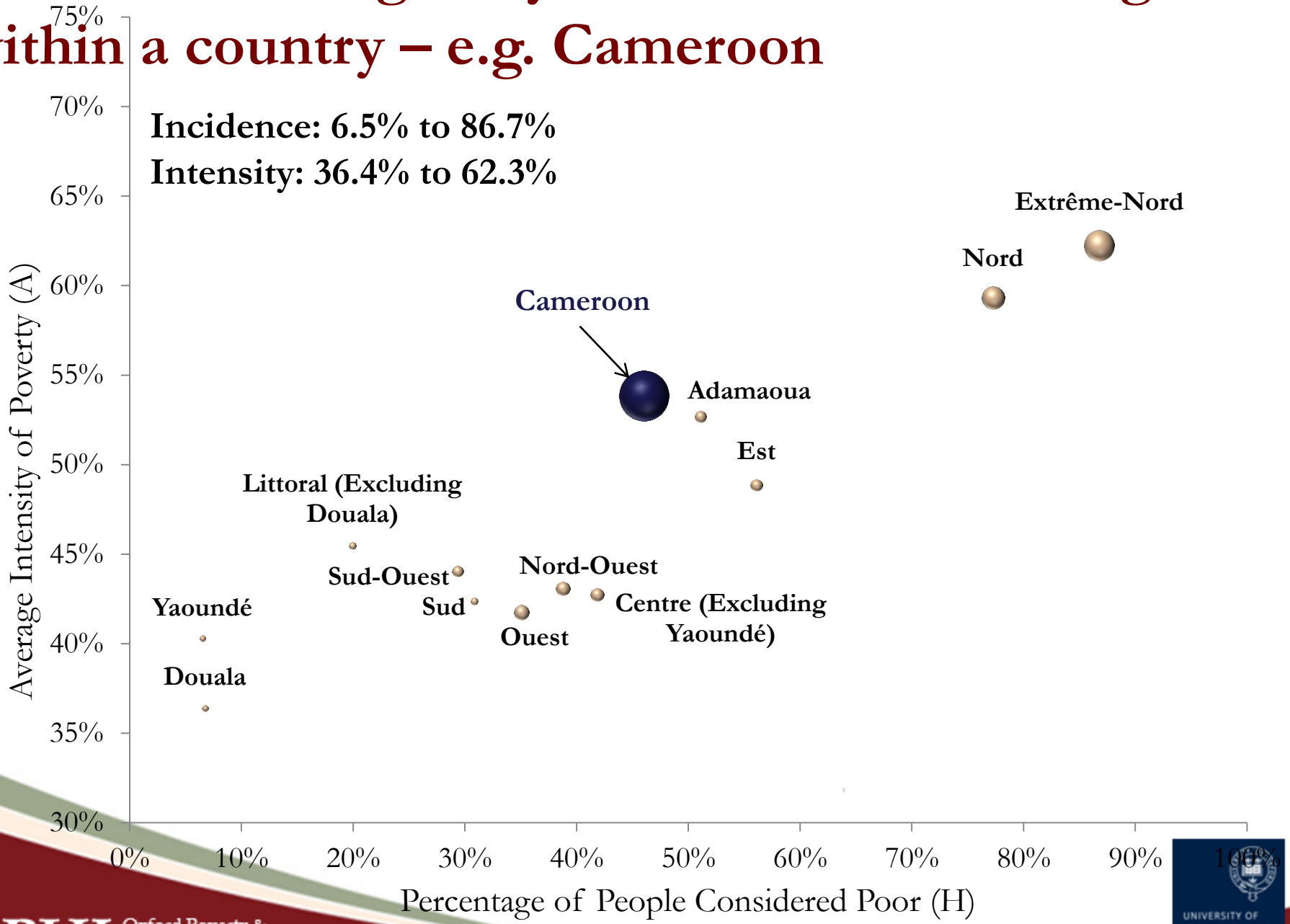



69 countries decomposed: 780 subnational regions
Nigeria
Average Intensity of Poverty (A)
Percentage of People Considered Poor (H)
70%
60%
55%
50%
45%
40%
35%
30%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Yobe
Bauchi
Jigawa
Kebbi
Borno
Katsina
Zamfara
Gombe
Sokoto
Kano
Niger
Kaduna
Plateau
Adamawa
Taraba
Nasarawa
Oyo
Kwara
Ebonyi
Benue
Anambra
Cross River
FCT (Abuja)
Kogi
Ogun
Lagos
Osun
Bayelsa
Enugu
Abia
Edo
Imo

MPI also varies greatly across subnational regions within a country – e.g. Cameroon

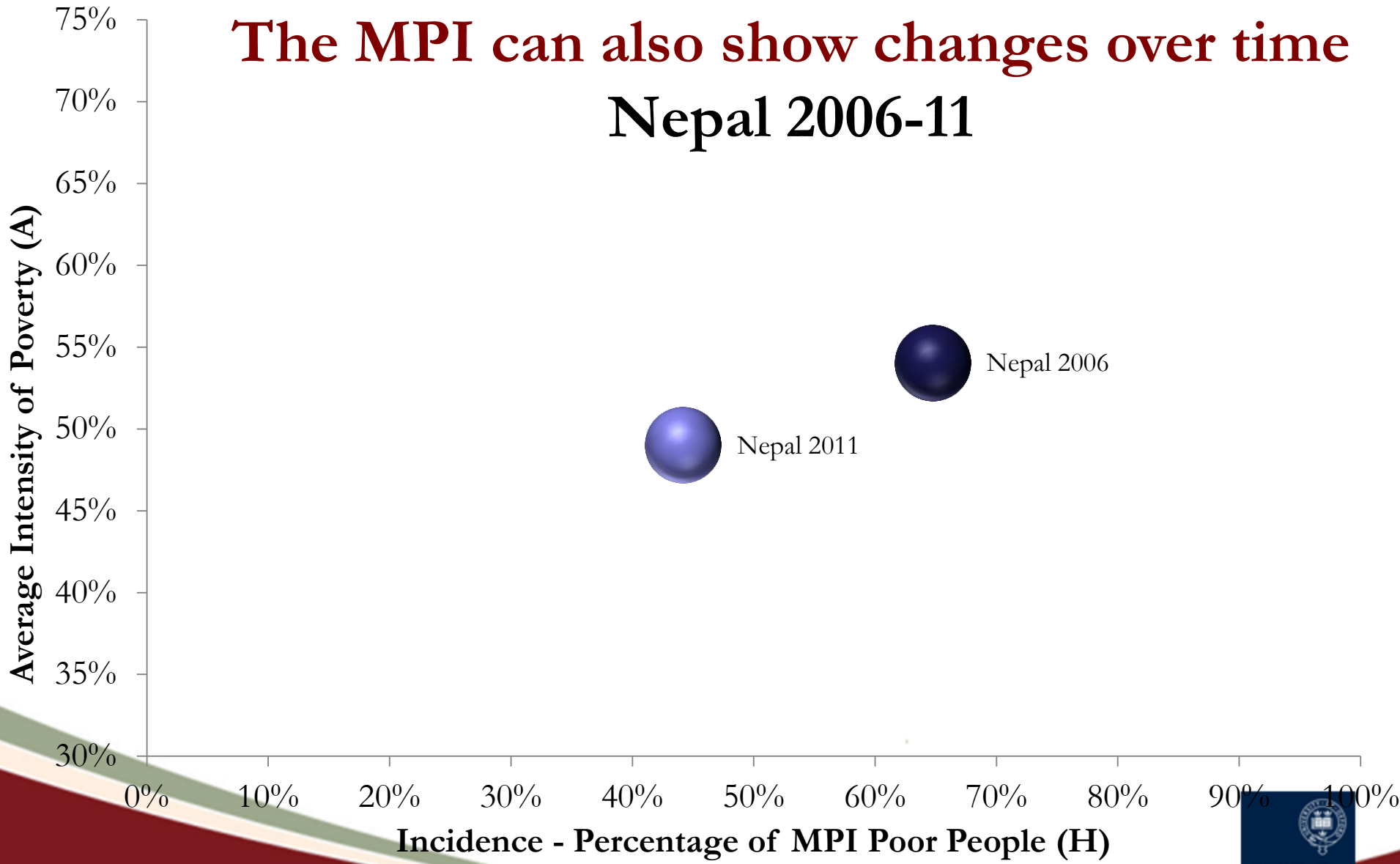


MPI also varies greatly across subnational regions within a country – e.g. Cameroon

