



Food and Agriculture
Organization of the
United Nations

First Things First: Food to Live Well

A new method to estimate undernourishment
and food insecurity



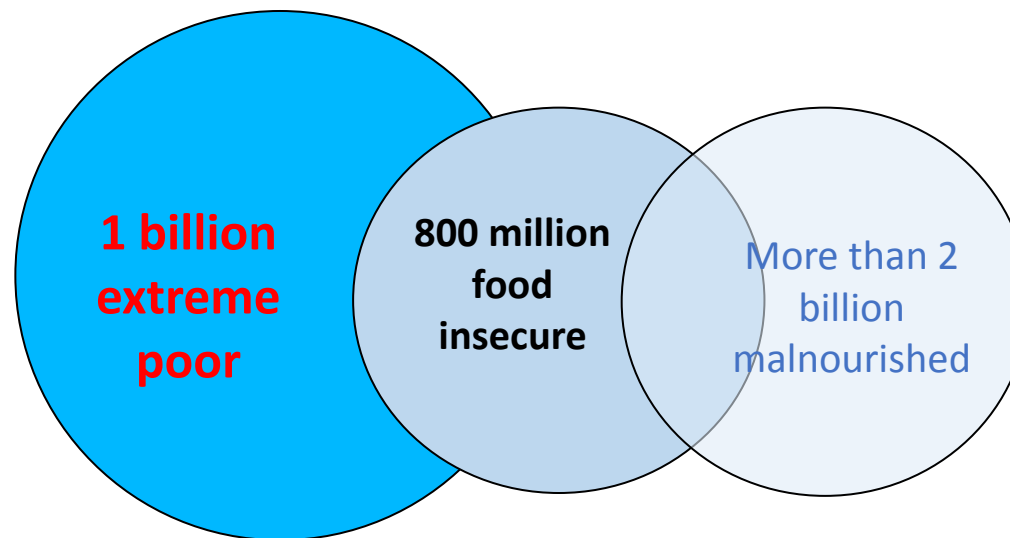
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*Presentation for INEC Seminar on
Alternative Measures of “Buen Vivir” and Well-Being
Quito, 3 July 2015*

