The **Food Insecurity Experience Scale**: A global standard to measure the access dimension of household food insecurity

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Outline

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  • How FAO has addressed them thus far
  • New Challenges/Opportunities created by the SDGs

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  • What it is
  • How to use it

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Issues with food security definitions and frameworks

“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.”

• Food security is defined as a very ambitious, universal condition (“all people, at all time”) focusing on people’s access to food and on the nutritional value of food they have access to.

• Interpretations in terms of the three “pillars” (adding availability and utilization) tend to confound “food security” with its determinants and consequences.

• Depending on the context, different forums have focused on different aspects
  • In the Arab region there is a tendency to focus on food availability
  • Within the nutrition community there is a tendency to focus on utilization
Food Security monitoring at FAO

• Since 1974, FAO has produced estimates of the prevalence of undernourishment in the national population
  • Requires information on the level and distribution of dietary energy consumption in the population, to be contrasted with the level and distribution of dietary energy needs
  • Focuses on the likely consequence of severe food insecurity, that is, when people cannot access the food they need to cover energy needs, a choice justified by the specific focus on “hunger” reduction

• It has been produced always with partial, scattered information, particularly on the distribution of food consumption in the population
  • The actual, regular food consumption of individuals is difficult (impossible?) to measure precisely
New Challenges/Opportunities created by the SDGs

• Monitoring the SDG agenda will be a demanding task for all countries in the world
  • 169 targets, 230 global indicators: many new areas, not covered by traditional statistical systems
  • Indicators must be disaggregated at subnational level to capture inequalities within countries
  • Indicators must be informed, to the maximum possible extent, by official data and statistics

• The SDG agenda is universal:
  • Differences between countries are irrelevant ("Every country is a developing country") but not differences between people, and only one planet
  • How not to confuse diversities (to be valued) with inequalities (to be eliminated)
Measuring household or individual food insecurity

• Target 2.1 focuses, again, specifically on access to food:
  “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
• Need for individual or household level indicators, but What do we mean when we say that a household is “food insecure”?
  • The household reported an average per capita consumption (acquisition) of food that is less than 2100 Kcal/day
  • The food consumption of the household during the last 7 days was classified as “poor” or “borderline” based on the Food Consumption Score
  • The household reported to have engaged in one or more of a number of possible “coping strategies” as listed in the Coping Strategy Index questionnaire
  • The household is classified under Phase 3 or 4 of the IPC
  • Children under five year of age living in the household are underweight if compared to international child growth reference standards
  • The height of children under five years of age living in the household are 2 standard deviation below the median height for their age according to international child growth reference standards
  • The household reported consuming foods from less than a certain number of different food groups as defined in the Household Dietary Diversity Score questionnaire
  • The household classifieds itself as “food insecure”
  • The household reported not having been able, at times during a certain reference period, to provide “two square meals per day” to its members
Measuring household or individual food insecurity

• Problems with the PoU
  • Granularity
  • Impossibility to resolve internal inconsistencies
  • Timeliness

• Problems with other indicators
  • Quality of food vs. quantity of food
  • Cross country comparability

• Experience-based food security measures as an answer
  • Address most of the issues raised
    • Avoid confusion between food insecurity and malnutrition
    • Make the study of links between agriculture and food security more direct
    • Can be used to explore stability issues
  • Are policy actionable
    • US Supplemental Nutrition Assistance Program, Brazil’s Zero Hunger Program
    • Adopted by GIZ, DIE, USAid and GAFSP for program M&E

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ESCWA meeting, Beirut
The Food Insecurity Experience Scale

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

Food security

Food insecurity

mild

moderate

severe

Wellbeing

Worries

Compromising food quality and variety

Compromising food quantity

Hunger

experiences

Compromising food quantity

Welfare reduction (Psychological costs, reduction of other essential expenses)

Malnutrition (obesity, micronutrient deficiencies, reduced work capacity)

Undernutrition (stunting, wasting)

consequences

Starvation
The Food Insecurity Experience Scale

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

• You were worried you would run out of food because of a lack of money or other resources?

• You were unable to eat healthy and nutritious food because of a lack of money or other resources?

• You ate only a few kinds of foods because of a lack of money or other resources?

• You had to skip a meal because there was not enough money or other resources to get food?

• You ate less than you thought you should because of a lack of money or other resources?

• Your household ran out of food because of a lack of money or other resources?

• You were hungry but did not eat because there was not enough money or other resources for food?

• You went without eating for a whole day because of a lack of money or other resources?
The Food Insecurity Experience Scale

كانت قلقا بأنه لن يتوفر لك الطعام الكافي لتأكل بسبب عدم توفر النقود الكافية أو المصادر الأخرى

• هل حدث وأن لم يكن باستطاعتك أكل طعام صحي ومغذي بسبب عدم توفر النقود الكافية أو المصادر الأخرى

• أكلت أنواع قليلة من الأطعمة بسبب عدم توفر النقود الكافية أو المصادر الأخرى

• كان عليك أن تتخلى عن وجبة طعام بسبب عدم توفر النقود الكافية أو المصادر الأخرى

• هل حدث وأن أكلت أقل مما اعتقدت أنك يجب أن تأكل بسبب عدم توفر النقود الكافية أو المصادر الأخرى

• نفِذ الطعام لدى أسرتك بسبب عدم توفر النقود الكافية أو المصادر الأخرى

• كنت جائعاً ولم تأكل لأنه لم يكن هنالك ما يكفي من النقود الكافية أو المصادر الأخرى

• هل حدث وأن كنت جائعاً ولم تأكل ليوم كامل لأنه لم يكن هنالك ما يكفي من النقود الكافية أو المصادر الأخرى؟
How the measurement problem is addressed

• Food insecurity is recognized as a “latent trait”, that is, something that exists, but cannot be observed directly.