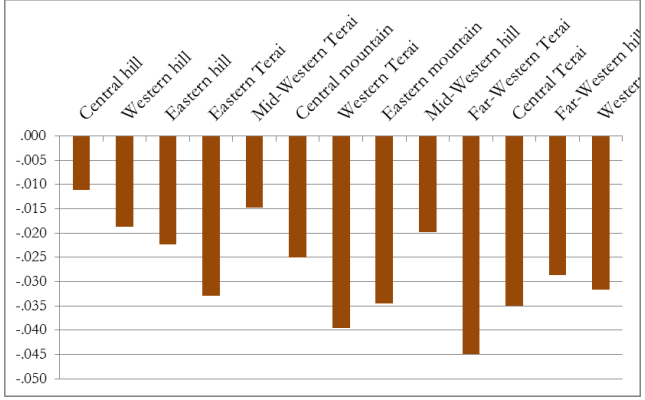


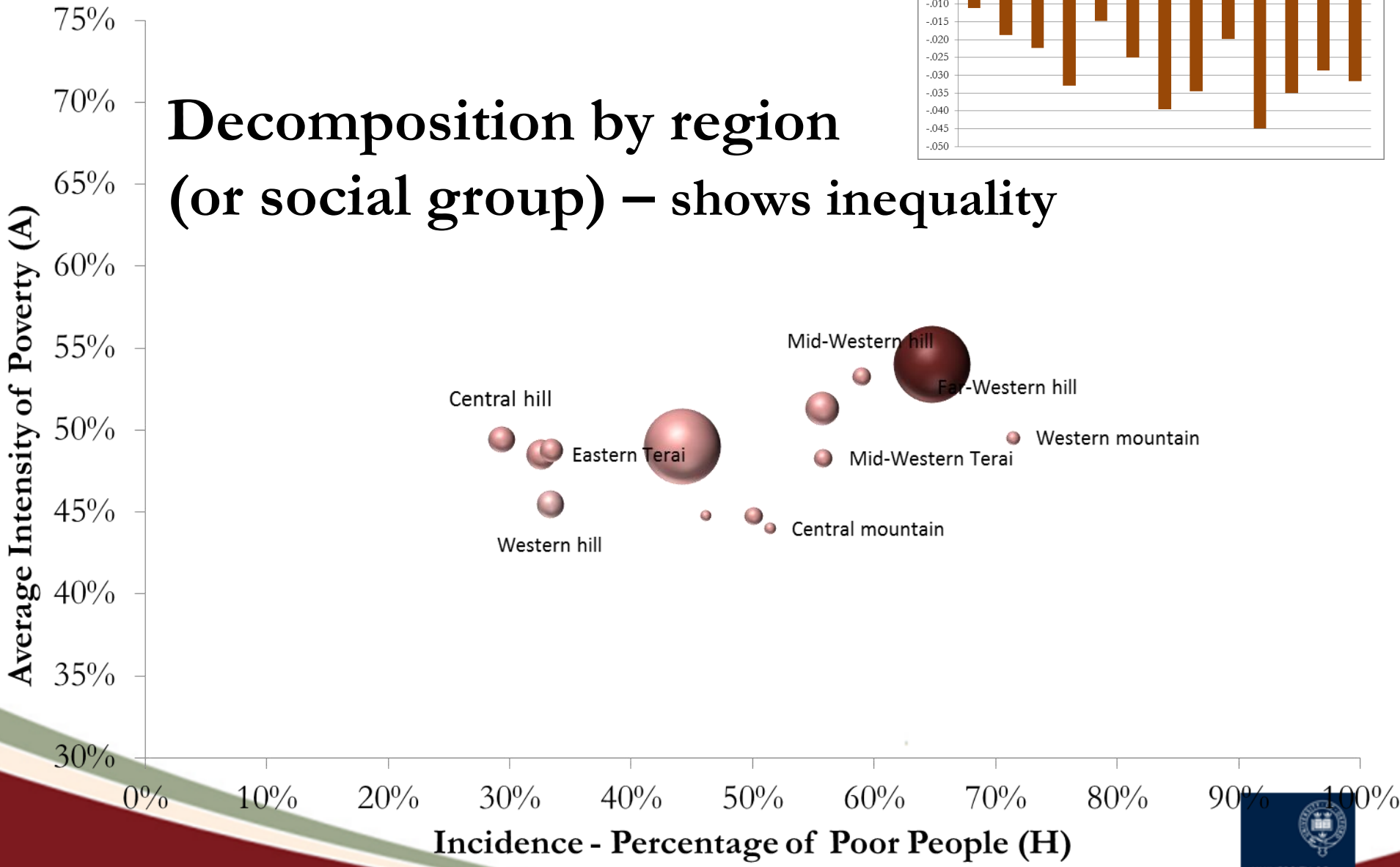
The MPI can also show changes over time

Nepal 2006-11



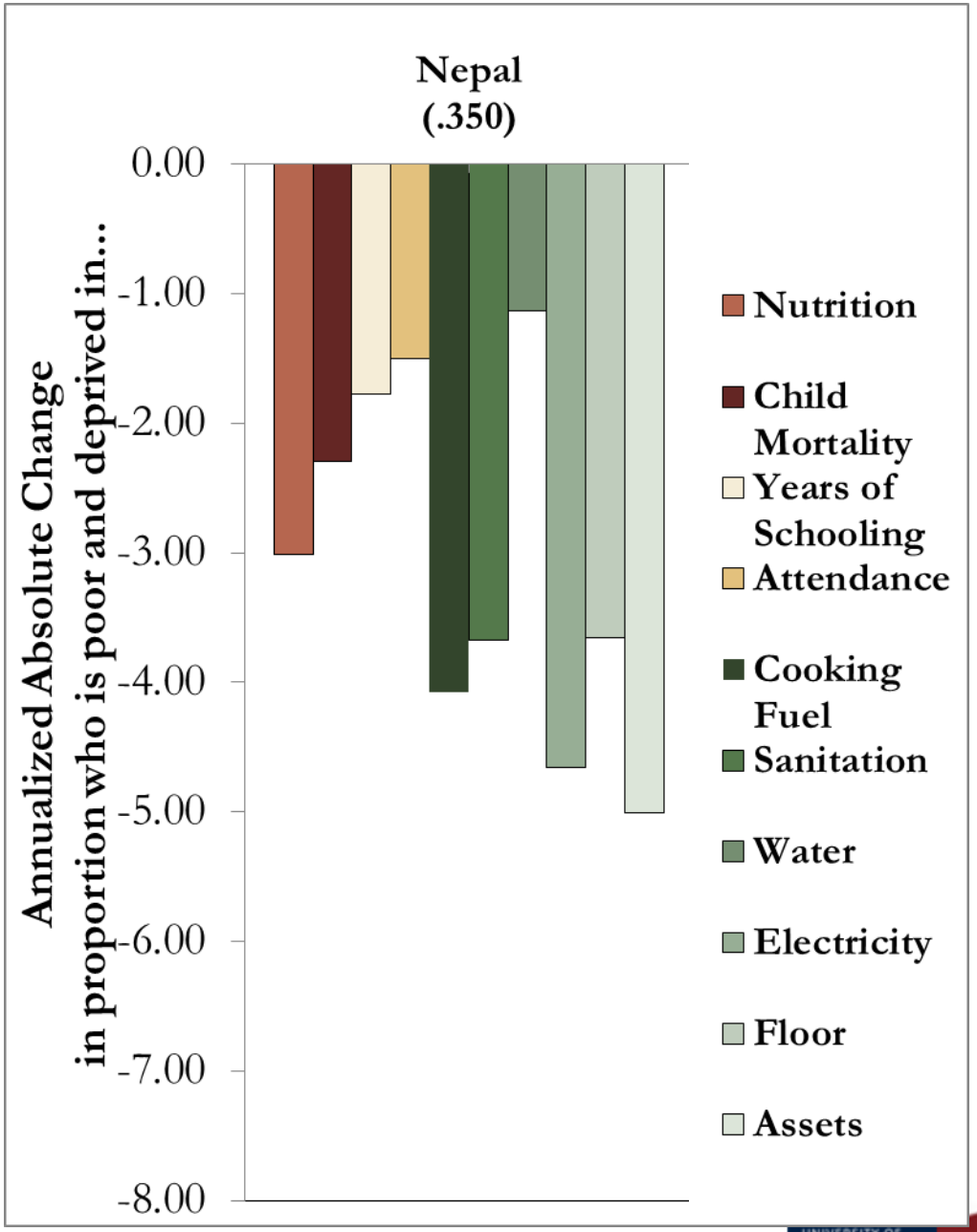
Decomposition by region (or social group) – shows inequality