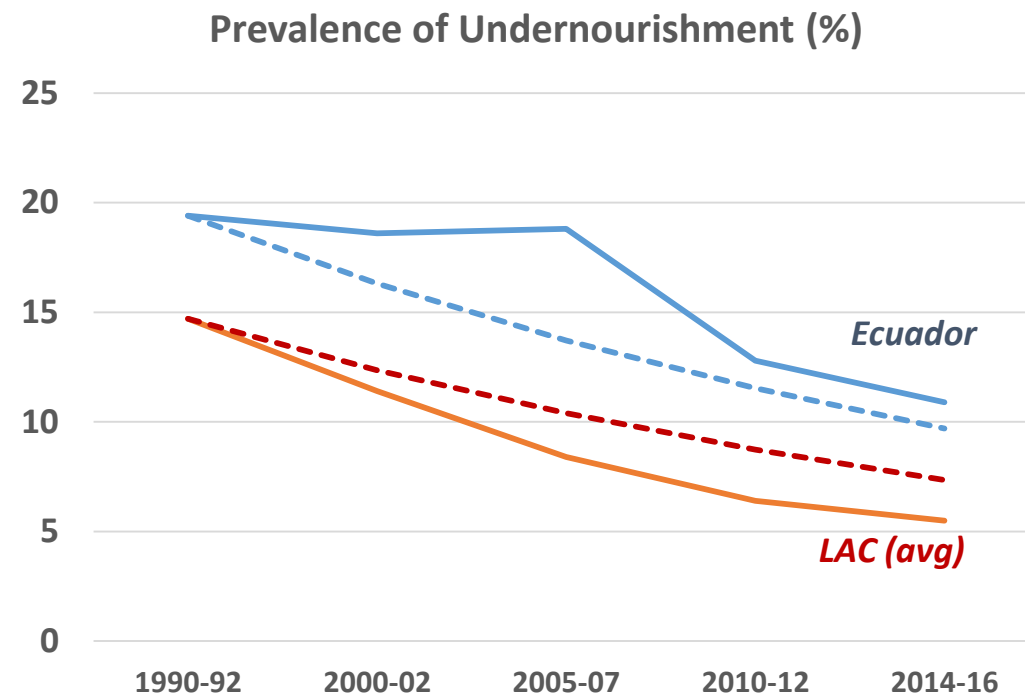
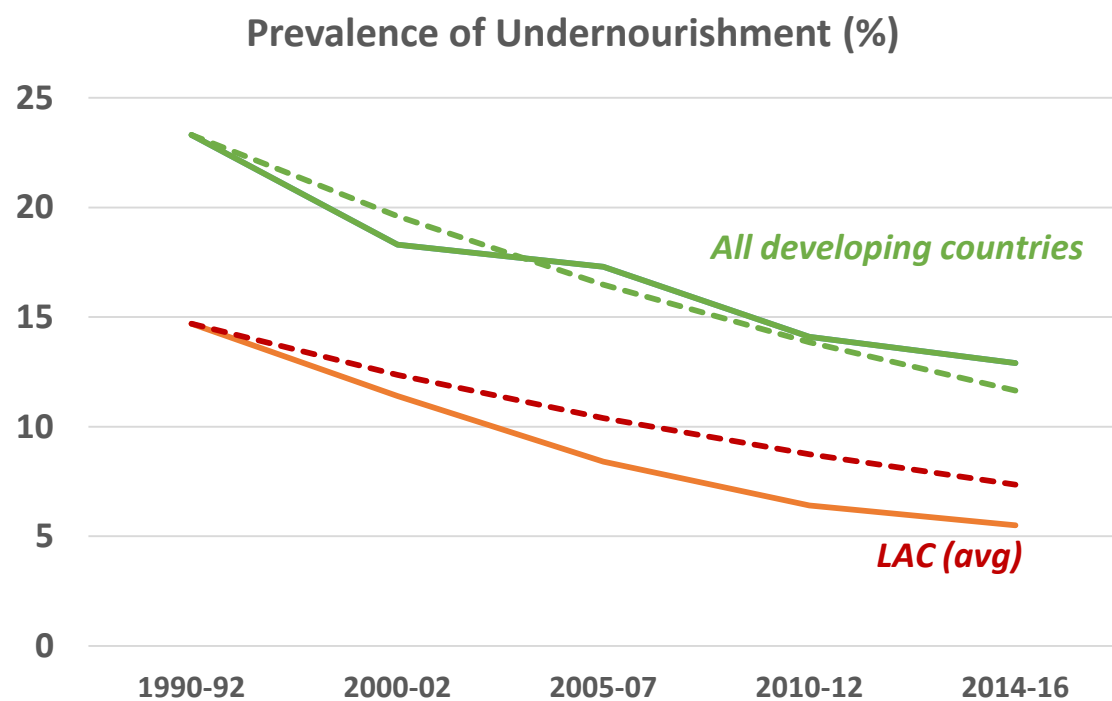


Food Insecurity and Rural Poverty

- ❖ We produce enough food in the world to feed everyone..
- ❖ ... and the 2015 MDG 1 target of halving poverty and hunger has been met
- ❖ ... yet about 1 billion continue to live in extreme poverty and 800 million people are food insecure



