VOICES of the **HUNGRY**

Food and Agriculture Organization of the United Nations
Organisation des Nations Unies pour l'alimentation et l'agriculture
Organización de las Naciones Unidas para la Alimentación y la Agricultura

FAO innovations in survey methods for estimating comparable rates of the prevalence of food insecurity worldwide
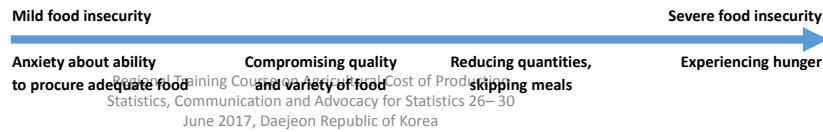
Outline

- Foundations of measurement theory
  - Item Response Theory based estimation models.

- Experience-based scales to measure the severity of food insecurity (and the genesis of VoH)

- The innovations produced by VoH
  - Defining a global scale and developing the methods to calibrate measures and to equate thresholds.
  - Results of the application through the Gallup® World Poll in 2014.

- Use of the Food Insecurity Experience Scale (FIES) to monitor Target 2.1 of the 2030 Agenda for Sustainable Development

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The FIES Survey Module (individual)

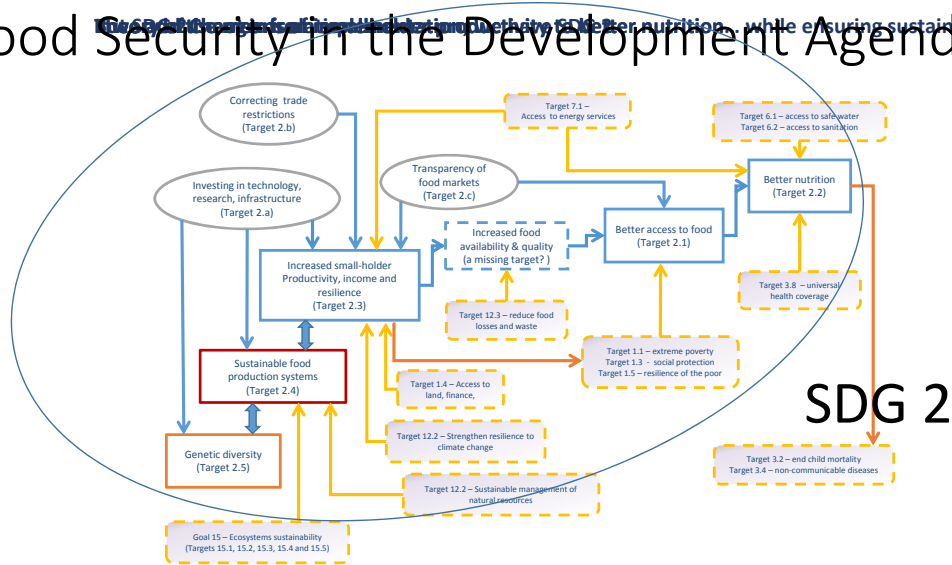*During the last **12 MONTHS**, was there a time when:*

1. You were **worried** you would run out of food because of a lack of money or other resources?
2. You were unable to eat **healthy** and nutritious food because of a lack of money or other resources?
3. You ate only a **few kinds of foods** because of a lack of money or other resources?
4. You had to **skip a meal** because there was not enough money or other resources to get food?
5. You **ate less** than you thought you should because of a lack of money or other resources?
6. Your household **ran out of food** because of a lack of money or other resources?
7. You were **hungry** but did not eat because there was not enough money or other resources for food?
8. You went without eating for a **whole day** because of a lack of money or other resources?

.

Mild food insecurity			**Severe food insecurity**
Anxiety about ability to procure adequate food	**Compromising quality and variety of food**	**Reducing quantities, skipping meals**	**Experiencing hunger**

Food Security in the Development Agenda

The SDG targets for eliminating hunger and achieving better nutrition …while ensuring sustainability
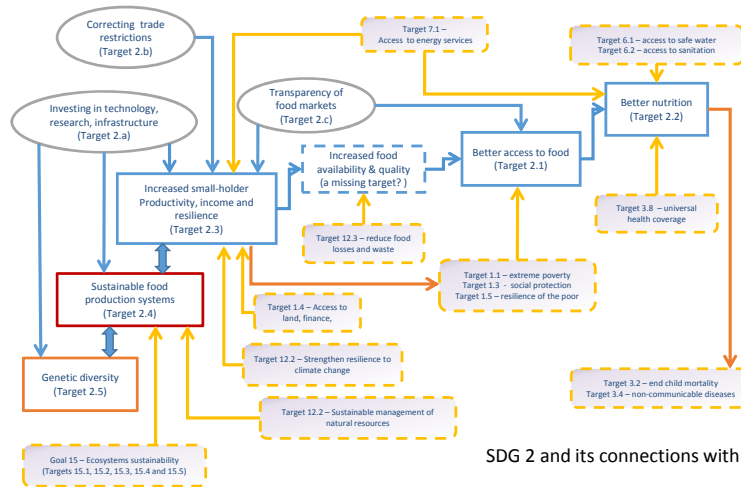
SDG 2