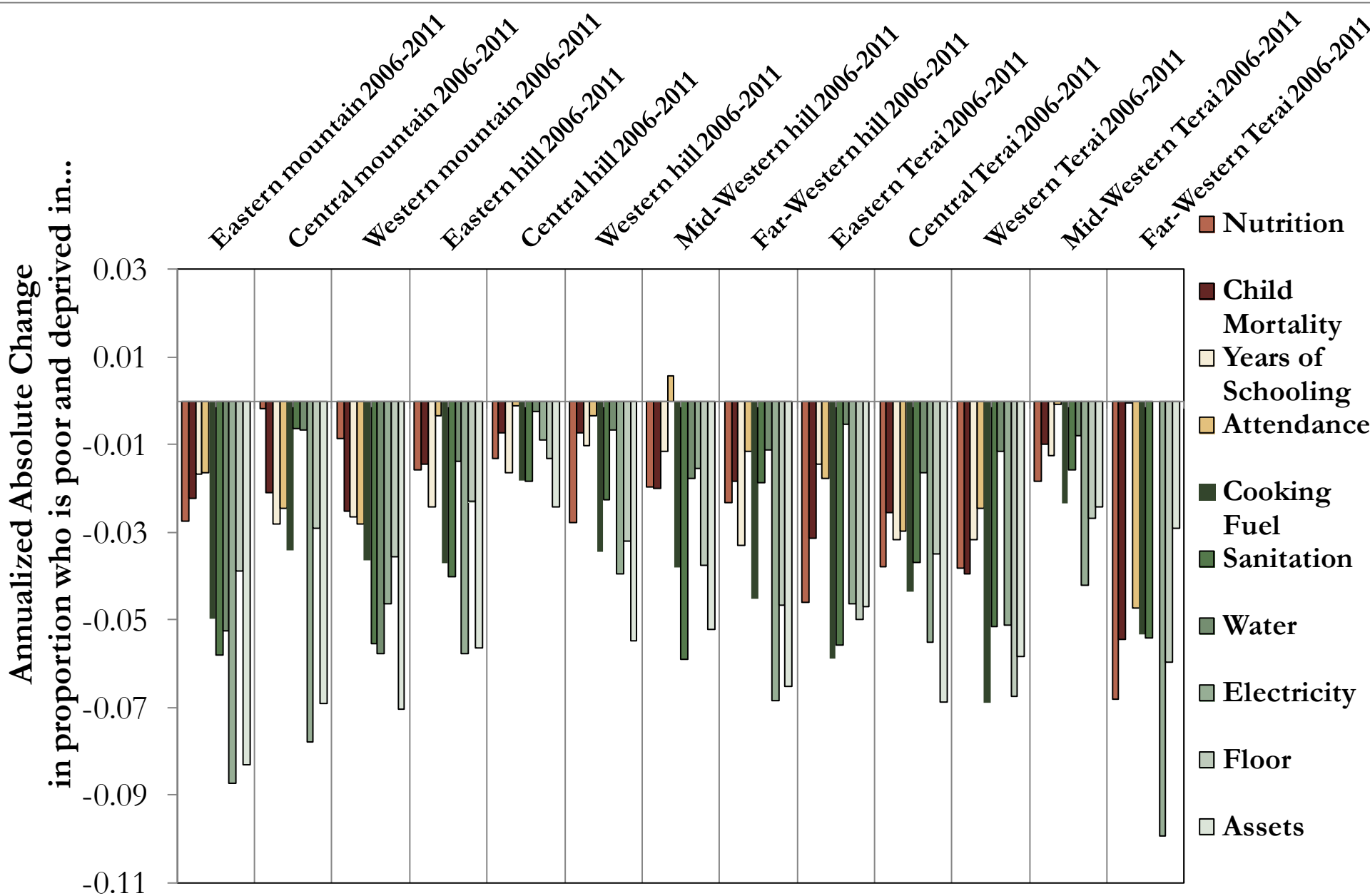


How did the IPM get down?

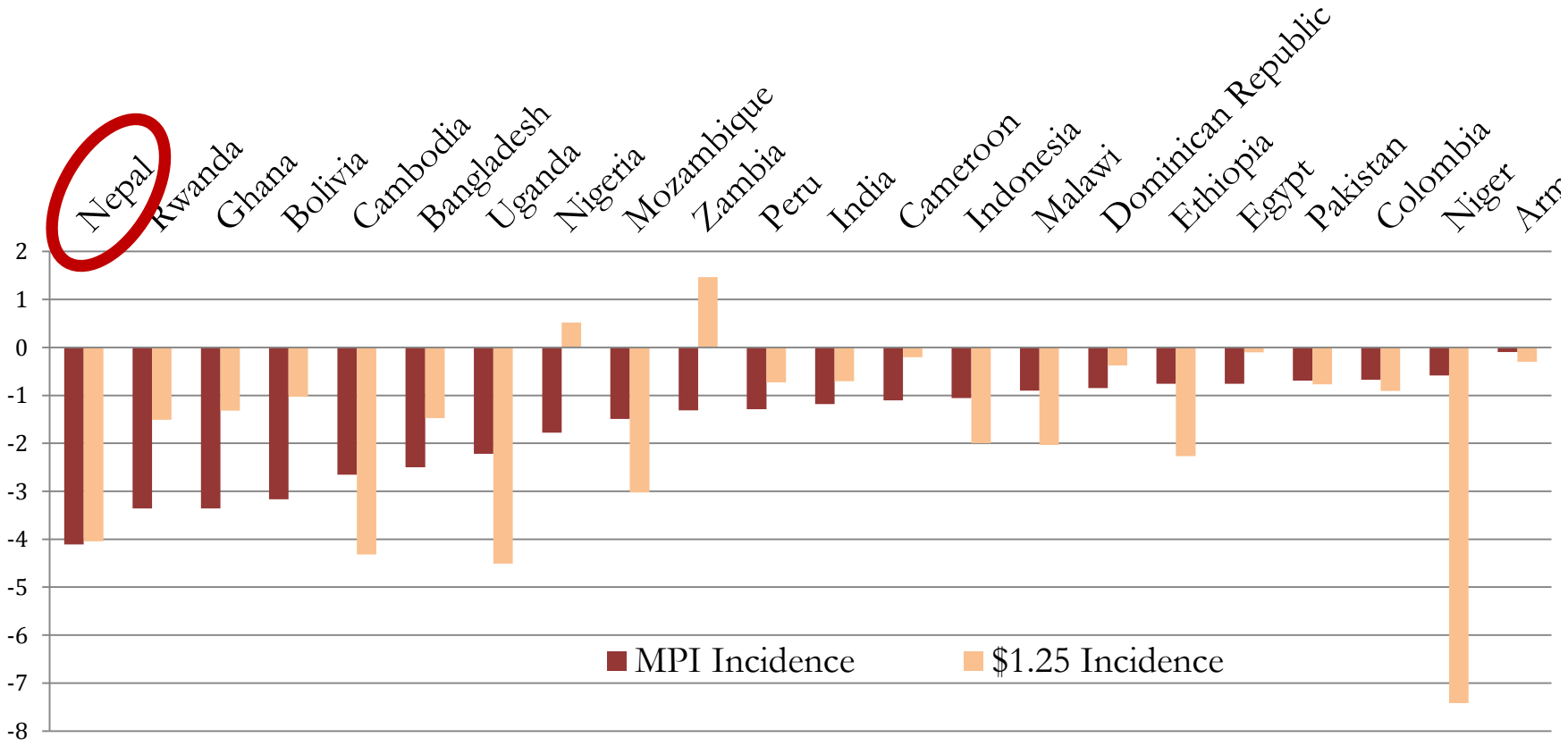
Monitoring of each indicator



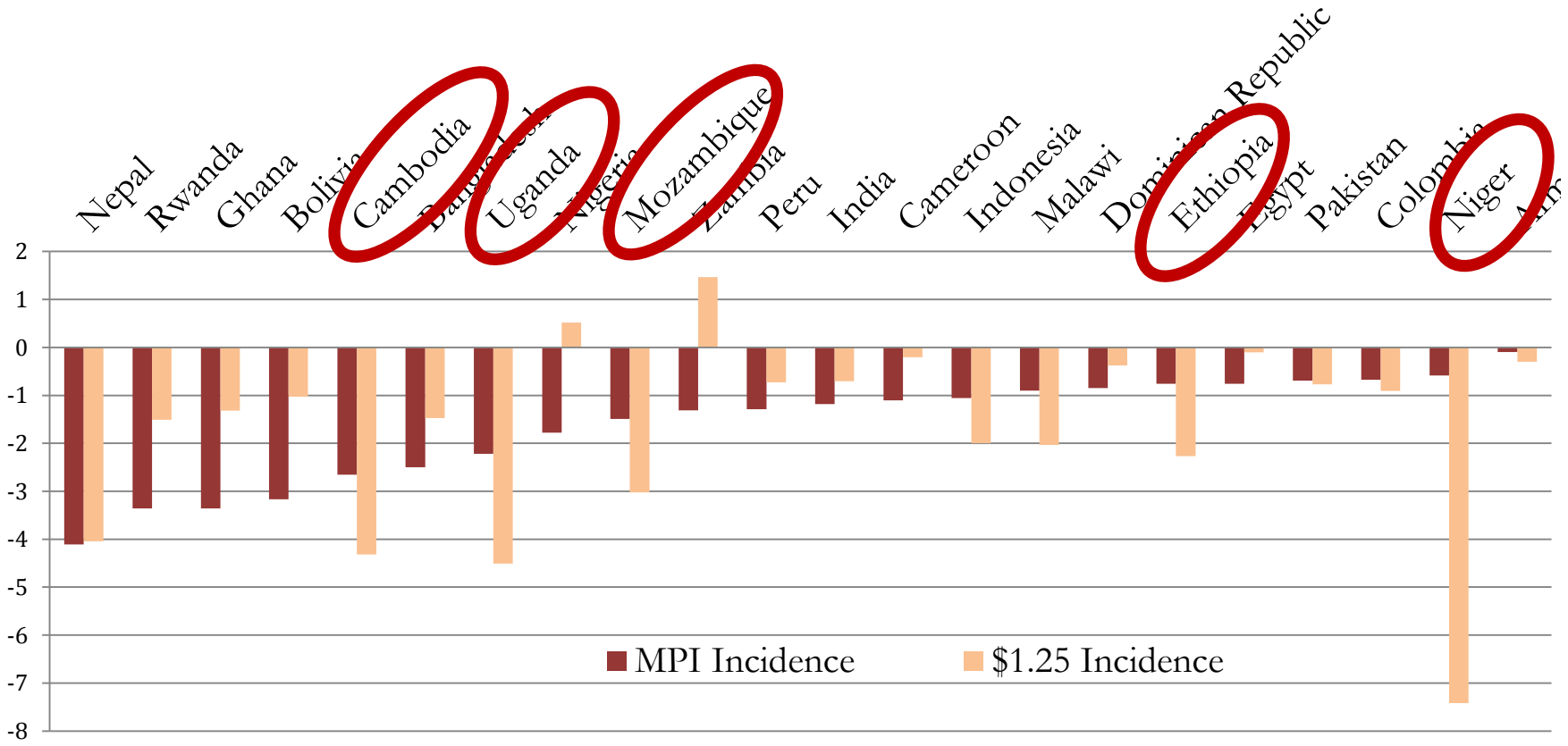
Change in each indicator, by region (Nepal)