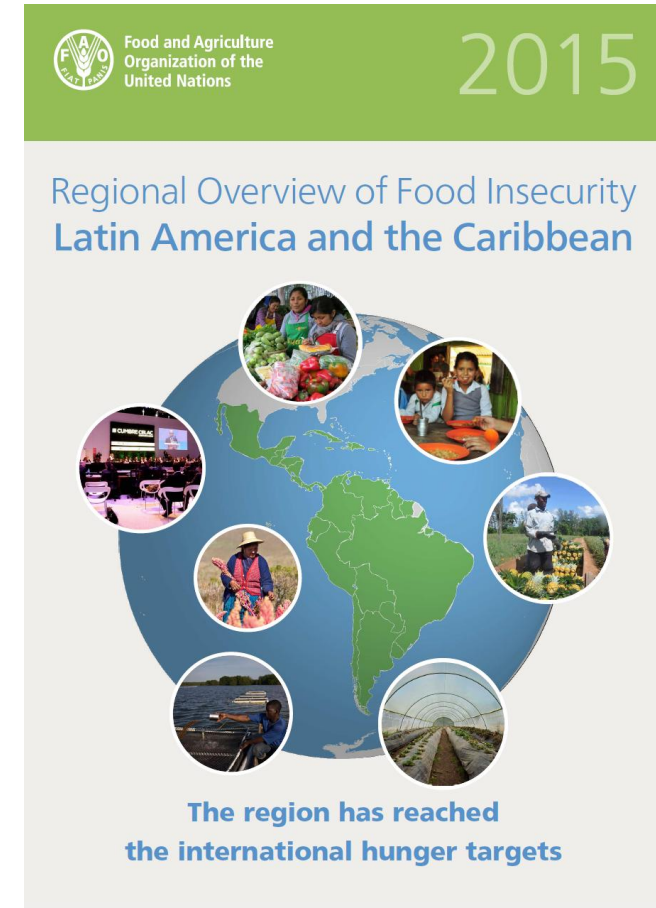
Most progress in Latin America



..... but still more than 30 million undernourished in region (of which 1.8 million in Ecuador)

How do we measure food insecurity?

- caloric needs in the population (considering distribution gender, age, body mass and physical activity levels)
- estimate proportion of individuals whose average caloric intake over the year is below their specific caloric requirement
- multiply proportion by total population size to obtain total number of individuals who are "undernourished" (*likely having insufficient caloric intake to fulfill the needs for a normal and healthy life*)



Are we measuring correctly?

“While the last 20 years have seen a deepening understanding of the concept of food security, **its measurement has lagged behind.**”

At the global level, there are **no direct estimates** of the number of food insecure people. The most widely-cited indirect measure is the ‘prevalence of undernourishment’ (POU), constructed by the United Nations Food and Agriculture Organisation (FAO)[...]

These estimates give no sense of the severity of hunger”

HLPE, 2012. Social protection for food security.

A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2012.



Debunking myths

- Measuring food consumption at the household or individual level to assess if somebody “is eating enough” is awfully difficult
 - Assessing *habitual* food consumption requires repeated measures to control for intra-individual variability
 - Assessing *individual* requirements to match with observed consumption is very difficult, even just for dietary energy
- The depreciated FAO PoU methodology, based on a probabilistic model and a combination of macro and micro data is still best way to avoid grossly biased estimates.
 - Unfortunately “these estimates give no sense of the severity of hunger” or do not tell us who the food insecure people are, where they live, why are they so.
- “Quick” solutions such as the Food Consumption Score or the Household Dietary Diversity Score, while interesting, still lack the analytic requirements to be considered proper measures.
 - How to *compare* measures and define thresholds that lead to comparable classification?
 - How to assess *reliability* (both *trueness* and *precision*)

An alternate route to define food insecurity

- Food insecurity as an experienced condition (Radimer et al. 1990, Coates et al. 2006)
- There are common, recurrent “domains” in experiences associated with a condition of food insecurity
- Experiences can be ranked in terms of severity from the least severe to the most severe

Mild food insecurity

Moderate food insecurity

Severe food insecurity

Anxiety about ability to procure adequate food

Compromising quality and variety of food

Reducing quantities, skipping meals

Experiencing hunger

The analytic concept behind the FIES

- Linking the latent trait to observable facts:
 - The more food insecure a person is, the more likely he or she will report having suffered from the worst experience
- A long established psychometric model (Rasch measurement model) is used to estimate the severity of each respondent's condition, based on the reported experiences
 - The individual measure of severity depends on the entire pattern of responses. The answers to all questions are used to increase the precision of the measure.
- An innovative method (inspired by current practice in educational testing equalization) is developed to equalize measures obtained in different countries and to define a global reference standard

The Voices of the Hungry Project

- To establish a globally valid standard for measuring the severity of food insecurity for comparisons over time, across countries and social groups: the Food Insecurity Experience Scale (FIES)
 - A new metric for measuring the severity of the food insecurity condition of households and individuals
 - A questionnaire of 8 simple yes/no questions to reveal food-related behaviours and experiences
 - Provides a direct assessment of the adequacy of food access
- The FIES questionnaire has implemented in 150 countries in 2014 round of the Gallup® World Poll (GWP)
- To estimate the prevalence of moderate and severe food insecurity in 150+ countries in 2014 and to set a benchmark against which to monitor progress at national level.
- To promote adoption of the FIES in national food security monitoring systems, by including the module in national household surveys

A four minute interview

Now I would like to ask you some questions about your food consumption in the last 12 months.