SDG 2 and its connections with other SDGs
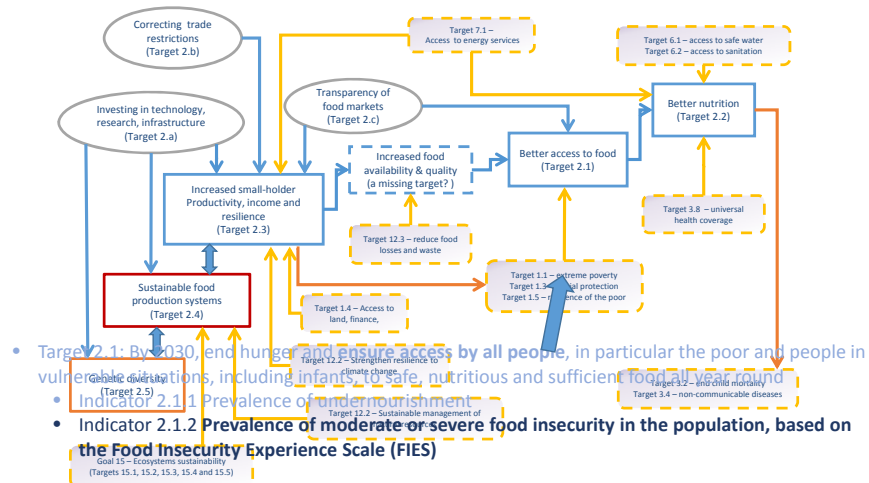
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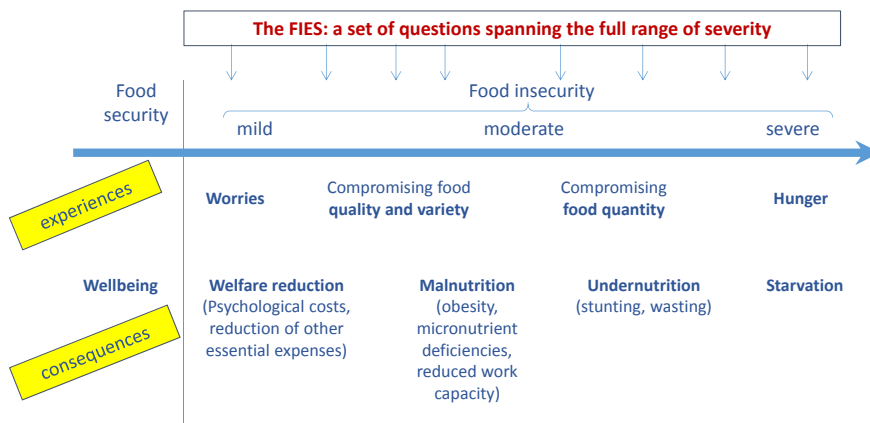
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The Food Insecurity Experience Scale

- Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
  - Indicator 2.1.1 Prevalence of undernourishment
- Indicator 2.1.2 **Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)**

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The Food Insecurity Experience Scale

The FIES: a set of questions spanning the full range of severity

Food security | Food insecurity
mild — moderate — severe

experiences

Worries | Compromising food quality and variety | Compromising food quantity | Hunger

Wellbeing | Welfare reduction (Psychological costs, reduction of other essential expenses) | Malnutrition (obesity, micronutrient deficiencies, reduced work capacity) | Undernutrition (stunting, wasting) | Starvation

consequences

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Foundations: Item Response Theory based measurement methods in the Social Sciences

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Definitions and terminology

- We measure "attributes" of "objects"
  - E.g., we don't measure "a person"; we measure the "height", the "weight", or the "age" of a person. The person is the object; height, weight, age (or food security status) are attributes.
  - Even if they are strongly complementary, **appropriateness of the attribute** for the issue at hand, and **validity of the measure** are two distinct questions that needs to be addressed separately.
  - When reporting on an assessment, it is essential to identify what is the object being targeted and which is the attribute being measured.

Definitions and terminology

- A **measurement system** is composed of:
  - a measurement "tool";
  - a "protocol" that describes how to apply the tool to the object;
  and
  - a "standard of reference", against which measures are calibrated.

Without reference to a standard, it is impossible to ensure comparability of the measures obtained in different places or at different times

- Applying the tool according to the protocol we obtain "measures"
  - Various classes of measures: discrete assignment, interval measures, ratio measures.
    - Not all numerical variables are proper measures.
    - Discrete indicators of class membership must be treated as dummy variables.

Validity and reliability of measures

- A measurement system is **valid** if any change in the attribute of interest determines a change in the numbers produced by the system in the same direction and by the same proportion
  - The causality runs from the attribute of the object to the measure
- Measures are **reliable** if measurement errors are rare, small and non systematic
  - Lacking a "gold standard" measure, reliability is assessed through the statistical properties of the measurement tool, and can only be stated in probability terms

Measuring social phenomena and the importance of theories

- Measurement in the realm of social sciences is distinctly more complicated than in physical sciences
  - Interesting "constructs" may be inherently unobservable (latent traits)
  - Some observables may be too difficult or too costly to observe (data gaps)
  - Often we learn about the attribute of interest while we attempt at measuring it
- This calls for a heightened attention given to statistics and statistical inference principles
  - Statistical inferences requires that a formal model is defined to link the measure we are interested in, to the data we use