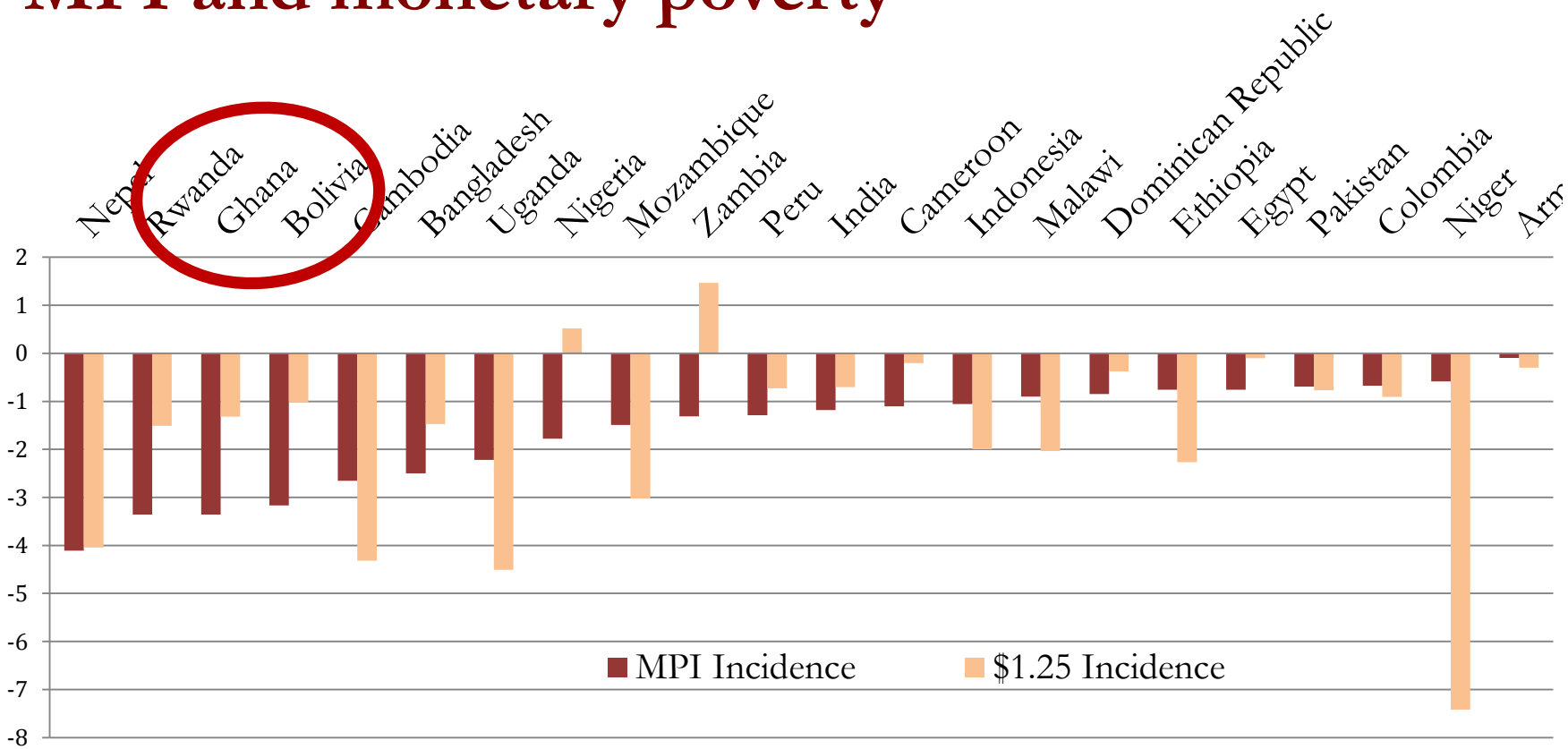
MPI and monetary poverty



MPI and monetary poverty



MPI and monetary poverty



If progress was only measured by reductions in monetary poverty, the significant improvement in Rwanda, Ghana and Bolivia would be invisible.

MPI and monetary poverty are complementary measures

Global MPI in Europa and Central Asia

MPI in Europe and Central Asia

Alkire, Conconi and Seth 2014

#	Country	MPI data source		Multidimensional poverty		
				MPI	H	A
1	Slovakia	WHS	2003	0.000	0.0	0.0
2	Slovenia	WHS	2003	0.000	0.0	0.0
3	Belarus	MICS	2005	0.000	0.0	35.1
4	Serbia	MICS	2010	0.000	0.1	40.2
5	Kazakhstan	MICS	2010/11	0.001	0.2	36.2
6	Armenia	DHS	2010	0.001	0.3	35.2
7	Bosnia and Herzegovina	MICS	2011/12	0.002	0.5	37.3
9	Macedonia, TFYR of	MICS	2011	0.002	0.7	35.7
10	Georgia	MICS	2005	0.003	0.8	35.2
12	Russian Federation	WHS	2003	0.005	1.3	38.9
13	Albania	DHS	2008/09	0.005	1.4	37.7
16	Latvia	WHS	2003	0.006	1.6	37.9

MPI in Europe and Central Asia

Alkire, Conconi and Seth 2014

#	Country	MPI data source		Multidimensional poverty		
				MPI	H	A
18	Montenegro	MICS	2005/06	0.006	1.5	41.6
19	Moldova, Republic of	DHS	2005	0.007	1.9	36.7
20	Ukraine	DHS	2007	0.008	2.2	35.5
22	Uzbekistan	MICS	2006	0.008	2.3	36.2
24	Czech Republic	WHS	2002/03	0.010	3.1	33.4
28	Hungary	WHS	2003	0.016	4.6	34.3
29	Croatia	WHS	2003	0.016	4.4	36.3
34	Kyrgyzstan	MICS	2005/06	0.019	4.9	38.8
38	Azerbaijan	DHS	2006	0.021	5.3	39.4
42	Estonia	WHS	2003	0.026	7.2	36.5
43	Turkey	DHS	2003	0.028	6.6	42.0
49	Tajikistan	DHS	2012	0.054	13.2	40.8

MPI in Europe and Central Asia

- 24 countries from Europe and Central Asia
  - Data for half of them are over a decade old
  - Armenia, Bosnia and Herzegovina, Kazakhstan, Macedonia, Serbia and Tajikistan are the most recent (2010+)
    - New surveys now available for Serbia and Montenegro
- Half of the countries have <1.5% MPI poor
  - Tajikistan is the only country with 2-digit figure: 13.2%
- Global MPI not ideal measure for this region
  - Need for more accurate (national/regional) measures

National Applications

MPI in Action

Official National MPIs

Colombia

South Africa

Bhutan

Mexico

Philippines

Chile

Other national applications underway.

Multidimensional Poverty Index - Applications Colombia

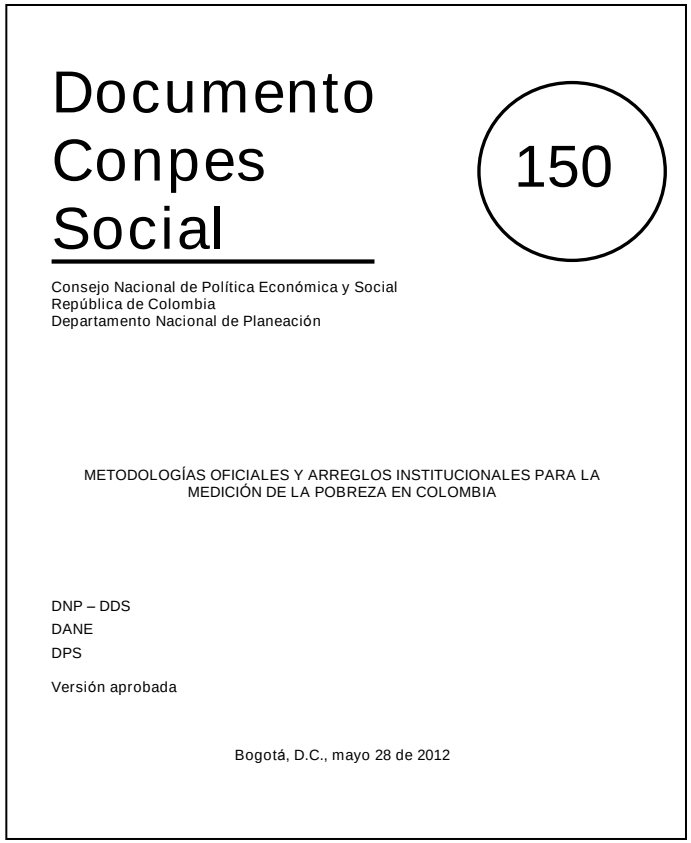
Purpose – What is the measure for?

Starting point: Improving the instruments and methodologies of poverty measurement

Motivation: Designing a strategy for the reduction of poverty and inequality based on a complete approach using income and multidimensional measures

Main purpose: Tool to monitor progress towards goals of the National Development Plan

Institutional agreement on the measurement of poverty



Documento Conpes Social

150

Consejo Nacional de Política Económica y Social
República de Colombia
Departamento Nacional de Planeación

METODOLOGÍAS OFICIALES Y ARREGLOS INSTITUCIONALES PARA LA MEDICIÓN DE LA POBREZA EN COLOMBIA

DNP – DDS
DANE
DPS

Versión aprobada

Bogotá, D.C., mayo 28 de 2012

The National Department of Statistics acquired the responsibility of producing the official poverty measurements on a year basis

Technical and methodological decisions are defined at the experts-committee (NPD, DSP, external experts)

Unit of analysis: Household

Normative criterion: According to the Constitution, the guarantee of living conditions and rights is the joint responsibility of the family, society and the state

Empirical criterion: Evidence that in Colombia households historically respond to adverse situations collectively

Social Policy criterion: Existing programs use the household as unit of analysis and intervention

Dimensions

DPS
DEPARTAMENTO PARA LA PROSPERIDAD SOCIAL

Education	Childhood & youth conditions	Labor	Health	Public utilities & housing conditions

Dimensions and Variables

- Frequent use.
- Indicators can be affected by public policies.
- Availability within Colombian Living Standards Measurement Survey.
- Precision of the sample to estimate variable.