During the last 12 MONTHS, was there a time when:

Q1. You were worried you would run out of food because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q2. You were unable to eat healthy and nutritious food because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q3. You ate only a few kinds of foods because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q4. You had to skip a meal because there was not enough money or other resources to get food?	0 No 1 Yes 98 Don't Know 99 Refused
Q5. You ate less than you thought you should because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q6. Your household ran out of food because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q7. You were hungry but did not eat because there was not enough money or other resources for food?	0 No 1 Yes 98 Don't Know 99 Refused
Q8. You went without eating for a whole day because of a lack of money or other resources?	0 No 1 Yes 88 Don't Know 99 Refused

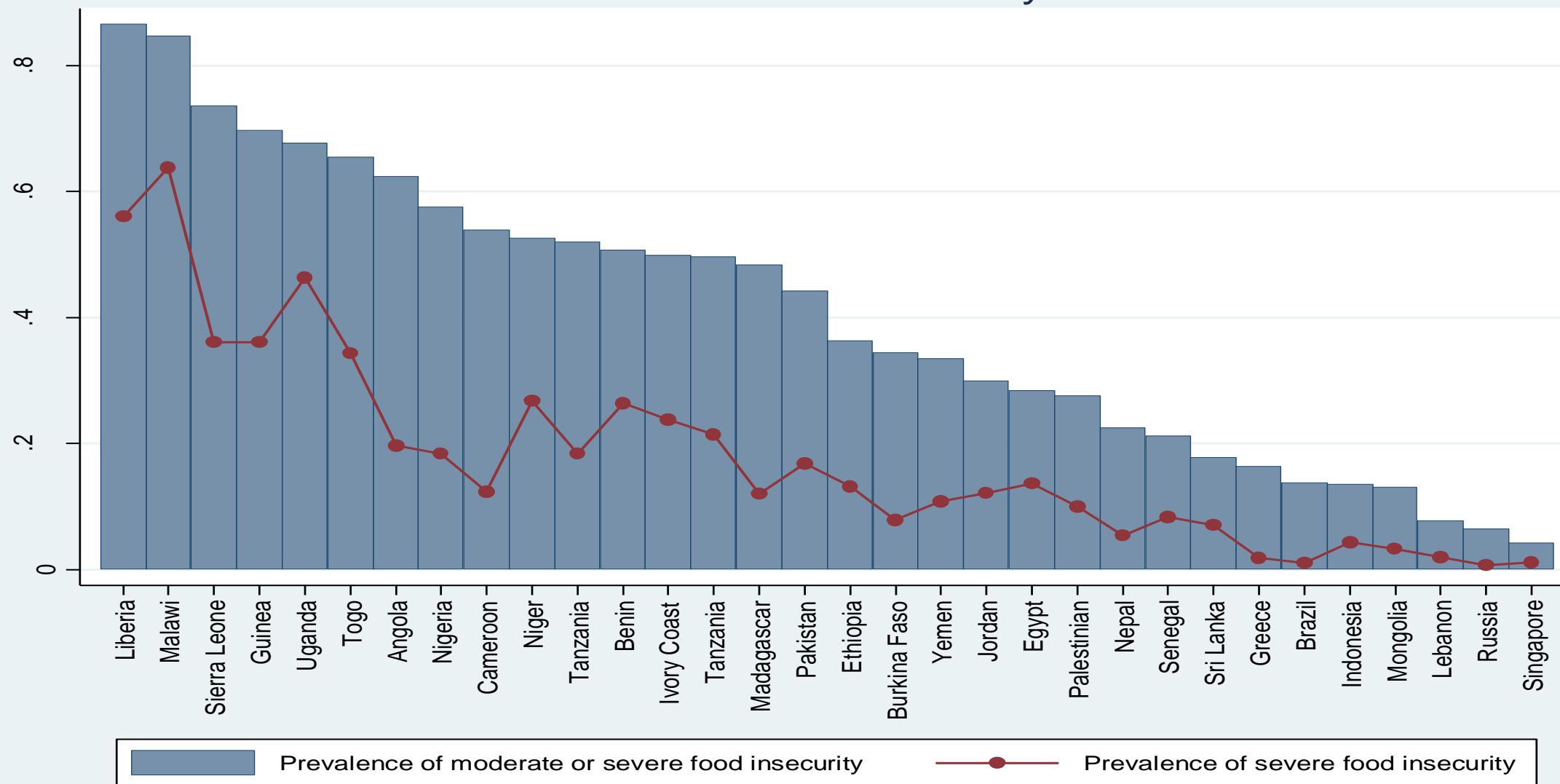
Preliminary results for 146 countries:

- *In 33 countries more than 20% population suffers severe food insecurity*

Table 7-7 Distribution of countries for different classes of FI_{mod+} and FI_{sev} .

FI_{mod+}			FI_{sev}		
Range	N. of countries	% of countries	Range	N. of countries	% of countries
0-5	10	7.0	0-1	18	12.6
5-15	45	31.5	1-5	47	32.9
15-25	25	17.5	5-10	20	14.0
25-50	32	22.4	10-20	25	17.5
>50	31	21.7	>20	33	23.1

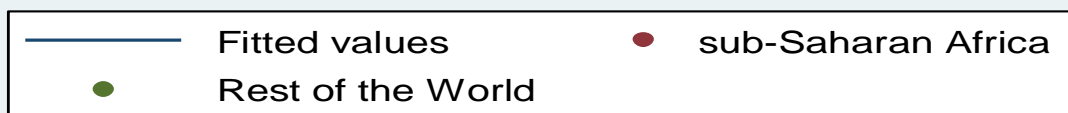
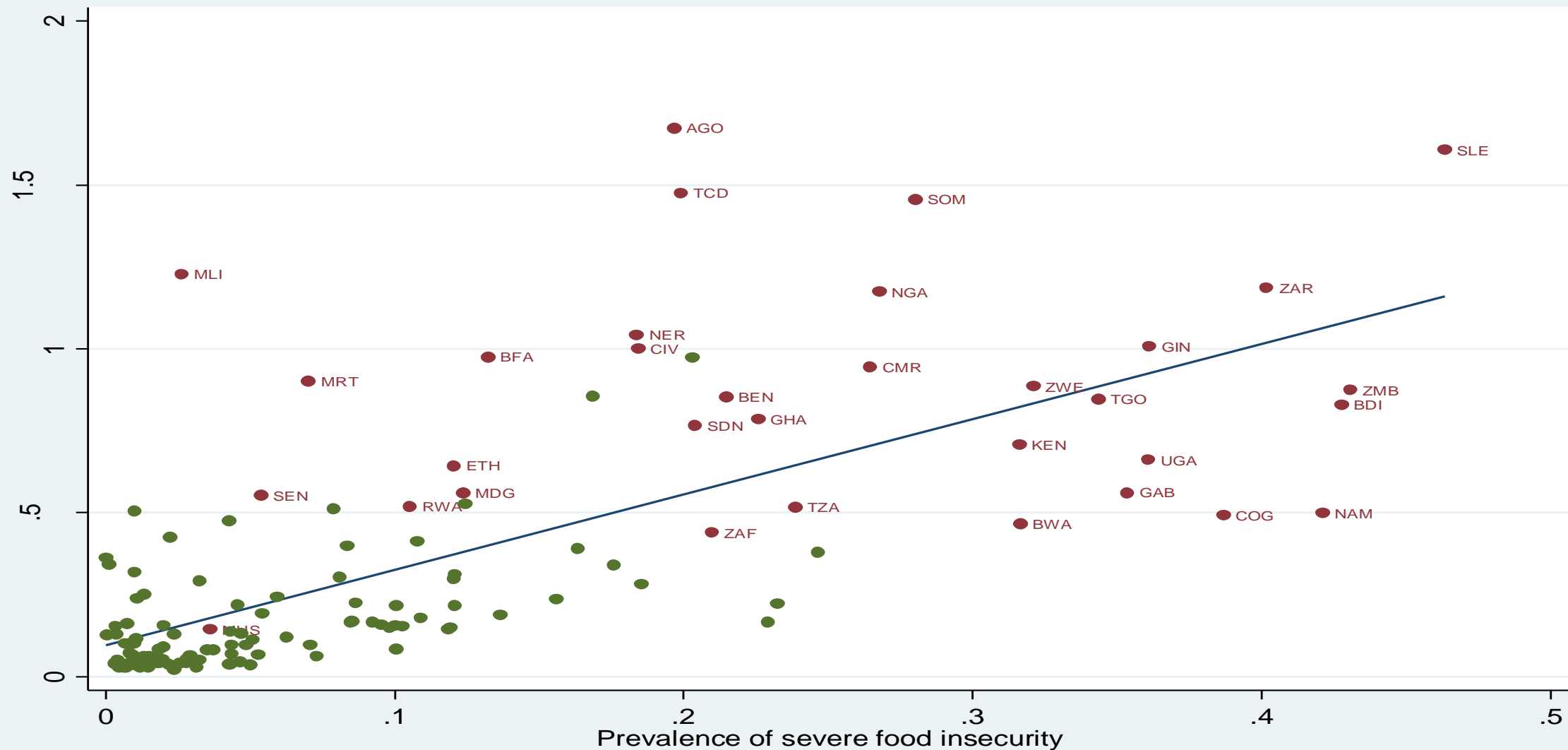
Prevalence of food insecurity in 2014