The Rasch model (G. Rasch, 1960)

$$Prob(X_{i,j} = 1) = \frac{\exp(a_i - b_j)}{1 - \exp(a_i - b_j)}$$

- It is the foundation of **Item-Response Theory**
- $X_{i,j} \in \{0,1\}$ is the "response" of the i-th respondent to the j-th "item".
  - The probability that a respondent whose position on a scale is a_i might respond to an item positioned at b_j on the same scale is a (logistic) function of the difference $(a_i - b_j)$
- The model provides the probabilistic basis for
  - **Estimating the parameters** associated with both items and respondents
  - Conducting **statistical tests** of the strength of association of the responses to the latent trait and of goodness of fit

The Rasch model (continued)

- The Rasch model implies that the **raw score** (i.e., the simple sum of affirmative responses) **is a sufficient statistics** to estimate respondents' severity
  - As both affirming an item and denying it convey information individual measures of severity depend on the number of affirmed items, not on which particular set of items have been affirmed. Unexpected patterns, however, contribute to determine measures of mis-fit, used to test the empirical validity of the model
  - Use of raw score for classification greatly facilitates use of the method, but it is only legitimate if data conform to the model's assumptions of equal discrimination of all item and conditional independence of the responses to each item.
- **Conditional Maximum Likelihood** (CML) can be used to estimate parameters
  - It imposes no assumption on the shape of the distribution of the latent trait in the population (+)
  - Provides consistent estimates of standard errors under the Rasch model assumptions (+)
  - It only uses non-extreme response patterns, as severity parameters for zero or maximum raw score cannot be estimated. If items are not adequately chosen, this may limit the size of effective samples.

A heuristic illustration of the Rasch model

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1: initial data is arranged in a matrix

case	Item #1	Item #2	Item #3	Item #4	Item #5	Item #6	Item #7	Item #8	
1	1	1	0	0	1	0	0	0	
2	1	1	1	1	1	1	1	1	
3	1	0	0	0	0	0	0	0	
4	1	1	1	1	0	1	0	0	
5	1	1	1	0	0	0	1	0	
6	1	0	0	1	0	0	0	0	
7	1	1	0	0	0	1	0	0	
...	...	...	...	...	...	...	...	...	
N	1	1	1	1	0	1	1	0	

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Compute column averages

case	Item #1	Item #2	Item #3	Item #4	Item #5	Item #6	Item #7	Item #8	
1	1	1	0	0	1	0	0	0	
2	1	1	1	1	1	1	1	1	
3	1	0	0	0	0	0	0	0	
4	1	1	1	1	0	1	0	0	
5	1	1	1	0	0	0	1	0	
6	1	0	0	1	0	0	0	0	
7	1	1	0	0	0	1	0	0	
...	...	...	...	...	...	...	...	...	
N	1	1	1	1	0	1	1	0	
$\bar{X}$	0.95	0.73	0.56	0.65	0.35	0.42	0.36	0.22	

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Compute column averages and raw scores

case	Item #1	Item #2	Item #3	Item #4	Item #5	Item #6	Item #7	Item #8	Raw score
1	1	1	0	0	1	0	0	0	3
2	1	1	1	1	1	1	1	1	8
3	1	0	0	0	0	0	0	0	1
4	1	1	1	1	0	1	0	0	4
5	1	1	1	0	0	0	1	0	4
6	1	0	0	1	0	0	0	0	2
7	1	1	0	0	0	1	0	0	3
...	...	...	...	...	...	...	...	...	...
N	1	1	1	1	0	1	1	0	6
$\bar{X}$	0.95	0.73	0.56	0.65	0.35	0.42	0.36	0.22	

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Sort columns

case	Item #1	Item #2	Item #4	Item #3	Item #6	Item #7	Item #5	Item #8	Raw score
1	1	1	0	0	0	0	1	0	3
2	1	1	1	1	1	1	1	1	8
3	1	0	0	0	0	0	0	0	1
4	1	1	1	1	1	0	0	0	4
5	1	1	0	1	0	1	0	0	4
6	1	0	1	0	0	0	0	0	2
7	1	1	0	0	1	0	0	0	3
…	…	…	…	…	…	…	…	…	…
N	1	1	1	1	1	1	0	0	6
$\overline{X}$	0.95	0.73	0.65	0.56	0.42	0.36	0.35	0.22	

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… and rows

case	Item #1	Item #2	Item #4	Item #3	Item #6	Item #7	Item #5	Item #8	Row score
2	1	1	1	1	1	1	1	1	8
…	…	…	…	…	…	…	…	…	…
N	1	1	1	1	1	1	0	0	6
…	…	…	…	…	…	…	…	…	…
4	1	1	1	1	0	0	0	0	4
5	1	1	0	1	0	1	0	0	4
…	…	…	…	…	…	…	…	…	…
1	1	1	0	0	0	0	1	0	3
7	1	1	0	0	1	0	0	0	3
…	…	…	…	…	…	…	…	…	…
$\overline{X}$	0.95	0.73	0.65	0.56	0.42	0.36	0.35	0.22	

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Estimate respondent parameters

case	Item #1	Item #2	Item #4	Item #3	Item #6	Item #7	Item #5	Item #8	Row score
2	1	1	1	1	1	1	1	1	8
...	...	...	...	...	...	...	...	...	...
N	1	1	1	1	1	1	0	0	6
...	...	...	...	...	...	...	...	...	...
4	1	1	1	1	0	0	0	0	4
5	1	1	0	1	0	0	1	0	4
...	...	...	...	...	...	...	...	...	...
1	1	1	0	0	0	0	1	0	3
7	1	1	0	0	1	0	0	0	3
...	...	...	...	...	...	...	...	...	...
$\bar{X}$	0.95	0.73	0.65	0.56	0.42	0.36	0.35	0.22	