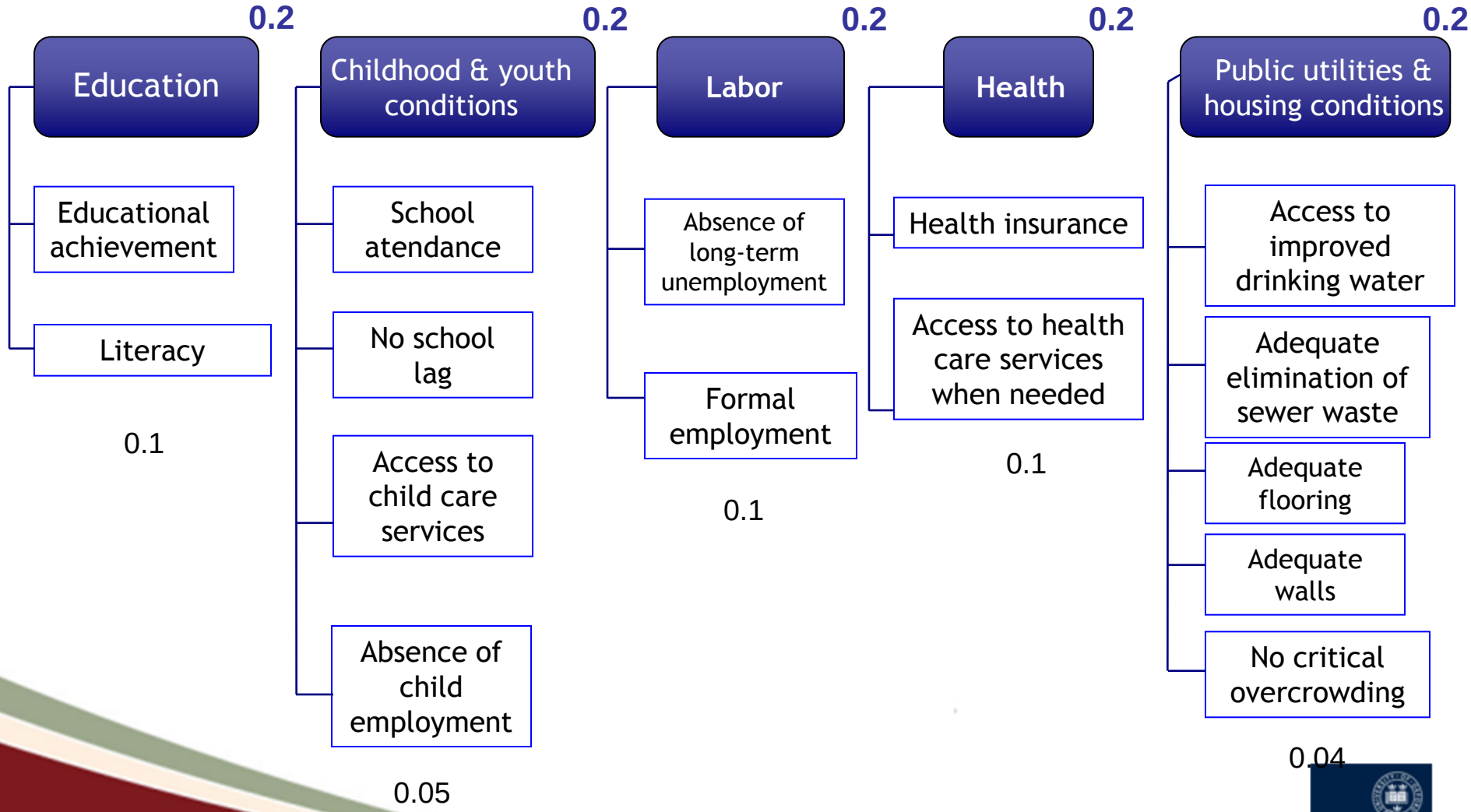
Variables

DPS
DEPARTAMENTO PARA LA PROSPERIDAD SOCIAL

- **Education**
  - Educational achievement
  - Literacy
- **Childhood & youth conditions**
  - School atendance
  - No school lag
  - Access to child care services
  - Absence of child employment
- **Labor**
  - Absence of long-term unemployment
  - Formal employment
- **Health**
  - Health insurance
  - Access to health care services when needed
- **Public utilities & housing conditions**
  - Access to improved drinking water
  - Adequate elimination of sewer waste
  - Adequate flooring
  - Adequate walls
  - No critical overcrowding

Weights

DPS
DEPARTAMENTO PARA LA PROSPERIDAD SOCIAL



Poverty Cutoff: k=5/15

Median and Average Number of Deprivations, 2008

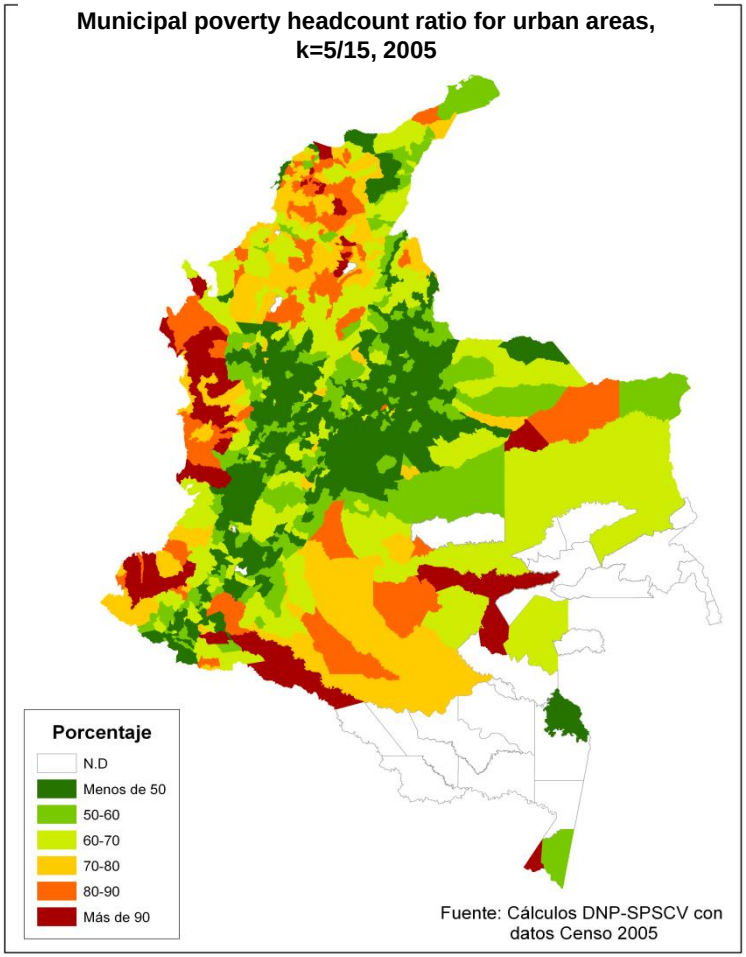
	Median of deprivations	Average number of deprivations
Population which perceives itself as poor	5.0	5.0
Population below the income poverty line	5.1	5.2
Population which perceives itself as poor and is below the income poverty line	5.4	5.6
Non-poor population by perception	3.0	3.2
Population over income poverty line	3.0	3.2
Total population	3.8	4.1

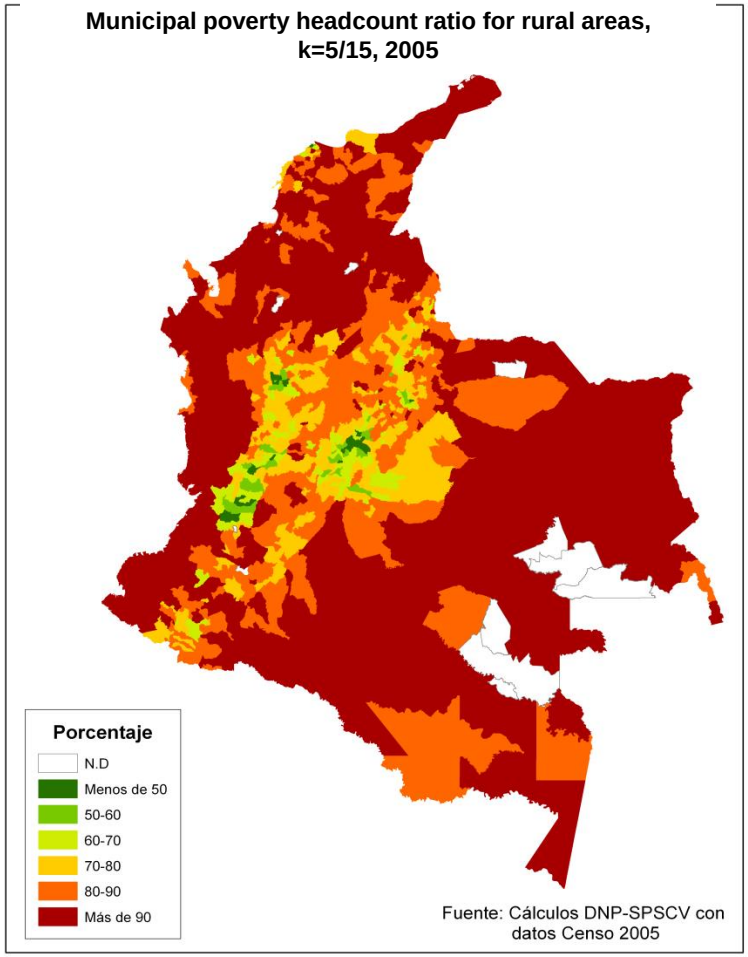
Source: NPD-SDQLD calculations, with data from the LSMS 2008

Instrument for Public Policy

- Geographical targeting: Poverty maps using Municipal MPI Colombia
- Policy coordination: High official commission
- Track poverty reduction strategies in the National Development Plan
- Targeting beneficiary households for the Extreme Poverty Reduction Strategy – UNIDOS

Municipal MPI Colombia
Headcount ratio, urban-rural areas, 2005





MPI proxy based on Census Data 2005

Economic Commission for Latin America (ECLAC):

"*Social Panorama of Latin America 2013* addresses poverty from a multidimensional perspective".