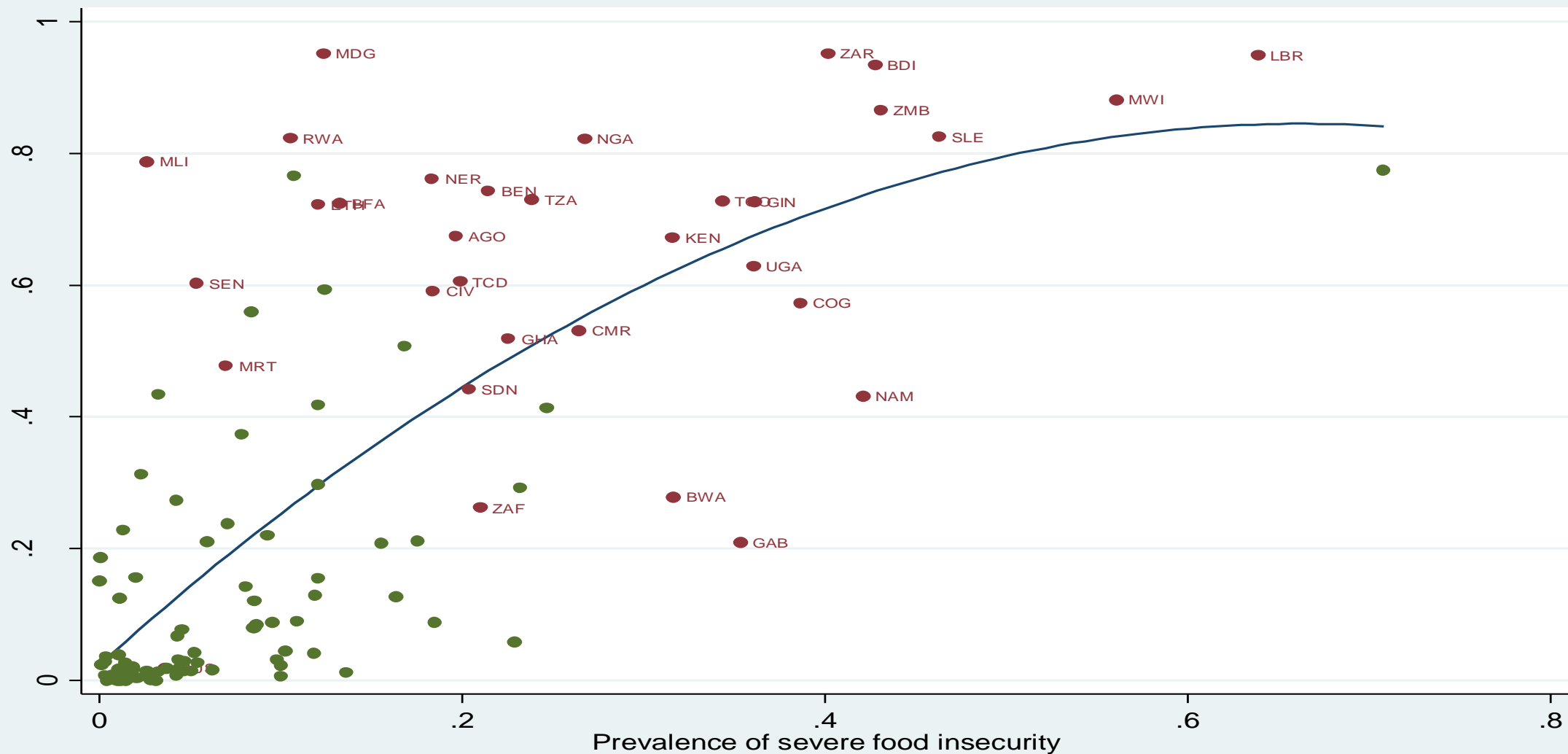


Strong correlation FIES and key human wellbeing indicators

Table 7-8 Spearman's rank correlation between Food Insecurity indicators¹ and selected indicators of development at country level.

Indicator	Period	N	FI _{mod+}	FI _{sev}
Under-5 mortality rate	2013	138	0.846**	0.781**
Human Development Index	2013	138	-0.831**	-0.741**
Prevalence of undernourishment	2014	137	0.759**	0.684**
Poverty headcount ratio at \$1.25 a day	2011	96	0.766**	0.725**
Poverty headcount ratio at \$1.25 a day	2010-2013	80	0.792**	0.762**
Multidimensional Poverty Index	2009-2013	47	0.712**	0.601**
GINI index	2009-2013	96	0.468**	0.499**
Gross National Income per capita	2011-2013	139	-0.800**	-0.700**
Children aged 0-59 months Underweight	2009-2013	105	0.602**	0.570**
Children aged 0-59 months Stunting	2009-2013	105	0.669**	0.632**
Children aged 0-59 months Wasting	2009-2013	104	0.363**	0.354**
Children aged 0-59 months Overweight	2009-2013	92	-0.355**	-0.334**
Rural population (%)	2011-2013	140	0.614**	0.517**
Adult literacy rate (%) projection	2015	115	-0.732**	-0.733**
Youth (15-24 years) literacy rate (%)	2015	115	-0.749**	-0.720**
Life expectancy at birth	2013	138	-0.783**	-0.695**
Fertility rate	2012	141	0.815**	0.795**
Adolescent fertility rate (women ages 15-19)	2012	140	0.817**	0.759**
Sanitation facilities (% with access)	2012	132	-0.840**	-0.765**
Water source (% with access)	2012	135	-0.806**	-0.718**
Gender-related development index (GDI)	2013	123	-0.619**	-0.655**





Main benefits from using the FIES

- Produces timely, reliable and meaningful information on the depth of food insecurity (mild, moderate, or severe) in terms of struggle in access to food is obtained at household or individual level.
 - A sound methodology (Item-Response Theory) allows assessment of reliability and precision of the measures.
- Easily applied, rapid and at low cost. Can be included in virtually any survey.
 - Food security status can be linked to other socio-demographic and health conditions.
- Measures are worldwide comparable as they are expressed on a global reference scale.
- Allows assessment of food insecurity experiences at the individual level, thus permitting proper analysis of gender related food insecurity disparities.

So, is FIES the new standard?

- Further validation of method is needed
- Data collected through the GWP is good enough for **national level** prevalence rates for global monitoring
 - More detailed analyses will require more data from larger samples
 - Ecuador could offer to experiment
- Further research of determinants is needed



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<http://www.fao.org/economic/ess/ess-fs/voices/en/>

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