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Evaluate model's fit

case	Item #1	Item #2	Item #4	Item #3	Item #6	Item #7	Item #5	Item #8	Row score
2	1	1	1	1	1	1	1	1	8
...	...	...	...	...	...	...	...	...	...
N	1	1	1	1	1	1	0	0	6
...	...	...	...	...	...	...	...	...	...
4	1	1	1	1	0	0	0	0	4
5	1	1	0	1	0	0	1	0	4
...	...	...	...	...	...	...	...	...	...
1	1	1	0	0	0	0	1	0	3
7	1	1	0	0	1	0	0	0	3
...	...	...	...	...	...	...	...	...	...
$\bar{X}$	0.95	0.73	0.65	0.56	0.36	0.42	0.35	0.22	
Fit	Good	Good	Bad	Good	Fair	Good	Bad	Good	

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Properties of the Rasch model

- If data supports the Rasch models assumptions …
  - Infit statistics in the range 0.7 – 1.3
  - High Rasch reliability measures
  - No correlation among "residuals"
- … than the raw score is a **sufficient statistics** for the latent trait measure
  - Two respondents with the same raw score but different response patterns will be assigned the same measure (even though the absolute error around the measure may differ)
- Respondent parameters form an **interval scale** on the latent trait metrics
  - The metric has no natural origin. The position of the zero and the unit of measure are arbitrary.
  - To compare measures obtained in different applications, there is thus a need **to define a reference scale**.

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Results of application of the Rasch model to discrete data (example with an 8 item scale)

- A set of item parameters, one per each item in the scale

The mean of these parameters' values is zero, by construction, as there is no natural origin of the scale

- A set of respondent parameters, one per each raw score value

Respondent parameters form an interval scale on the latent trait measure

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Experience-based scales to measure the severity of food insecurity

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Assumptions

- Food insecurity is conceptualized as the experienced condition of being **unable to access food** in the desired quantity, quality and continuity

- The severity of the food insecurity condition is treated as a **measurable latent trait**
  - Although it cannot be directly observed, it is revealed by its consequences.
  - Self-reported occurrence of **typical experiences** are used to estimate the probability that each respondent (household or individual) belongs to each of different classes of food insecurity severity, e.g., moderate or severe, severe.

- The **prevalence of food insecurity** in a population, at a given level of severity or more, is estimated as the cumulated probability, across respondents in a representative sample of the population, to belong to the class defined by that range of severity

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Existing applications

- US Household Food Security Survey Module (**HFSSM**)

  (Bickel et al., 1995)

  - Used in the US and in Canada
  - Annual reports published in the US since 1995. Used to evaluate the effectiveness of the largest USDA program on food subsidies

- *Escala Brasileira de Insegurança Alimentar* (**EBIA**)

  (Segall-Correa et al. 2004)

  - Based on the HFSSM, has been developed in Brazil to provide the means to monitor the success of the Zero Hunger program.
  - Applied to the national population through the PNAD in 2004, 2009, 2014

- *Escala Latinoamericana y Caribena de Seguridad Alimentaria* (**ELCSA**)

  (FAO, 2012)

  - Developed as an harmonized scale for use in Spanish speaking countries
  - Validated in Colombia, Mexico, Nicaragua, Guatemala, El Salvador, Paraguay
  - Applied in Guatemala in the ENIGH in 2009, 2011 and 2014

- *Escala Mexicana de Seguridad Alimentaria* (**EMSA**)
  - Used by CONEVAL to provide evidence used as part of the multidimensional poverty assessment
  - It will be included in the intermediate General Population Census survey in 2015

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Existing applications

- Household Food Insecurity Access Scale (**HFIAS**)

  (Swindale and Bilinsky, 2008)

  - Developed by the second Food and Nutrition Technical Assitance (FANTA – II) program, funded by US-Aid, to target and monitor food security intervention throughout the world
  - Difficulties in validating the consistency of severity associated to different experiences across countries led to the development of the Houshehold Hunger Scale (**HHS**), based on the most severe items only

- Food Insecurity Experience Scale (**FIES**)

  (Ballard et al. 2013)

  - Developed by the **Voices of the Hungry project** is a comprehensive food insecurity measurement system, able to produce **formally comparable indicators** of the prevalence of food insecurity across populations that differ by language, culture and economic conditions
  - Pilot tested in 2013 in four countries and globally in 2014, using the Gallup World Poll as the survey vehicle

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The origins of the VoH project

- In 2011 the statistics division of FAO started developing a project idea to define an innovative method to measure the prevalence of food insecurity at country level
- The idea stemmed from the combination of two things:
  - The **cumulated FAO experience** with working on these tools
    - FAO had worked closely with colleagues engaged with the development and harmonization of the ELCSA, and participated in research that led to establishing the HHS as a derivation of the HFIAS
  - The opportunity created by the **Gallup® World Poll** to collect data worldwide with the same vehicle
    - In 2011 Gallup presented the results of a food security study based on World Poll data collected in Africa

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The origins of the VoH project

- The idea of extending use of an experience based food security scale globally was presented during the **Olympic Hunger Event** organized by Prime Minister Cameron in London in August 2012, and was favourably received by the international community:
  - A globally comparable metric of food insecurity was recognized as an important contribution to the need to monitor progress in promoting food security for all and eradicating all forms of malnutrition
  - The timeliness of the information and the "actionability" of being able to identify sacks of food insecurity before it develops into further malnutrition were recognized as important features
  - It was also highlighted how it carries an important connotation as a means to increase accountability, being based on information collected from people

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The FIES Survey Module (individual)

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

1. You were **worried** you would run out of food because of a lack of money or other resources?
2. You were unable to eat **healthy** and nutritious food because of a lack of money or other resources?
3. You ate only a **few kinds of foods** because of a lack of money or other resources?
4. You had to **skip a meal** because there was not enough money or other resources to get food?
5. You **ate less** than you thought you should because of a lack of money or other resources?
6. Your household **ran out of food** because of a lack of money or other resources?
7. You were **hungry** but did not eat because there was not enough money or other resources for food?
8. You went without eating for a **whole day** because of a lack of money or other resources?
.