This multidimensional perspective on poverty will be continued at a regional level in future *Social Panoramas* using the AF methodology.

Option: An 'acute' MPI + 'moderate' regional MPIs

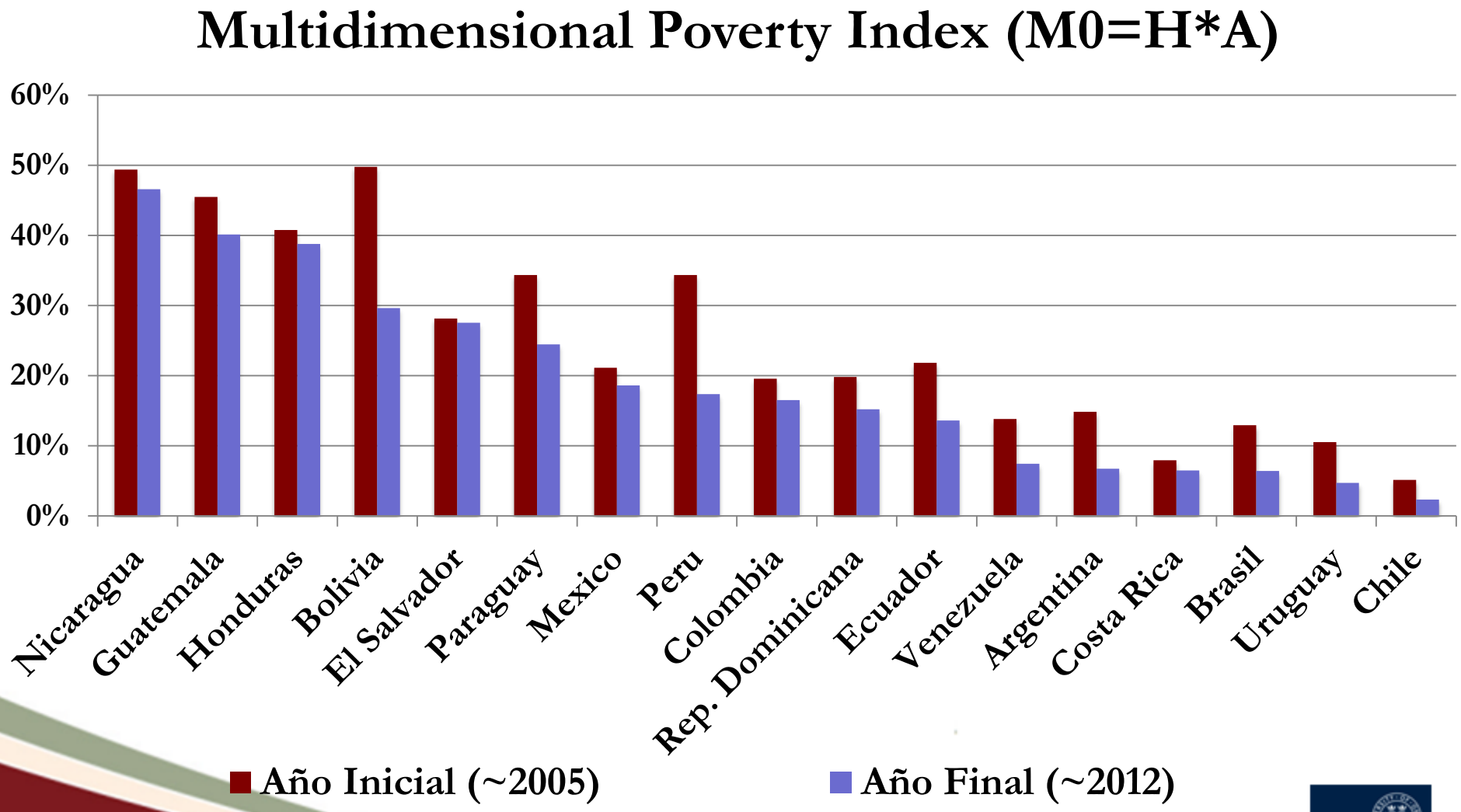
Structure – CEPAL 2014

Housing (22.2%)	• Dwelling materials • Overcrowding • Ownership	7.4% c/u
Basic Services (22.2%)	• Drinking water • Sanitation • Energy	7.4% c/u
Education (22.2%)	• Educational achievement - adults • School attendance • Educational gap	7.4% c/u
Employment and social protection (11.1%)	• Unemployment • Social protection	7.4% 3.7%
Life standards (22.2%)	• Income • Durable goods	14.8% 7.4%

Data Sources – Panorama Social 2014

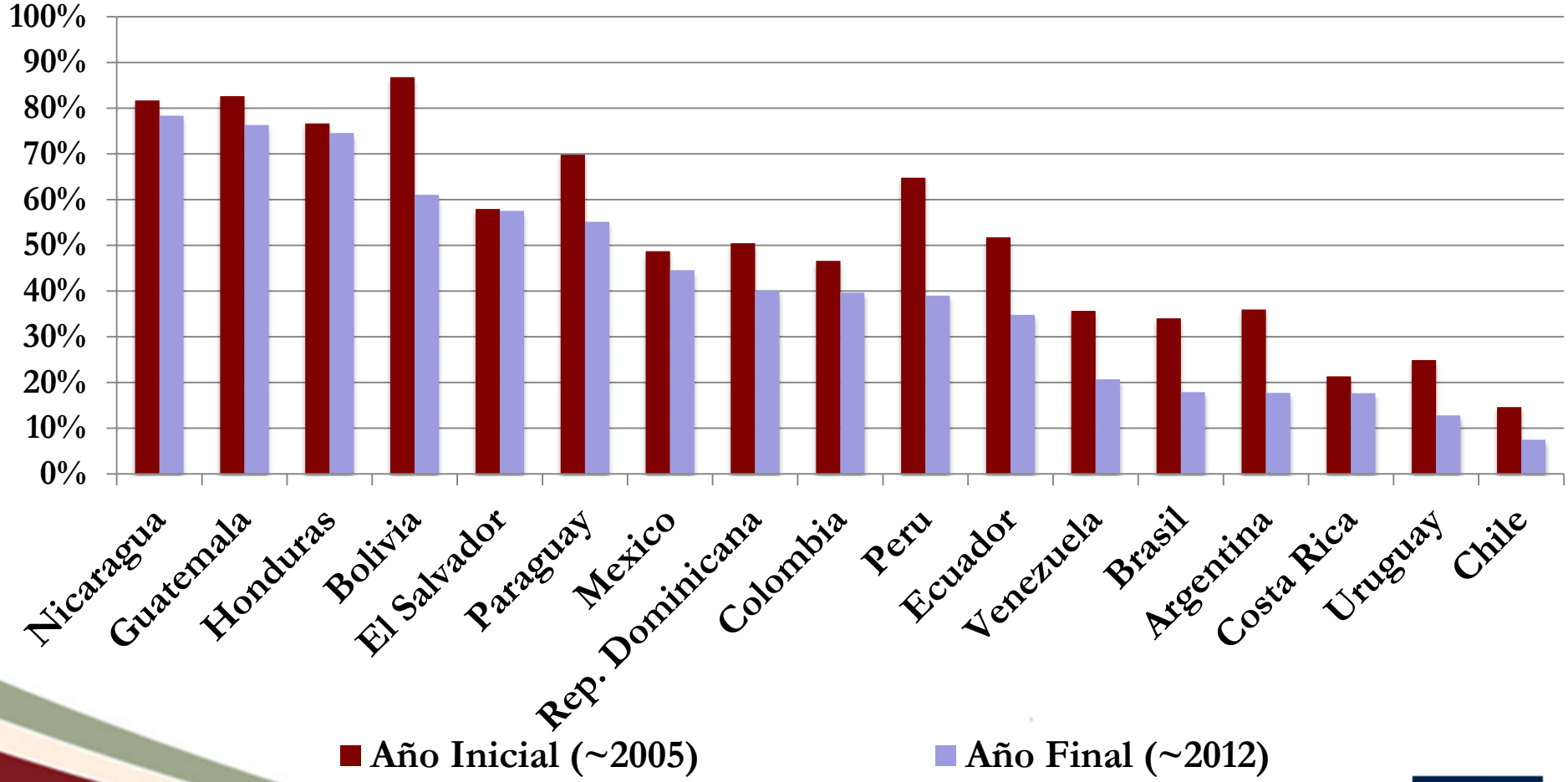
Pais	Encuesta	Año inicial	Año Final
Argentina	Encuesta Permanente de Hogares	2005	2012
Bolivia	Encuesta Continua de Hogares	2003	2011
Brasil	Pesquisa Nac. Por Amostra de Domicilios	2005	2012
Chile	Encuesta de Caracterización Socioeconómica Nacional	2003	2011
Colombia	Gran Encuesta Integrada de Hogares	2008	2012
Costa Rica	Encuesta de Hogares de Propósitos Múltiples	2005	2012
Ecuador	Encuesta de Empleo, Desempleo y Subempleo	2005	2012
El Salvador	Encuesta de Hogares de Propósitos Múltiples	2004	2012
Guatemala	Encuesta Nacional de Empleo e Ingresos	2000	2006
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples	2006	2010
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	2004	2012
Nicaragua	Encuesta Nac. de Hogares sobre Medicion de Niveles de Vida	2005	2009
Paraguay	Encuesta Permanente de Hogares	2005	2011
Peru	Encuesta Nacional de Hogares, Condiciones de Vida y Pobreza	2003	2012
Rep. Dom.	Encuesta Nacional de Fuerza de Trabajo	2006	2012
Uruguay	Encuesta Continua de Hogares	2005	2012
Venezuela	Encuesta de Hogares por Muestreo	2005	2012

IPM-LA


Multidimensional Poverty Index (M0=H*A)
60%
50%
40%
30%
20%
10%
0%
Nicaragua
Guatemala
Honduras
Bolivia
El Salvador
Paraguay
Mexico
Peru
Colombia
Rep. Dominicana
Ecuador
Venezuela
Argentina
Costa Rica
Brasil
Uruguay
Chile
Año Inicial (~2005)
Año Final (~2012)

IPM-LA (H)

Incidence of Multidimensional Poverty (H)



Adapted from National Statistics Bureau (2014) 'Bhutan Multidimensional Poverty Index', Thimphu: NSB.