• The magnitude of the latent traits is inferred from observable manifestations (symptoms) using a statistical technique called item response theory.

• The likelihood that a household reports a given food insecurity experience is a logistic function of the distance between the respondent’s severity condition and that of the item.
The Analytics: the Rasch model

\[ \text{Prob}(X_{i,j} = 1) = \frac{\exp(\theta_i - \beta_j)}{1 + \exp(\theta_i - \beta_j)} \]

- \( X_{i,j} \) is the answer that the \( i \)-th respondent gives to the \( j \)-th question, coded as 1 for “yes”

- The model provides the basis for
  - Estimating the severity parameters associated both with items (i.e., the various experiences mentioned in the questions) and with respondents
  - Conducting statistical tests of the strength of association of the responses to the latent trait, and of goodness of fit
The innovations from Voices of the Hungry

• Cross country comparability
  • The FAO project has established a **global FIES reference standard**, against which all experience-based food security scales can be calibrated
    • Differences in people’s perceptions or in food related habits across different cultures are taken into consideration so that they do not affect the measure of severity

• Possibility to use household or individual frames
  • **Gender disparities can be captured** using the individually framed version

• Possibility to use different reference periods
  • Can be used to analyze **seasonal differences** in the severity of food insecurity
The merits

• The **validity and reliability** of the measures **can be formally assessed**
  • Statistical tests on the data, to confirm they yield proper measures of a single underlying latent trait
  • Sampling and non-sampling errors can be computed

• It is **easy to implement**
  • Flexibly adapted, it can be included in virtually any population survey. It requires an average of 3 minutes of survey time to be applied
  • Can be easily programmed in CAPI applications
  • FAO provides FIES questionnaires in 200 different languages
The merits

• It generates disaggregated information
  • When included in large scale representative surveys, results can be disaggregated at the level of any population group for which the survey is representative
• The information it produces can be used to guide policy and intervention
  • Can be quickly analyzed to generate real-time results
  • The food insecurity condition of household and individuals is one of the most effective predictors of malnutrition
  • In the US, the prevalence of food insecurity among households has been found to be particularly sensitive to general macroeconomic conditions (e.g., economic crises, unemployment rates)
The successes thus far

- Indicators based on the FIES, compiled by FAO at regional and global level already features in the UN SDG progress report 2016
  - “More than half of the adult population in Sub Saharan Africa has experienced food insecurity at moderate or severe levels”
  - “Although differences are small Food Insecurity is more prevalent among adult women than among adult men almost everywhere in the world”

- The FIES has already been included in official population surveys in Burkina Faso, Kenya, Pakistan, El Salvador, The Dominican Republic, St. Lucia, The Seychelles, Indonesia and Rwanda, and it is being piloted in several other countries

- FAO has provided technical support for data analysis to Burkina Faso, Pakistan, The Seychelles and St. Lucia
The successes thus far

• The FIES is included in the indicators framework for M&E of projects supported by the Global Agriculture and Food Security Program (GAFSP), the German Agency for International Development (GIZ), the US Department for Foreign Aid (USAid)

• It has been included in the reference table of indicators for the Integrated Food Security Phase Classification (IPC)

• **Research** is being conducted using FIES data by independent researchers who have been awarded a license to access the full GWP dataset (see [http://www.fao.org/3/a-bl331e.pdf](http://www.fao.org/3/a-bl331e.pdf))
  • Results of their work has already been presented in international meetings (e.g., the 2016 Association for Public Policy Analysis & Management – APPAM - Conference in London) ([https://appam.confex.com/appam/int16/webprogram/Session6578.html](https://appam.confex.com/appam/int16/webprogram/Session6578.html))
References

• Voices of the Hungry project web page (www.fao.org/in-action/voices-of-the-hungry/)


Conclusions / discussion points

• To continue feed the Food Security Indicators database we need countries’ collaboration, not only from the Ministries of Agriculture
  • Many relevant data and statistics are produce under other statistical domains
• Many of the indicators included there cannot be timely updated
  • Data collection, validation and reporting takes time
• Many of the indicators included in the FSI database cannot be disaggregated at subnational level
• Now many data producers are concerned with alignment of the data they produce with the needs of the SDG monitoring framework
• Existing problems with consistency of evidence available at country level need to be addressed
  • Food supply vs food consumption
  • Different
  • Population
  • Trade
• Need to coordinate and agree on a common set of indicators.
Conclusions / discussion points

1. There must be international agreement on standards methods an tools
   • There cannot be a single overarching food security index. Any weighting system is inevitably affected by subjective judgment on relative importance of one dimension or another
   • We need one indicator per dimension
     • Food availability: ✓
     • Food access: ✓
     • Food utilization: ?
   • Indicators must be unambiguous, cross country comparable, timely and complete.

2. Food Security monitoring needs an institutional home
   • Identify and address data gaps, resolve information inconsistencies, maintains contact with regional and global institutions
Conclusions / discussion points

3. The FIES is an appropriate standard for household food security measurement
   • Still limited application of EBFSS worldwide
     • Although FAO has applied it since 2014 in more than 150 countries every year, this has only been through the Gallup World Poll
     • GWP samples are small and show high sampling variability
   • We therefore advocate for inclusion of the FIES in more large scale households surveys
     • Partnerships: World Bank LSMS, WFP VAM Pakistan, Philippines, UNICEF India
   • To provide capacity development, to increase statistical and analytic capacities in the field of food security measurement
Thank you


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