Mild food insecurity			Severe food insecurity
Anxiety about ability to procure adequate food	Compromising quality and variety of food	Reducing quantities, skipping meals	Experiencing hunger

---

Our analytic choices and other options

- Only **eight** items
  - Adapted from the 8 adult items included in the ELCSA
- Asked to **individuals**
- With a reference period of **12 months** (to ensure comparability in presence of possible seasonality)
- All these **assumptions can be modified** to customize the FIES to specific applications
  - **Items can be added** to increase precision of individual measures
  - It can be **framed at the household level**
  - The **reference period can be modified** (to reflect frequency of data collection)

Defining a global scale and calibrating individual country measures

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The innovations

- Each application (i.e., in a certain country, in a certain year) produces an estimate of only the **_relative_ position of items and of respondents on the scale of severity** (absolute levels of severity are unidentified).
- As a consequence:
  - **Raw score based classifications are not directly comparable cross country**
  - To compare classifications from different applications, the resulting measurement scales must be **equated** and common thresholds must be used
- The VoH project has developed the needed **innovations**
  - To compute prevalence rates at **_any_ level of severity**, not only in correspondence of raw scores
  - To **equate the measures** obtained in different applications by referencing them to a standard

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The analytic protocol

- First, **scale performance** is evaluated for each country
  - *Infit* statistics of each item
  - Rasch reliability measure
  - Analysis of residual correlation
- Only **items with adequate *infit* are kept** both to obtain measures and to define the global reference standard
  - High *infit* may suggest revision of the item formulation in that particular language before future application
- Calibration of the measures against the standard is conducted by controlling for **possible different average item discrimination across country**

The innovations: a global standard

- A **global reference scale** is identified by comparing the normalized estimated severity of the 8 FIES items in all the countries
- Each country's scale is then equated to the global reference standard by equating the mean and the standard deviation of the set of **common items** only
- To identify common items requires an iterative process
  - At the first iteration, all items are assumed common. The median values of severity for each item identify a provisional reference
  - Items whose severity differ from the reference by more than a set tolerance are treated as unique, country measures are re-standardized, based on the mean and standard deviation of common items only and a new reference scale is formed
  - The process iterates until the set of common items no longer changes
- Unique items are still used for measurement in each country
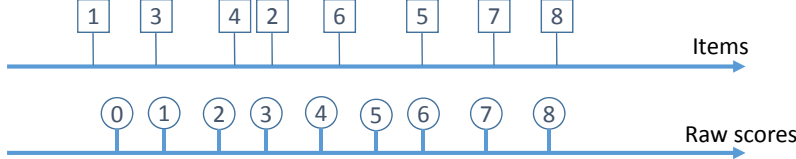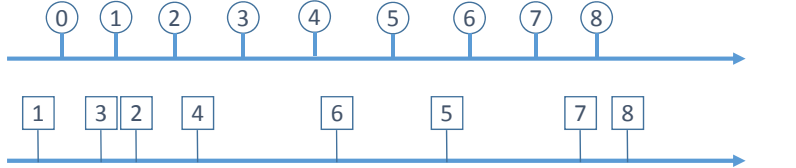- Thresholds are defined on the global reference scale

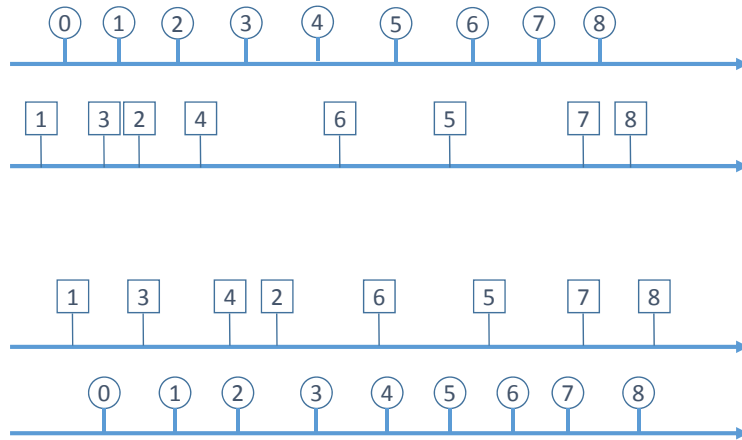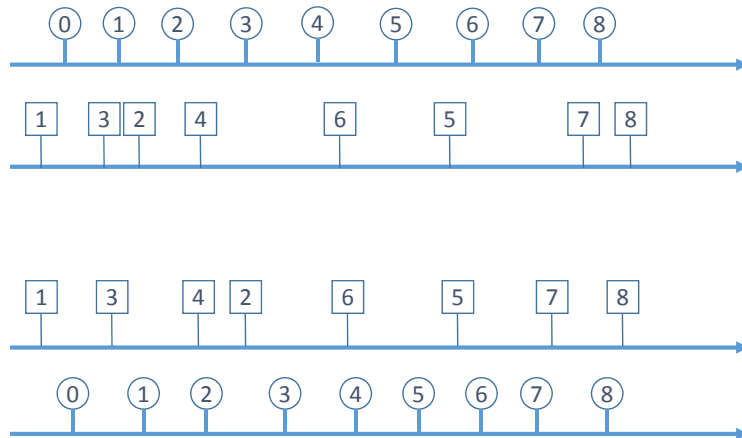# 2 different scales