OPHI Oxford Poverty & Human Development Initiative

UNIVERSITY OF OXFORD

Context

- Development outlook based on multidimensional Gross National Happiness Index
  - First in 2008
  - 9 domains, 33 indicators (2010)
- Official poverty estimates since 2000
- Consumption-based poverty estimate in 2003, 2007, 2012

Wide recognition that poverty, like wellbeing is multidimensional

Normative Decision – Purpose

- Targeting the poor
- Yardstick to measure progress
- To complement income poverty measure
- Compare districts in terms of multidimensional poverty to target resources and policies

Normative Decision

- Unit of Analysis: Household
  - Purpose of measure as a tool to target poverty alleviation policies that were at the level of the household was key

Data Sources

- Data Source: Bhutan Living Standard Survey (BLSS), 2012
- Past MPI calculations have used:
  - BMIS (2010)
  - BLSS (2007)
- All datasets representative at the district level and by rural and urban areas

Table 2.1 **Bhutan's National MPI: Dimension, Indicator and Deprivation Cutoff**

Dimension (weight)	Indicator (weight)	Deprivation Cutoff
Health (1/3)	Child Mortality (1/6)	A child has passed away in the household
	Food Security (1/6)	The household suffers a shortage of food
Education (1/3)	School Attendance (1/6)	Any school-aged child (6-14 years) in the household is not attending school up to class VIII
	Schooling (1/6)	No household member has completed five years of schooling
Living Standard (1/3)	Cooking Fuel (1/21)	The household cooks with dung, wood or charcoal
	Sanitation (1/21)	The household's sanitation facility is not improved or it is shared with other households
	Electricity (1/21)	The household has no electricity
	Water (1/21)	The household does not have access to safe drinking water or safe water is more than a 30-minute walk (round trip)
	Road (1/21)	The household is more than 30-minute walk from the road head
	Housing (1/21)	The household does not have adequate materials in two of: floor, wall and roof
	Asset (1/63)	The household does not own more than one of: radio, telephone, TV, bike, motorbike or refrigerator; and does not own a car or truck
	Land (1/63)	The rural household does not own more than one acre of land
	Livestock (1/63)	The household does not own more than three of: cattle, horses, sheep, goats, chickens, pigs, buffalo, yaks