Global Standard

Country A

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2 different scales

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Re-scaling …

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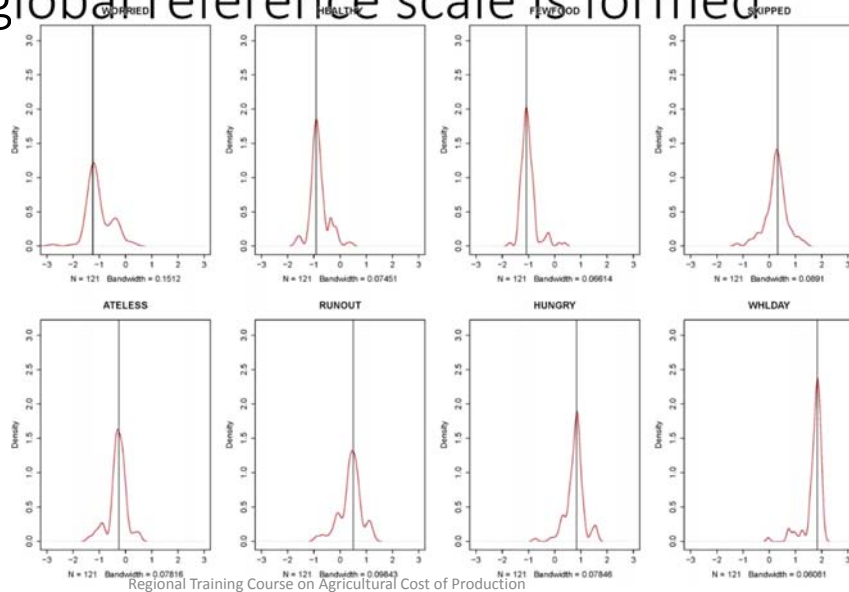
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… and shifting

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a set of common items is identified

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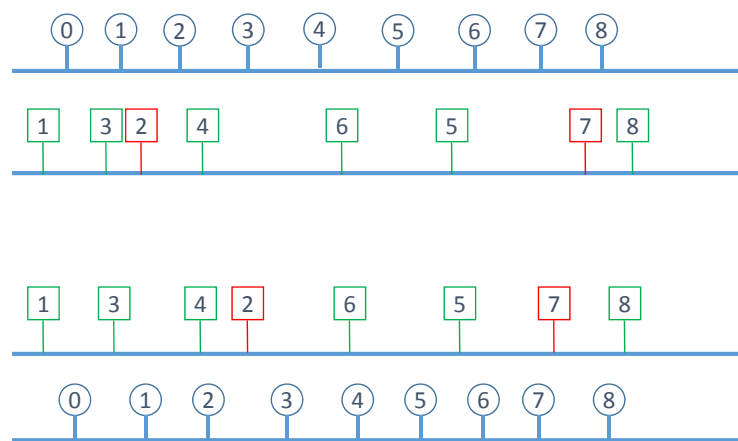
- Calibration is obtained by equating the mean and standard deviation of the severities associated with the items that are identified as common (i.e., anchoring items)
- All items with acceptable infits are retained for measurement in each country
- Thresholds are defined on a global reference scale
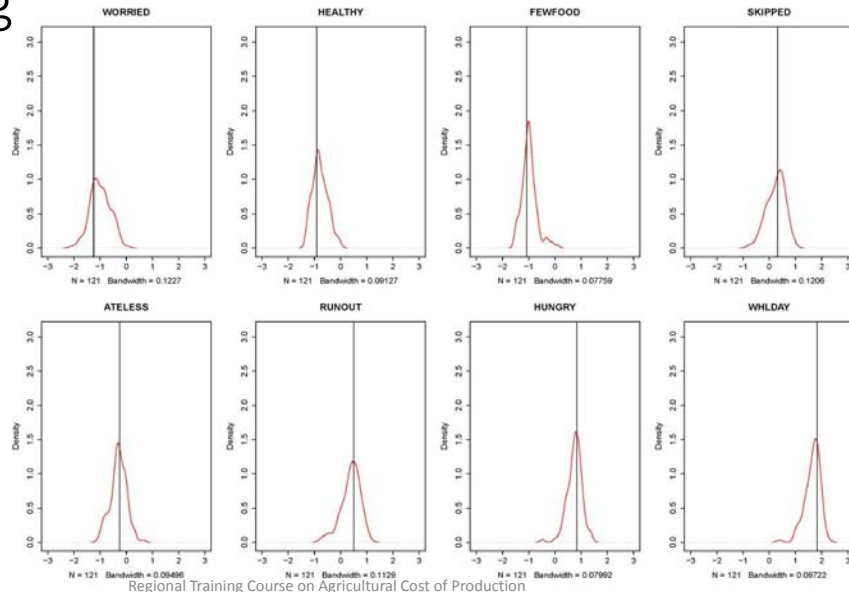
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How the global reference scale is formed

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How the global reference scale is formed

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The innovations: computing prevalence rates at any level of severity

- Each raw scores is associated with an entire **distribution of food insecurity severity levels**
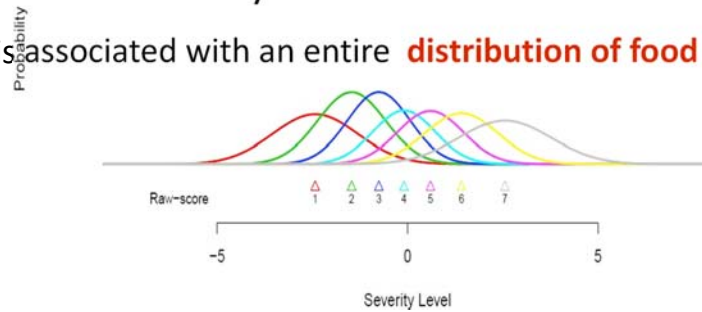
- Treatment of extreme scores
  - **Raw score zero are considered "food secure"** with no measurement error
  - **Ad hoc assumption on the distribution of severity among cases with raw score 8**

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Results of the FAO 2014 application through the GWP

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The development

- In 2013, with support from FAO's multidisciplinary fund, the Project "Voices of the Hungry" was officially set-up
    - The Food Insecurity Experience Scale Survey Module (FIES-SM) was included in the GWP surveys conducted in **Angola**, **Ethiopia**, **Malawi** and **Niger**.
    - This **piloting phase** was necessary to verify that the GWP was a suitable data collection vehicle for the FIES and to derive indications on the need for questionnaire adaptation.
- Following the positive results from the pilot surveys, in 2014 the FIES-SM was included in all countries covered by the GWP (about 150 countries, covering more than 90% of the world population)

The development

- The Voices of the Hungry project has an initial horizon of **five years** during which FAO will continue collect the data through the GWP

- A parallel **capacity development** activity has started to transfer the methodology to countries and promote the inclusion of the FIES-SM in national surveys

- After this initial period, we foresee a gradual phasing out of the need to collect data through the GWP and an **increased use of national data**

Provisional results from 147 countries and territories in 2014

- Mean Rasch re...
- Reliability was...

Summary of missing responses to food security questions		
	Number of countries	Percent of countries
Cases with any missing responses:		
< 1%	48	33
1% to 5%	79	54
> 5%	19	13
Cases with no valid responses:		
0	78	53
> 0 to 1%	61	42
> 1%	7	5

Provisional results from 147 countries and territories

Summary of item infit statistics					
Item	Infit 0.8 to 1.2 (% of countries)	Infit 0.7 to 1.3 (% of countries)	Mean infit	Minimum infit	Maximum infit
WORRIED	80	93	1.11	0.82	1.49
HEALTHY	89	96	1.02	0.67	1.53
FEWFOODS	88	98	0.96	0.63	1.55
SKIPPED	85	96	0.92	0.61	1.58
ATELESS	79	95	0.89	0.53	1.29
RANOUT	80	98	0.91	0.59	1.34
HUNGRY	66	91	0.87	0.47	1.40
WHLDAY	73	87	1.15	0.75	1.90

Provisional results from 147 countries and territories in 2014

Mean residual correlations between items (147 countries in the 2014 GWP)							
Item	HEALTHY	FEWFOODS	SKIPPED	ATELESS	RANOUT	HUNGRY	WHLDAY
WORRIED	0.04	-0.01	-0.08	-0.03	-0.04	-0.08	**-0.16**
HEALTHY	-	**0.16**	-0.06	-0.03	-0.06	-0.08	**-0.16**
FEWFOODS	-	-	-0.02	0.07	-0.03	-0.06	**-0.16**
SKIPPED	-	-	-	**0.15**	0.08	0.15	-0.03
ATELESS	-	-	-	-	0.09	0.10	-0.08
RANOUT	-	-	-	-	-	**0.17**	0.00
HUNGRY	-	-	-	-	-	-	0.10

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Provisional results from 147 countries and territories

Descriptive statistics of the food insecurity prevalence rates			
Food insecurity class	Minimum	Median	Maximum
Moderate or severe (FI_{mod+})	2.97%	19.66%	92.25%
Severe (FI_{sev})	< 0.5%	5.67%	76.24%

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
< 5	11	7.5		< 1	23	15.6
5-15	50	34.0		1-5	47	32.0
15-25	25	17.0		5-10	23	15.6
25-50	33	22.4		10-20	24	16.3
>50	28	19.0		>20	30	20.4