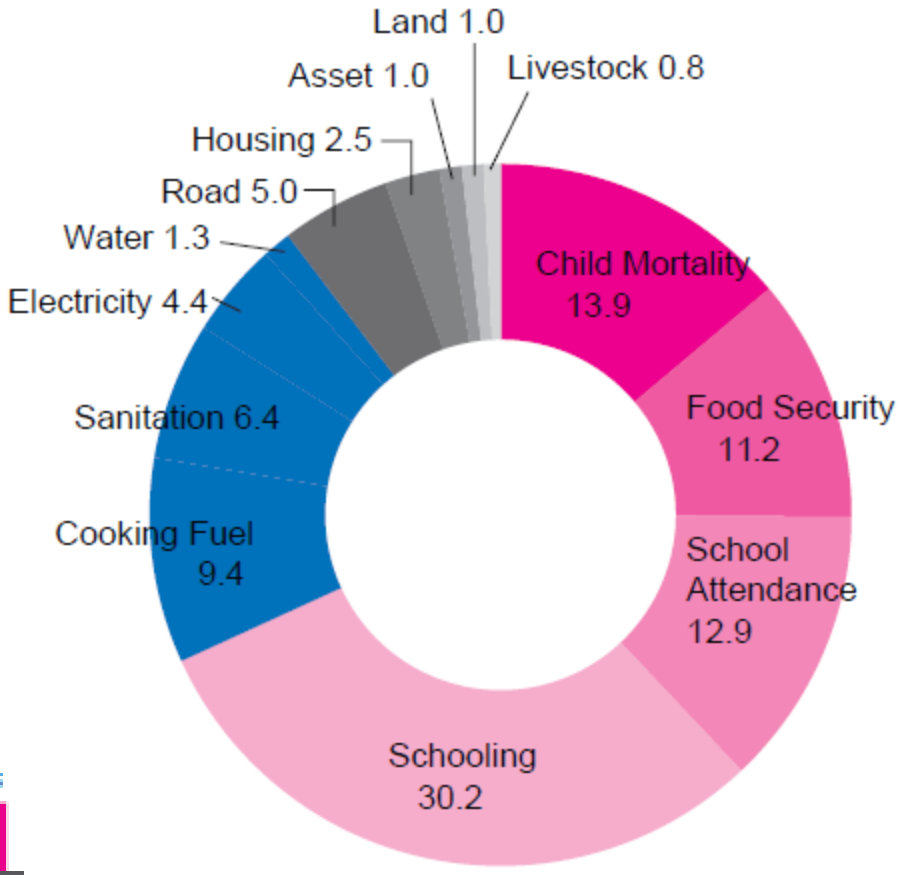
MPI 2012 - Results

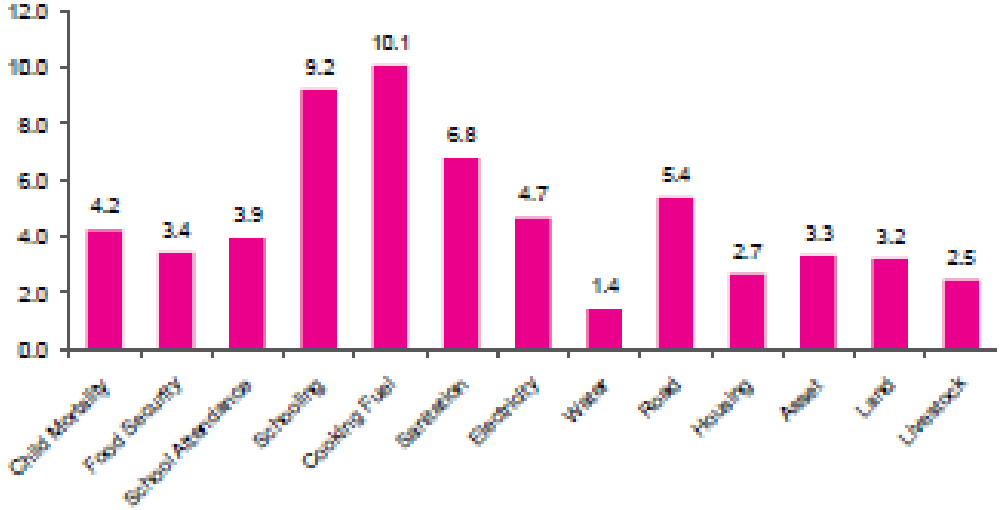
Table 3.1 Multidimensional Poverty

Poverty Cutoff (*k*)	Index	Value
k value=4	MPI	0.051
	H (%)	12.7
	A (%)	40.1

MPI 2012 - Results

Figure 3.3 Percentage Contribution to National MPI by Indicator



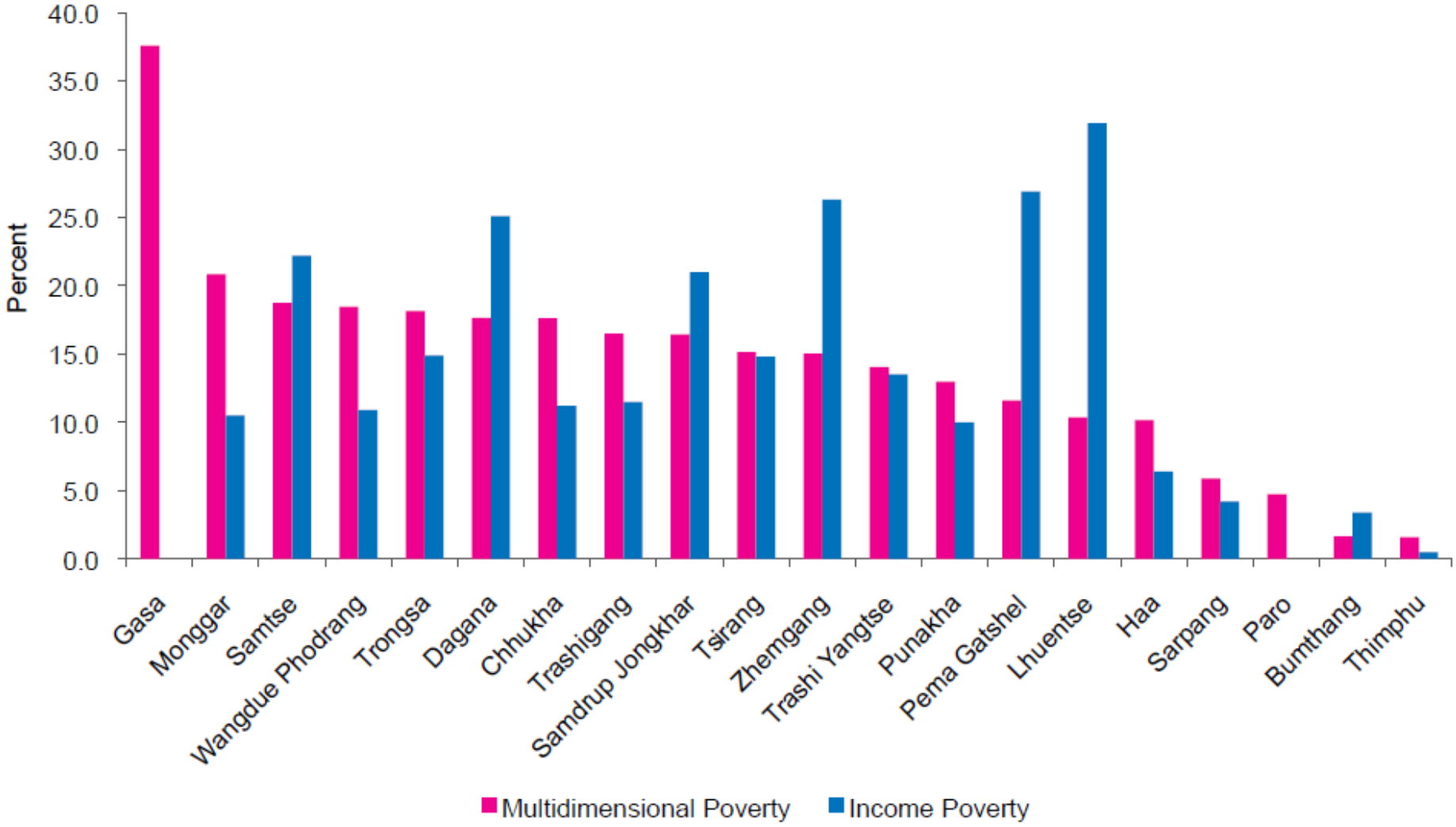


There is little overlap between income and MD poor

Table 3.6 Income and Multidimensional Poverty: Who is poor in both?

Income	Multidimensionally		
	Poor	Non-poor	Total
Poor	3.2	8.9	12.0
Non-poor	9.5	78.5	88.0
Total	12.7	87.3	100.0

Figure 3.8 Comparison between Multidimensional Poverty and Income Poverty by *Dzongkhag*



Policy Use

- From the 11th 5-year plan, using MPI as one of the criteria in resource allocation to local governments
- Setting poverty eradication target – to reduce MPI poverty (HC ratio) to below 10% by 2018

The South African MPI

Creating a multidimensional poverty index using census data

The South Africa I know, the home I understand

Adapted from Statistics South Africa (2014) 'The South African MPI', Pretoria: Stats SA.

Normative Decisions

- Purpose:
  - Poverty is a complex issue and income is a 'means to' rather than 'a better life' itself
  - Poor people describe poverty as multidimensional
  - To better-equip policy makers in targeting or allocating budget.
- Indicators: Availability in 2001 & 2011 Census.
- Dimensions/indicators:
  - MPI adapted to local reality
  - Health + Education + Living Standards + Economic activity
  - Exploration, confrontation and consultation.
- Deprivation Cutoffs: Exploration, confrontation and consultation.

Indicators and weights similar to the MPI

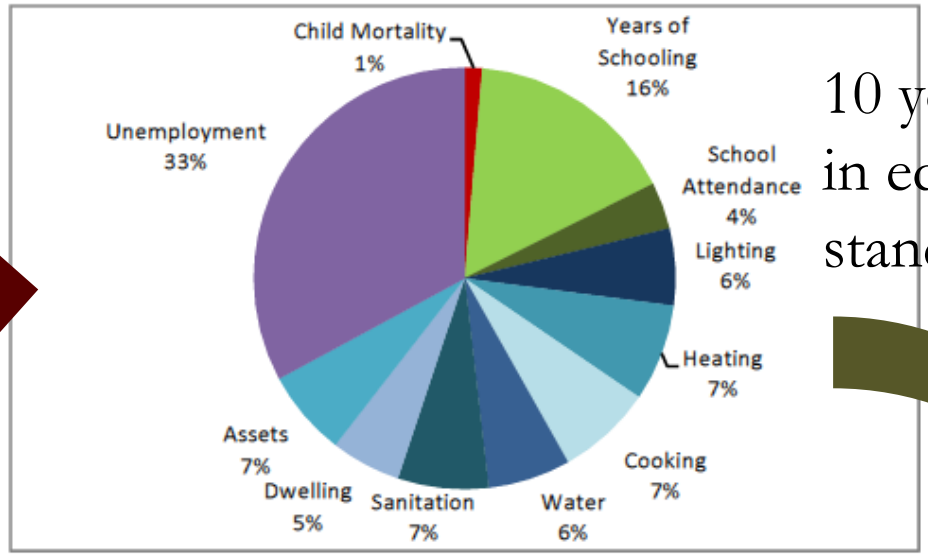
Table 1: The dimensions, indicators and deprivation cut-offs for SAMPI

Dimension	Indicator	Deprivation cut-off	Weight
Health	Child mortality	If any child under the age of 5 has died in the past 12 months	1/4
Education	Years of schooling	If no household member aged 15 or older has completed 5 years of schooling	1/8
	School attendance	If any school-aged child (aged 7 to 15) is out of school	1/8
Standard of living	Fuel for lighting	If household is using paraffin/candles/nothing/other	1/28
	Fuel for heating	If household is using paraffin/wood/coal/dung/other/none	1/28
	Fuel for cooking	If household is using paraffin/wood/coal/dung/other/none	1/28
	Water access	If no piped water in dwelling or on stand	1/28
	Sanitation type	If not a flush toilet	1/28
	Dwelling type	If an informal shack/traditional dwelling/caravan/tent/other	1/28
	Asset ownership	If household does not own more than one of radio, television, telephone or refrigerator and does not own a car	1/28
Economic activity	Unemployment	If all adults (aged 15 to 64) in the household are unemployed	1/4

Weights: nested weights as in global MPI

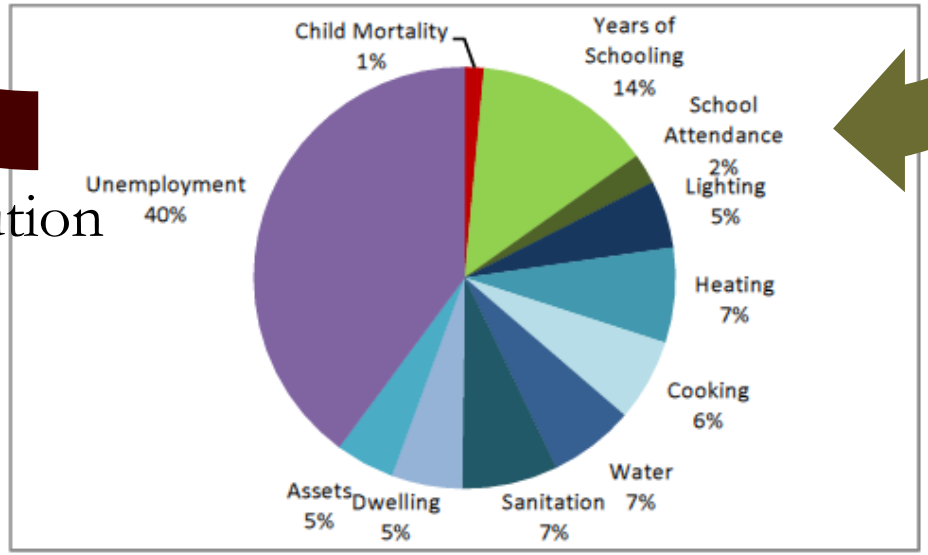
Poverty cutoff: 33%

Figure 2: Contribution of weighted indicators to SAMPI 2001 at national level



10 years of progress in education and living standards

Figure 3: Contribution of weighted indicators to SAMPI 2011 at national level



…but the contribution of unemployment increased

One method: different purposes

They:

- Draw on censored matrix
- Share a Alkire Foster class of measures, specifically, the M0, and they fulfil the properties or axioms acknowledged.
- Some countries report H, A and M0, others show only H
- Decomposable by dimension/indicator, population groups and changes in time.
- Mix continuous and ordinal data
- National scope, but subnational and group decomposition
- Unit of analysis: household
- Weights: different weights schemes, adapting them to national needs.

	Mexico	Colombia	Bhutan	South Africa
Dimensions	Reflect social rights and income for food basket	Reflect goals of the National Development Plan	MPI dimensions + access to food, roads, wealth	MPI PCA method to reduce components of the Census 2011 and relate them to dimensions.
Indicators	Legal norms that reflect rights	Literature; experts and policy makers; availability within LSMS; precision of measure	8 MPI indicators + access to food, roads, land, livestock and housing	Availability of data
Sources of data	Existing income survey with new module	Existing LSMS	Existing LSMS style survey	Existing Census data without information on nutrition
Thresholds	Legal criteria Expert criteria	Triangulation and Robustness	MPI adapted to local reality	MPI adapted to local reality + Exploration, confrontation and consultation.
Institutions involved	Coneval+ Inclusive cabinet + monitoring	Poverty committee + monitoring	GNH Commission to identify areas for intervention	Statistical office

Tabita, Kenya
Rabiya, India
Stephanie, Madagascar
Agatha, Madagascar
Dalma, Kenya
Ann-Sophie, Kenya
Valérie, Madagascar

Thanks!