Provisional results from 147 countries and territories

Spearman's rank correlation between Food Insecurity indicators 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**
Sanitation facilities (% with access)	2012	132	-0.840**	-0.765**
Human Development Index	2013	138	-0.831**	-0.741**
Adolescent fertility rate (women ages 15-19)	2012	140	0.817**	0.759**
Fertility rate	2012	141	0.815**	0.795**
Water source (% with access)	2012	135	-0.806**	-0.718**
Gross National Income per capita	2011-2013	139	-0.800**	-0.700**
Poverty headcount ratio at $1.25 a day	2010-2013	80	0.792**	0.762**
Life expectancy at birth	2013	138	-0.783**	-0.695**
Poverty headcount ratio at $1.25 a day	2011	96	0.766**	0.725**
Prevalence of undernourishment	2014	137	0.759**	0.684**
Youth (15-24 years) literacy rate (%)	2015	115	-0.749**	-0.720**
Adult literacy rate (%) projection	2015	115	-0.732**	-0.733**
Multidimensional Poverty Index	2009-2013	47	0.712**	0.601**
Children aged 0-59 months Stunting	2009-2013	105	0.669**	0.632**
Gender-related development index (GDI)	2013	123	-0.619**	-0.655**
Rural population (%)	2011-2013	140	0.614**	0.517**
Children aged 0-59 months Underweight	2009-2013	105	0.602**	0.570**
GINI index	2009-2013	96	0.468**	0.499**
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**

(** 2-tail test P-value less than 0.01)

Provisional results from 147 countries and territories in 2014

Regression analysis of food security and poverty indicators on child mortality rates				
Response variable: Logarithm of Child Mortality Rate[1]				
	Model 1	Model 2	Model 3	Model 4
	Standardized regression coefficient (P-value H_o: coefficient = 0)			
Log-odds(PoU[2])	0.420 (< 0.001)	0.509 (< 0.001)	0.260 (< 0.001)	0.284 (< 0.001)
Log-odds(FI_{mod+})	0.499 (< 0.001)	-	0.312 (< 0.001)	-
Log-odds(FI_{sev})	-	0.409 (< 0.001)	-	0.264 (< 0.001)
Log-odds (Extreme poverty[3])	-	-	0.351 (<0.001)	0.373 (< 0.001)
Adjusted R-squared	0.741	0.716	0.769	0.759
N	135	135	103	103

Current activities

- Research
  - In collaboration with the Society for Social and Economic Research (SSER) and researchers from the Delhi University, field research is on-going in India
  - A number of licenses to access the comprehensive GWP dataset are being issued to researchers, based on research proposals intended to explore the links between food insecurity and other socio-economic and demographic characteristics, as revealed by the GWP core data
  - In collaboration with the Social Protection Division at FAO and the World Bank, research will be conducted on the implications of financial inclusion for food security, thanks to the possibility of matching the data collected to inform the FINDEX with FIES

Current activities

- Data collection and analysis
  - Data collection is on-going for a second wave of the GWP in 2015
  - A data dissemination tool is being implemented
- Capacity Development and Advocacy
  - A first training workshop has been conducted here in FAO in October 2014
  - The FIES has been **independently included** in surveys conducted in 2014 in **Niger**, **Malawi** and **Burkina Faso**. We have assisted
  - The FIES is being included in national surveys to be conducted in 2015 in **Kenya**, **Mauritania**, and **Bangladesh**
  - Documentation and training material is being produced

FIES-based indicators to monitor SDG Target 2.1

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Food security in the new SDG agenda

Target 2.1
*"By 2030, end hunger and **ensure access by all people**, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round"*

- Indicators based on direct measures of individual and households ability to access food are uniquely suited to monitor progress

- If surveys permit, indicators can be computed at subnational populations level, e.g., for different regions in a country or for vulnerable population groups

- If applied at the individual level, indicators can be disaggregated by sex

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Why using the FIES

- Data from national food security scales (HFFSM, EBIA, ELCSA, EMSA, etc.), can be used to compute measures that are comparable with those obtained in all other countries using the FIES, using the FIES analytic protocol
  - The FIES questionnaire can be included into almost any existing survey, at very little additional cost
  - FAO to provide all necessary technical assistance
- 2014 and 2015 assessments by FAO will provide baseline levels to set credible targets for individual countries
  - Ambitious targets might be to bring the prevalence of severe food insecurity below 0.5% and that of moderate or severe food insecurity below 5%

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The UNSC's IAEG-SDG endorsed the FIES[*]

- The UN Statistical Commission has been given the mandate to define an indicator framework for the 2030 Agenda for Sustainable Development
  - An Inter Agency and Expert Group on SDG indicators (IAEG-SDG) has been established in June, with the task to produce a list of indicators for global monitoring.
  - Indicators based on the FIES, or other compatible food security scales, have been included in the "green" list during the 2nd meeting of the IAEG-SDG in October.
  - Endorsement of the list and identification of agencies/institutions that will be responsible for reporting, at global level, is expected at the March 2016 UNSC meetings.

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Some common discussion points

- Focusing on adults' experiences in the FIES is not a limitation for household food security measures
  - Although some scales also include questions related to children conditions, these are still aimed at capturing the **household** food insecurity condition
    - Provided additional questions related to children conform to the theoretical requirement of the Rasch model and contribute to measure the unidimensional latent trait, they can be freely added to the questionnaire, without prejudice for the comparability of the measures
  - Care should be taken in calibrating measures obtained in households with children with those obtained in households without children, as these will be on two different scales
  - The food security status of small children is determined by the condition of their households or of those who have child rearing responsibility
    - Disaggregation can be obtained by analyzing household with and without small children separately
- FIES is not based on subjective assessments
  - People are asked to report on factual experiences, not on subjective perceptions or judgments
  - Experiences related to the inability to access food are universal
- FIES does not provide measures of the quality or quantity of actual food consumption or of the nutrition status of people
  - Collection of food security data along with food consumption and/or nutritional status may help to better understand the consequences of food insecurity in terms of malnutrition and help addressing their causes