Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Guidelines on data disaggregation for SDG Indicators using survey data

Open Virtual IAEG-SDG Meeting – Leave no one behind

Data Disaggregation for SDGs

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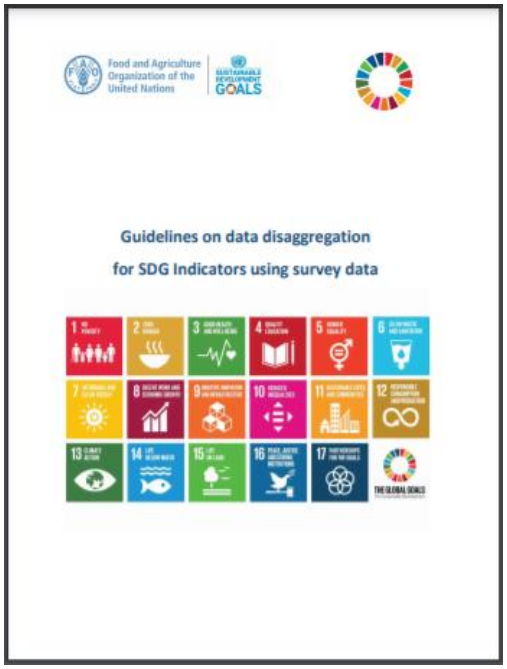
Guidelines on data disaggregation for SDG Indicators



Main objectives of the Guidelines:

- Offer methodological and practical guidance for the production of direct and indirect disaggregated estimates of SDG Indicators based on survey data.

- Provide tools to assess estimates accuracy and present strategies for data integration, including small area estimation (SAE) methods

Relevance of the guidelines

- Approximatively **30%** of the Global SDG Indicators are based on survey data

- **7 out of 21** SDG Indicators under FAO custodianship can be computed using data from household and agricultural surveys.

ISSUE ADDRESSED: The use of traditional sampling techniques imposes limitations on the production of disaggregated data and reliable estimates for small sub-populations.

Innovative techniques that could address some of these issues are far from being mainstreamed in National Statistical Offices.

Data disaggregation with sample surveys

Main idea of the guidelines:

Direct estimates of an indicator for a given sub-population: based only on sample information from the sub-population itself. **Two main issues:**

- Sampling size often not large enough to guarantee reliable estimates for small domains;
- Possibility of having non sampled sub-domains.

These issues can be addressed:

- **At design stage:** adopting sampling designs that guarantee an observed set of sampling units for every sub-population for which disaggregated data must be produced.
- **At the analysis stage:** producing indirect estimates, coping with the little information available for "small areas" by borrowing strength from other sources of data.

Addressing data disaggregation at the design stage

The guidelines illustrate **alternative sampling strategies** for direct domain sampling estimation:

- Most common domain estimators are discussed, introducing the context of their usability.
- Model-assisted and model-based estimation approaches are illustrated.
- Mainstreamed and innovative approaches to address data disaggregation at sampling design stage are discussed (with their pros and cons):
  - **Oversampling**
  - **Deeper stratification**
  - **Multiphase sampling with screening of respondents**
  - **Marginal stratification designs**
  - **Indirect sampling**
- Suitable software packages are suggested

Assessing estimates accuracy

Tools to assess the accuracy of direct estimates are provided:

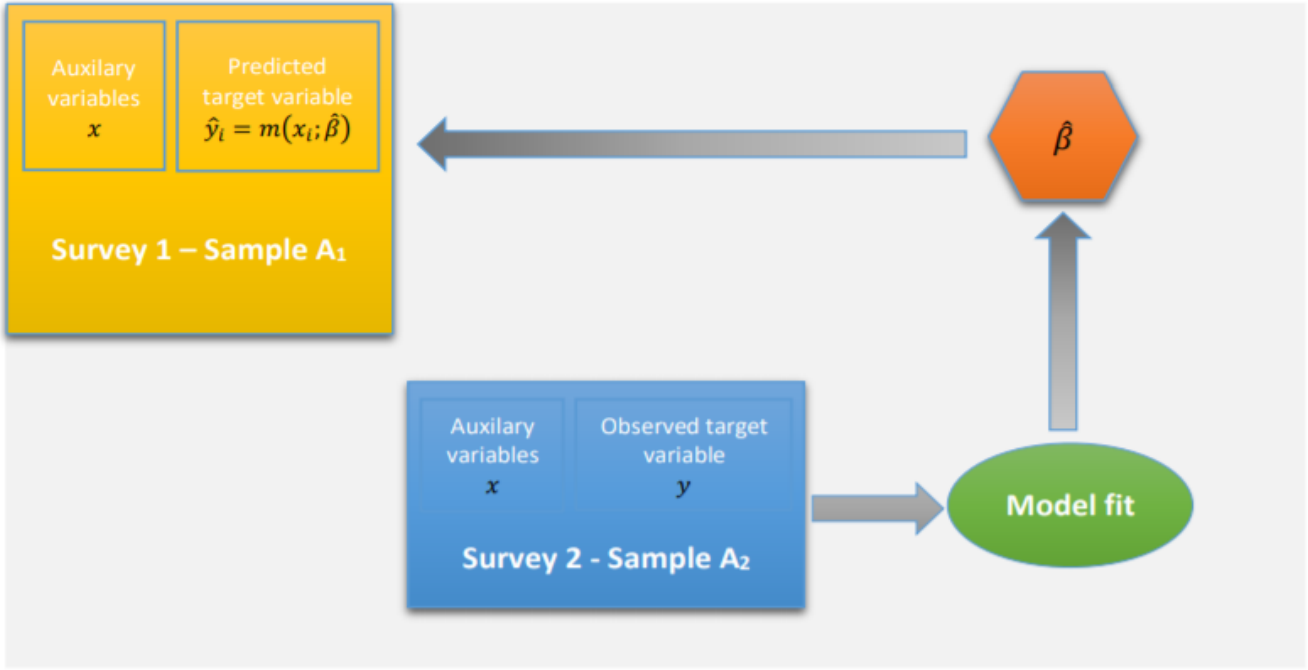
- **Sampling variance estimation:** to be used when indicators computation is based on the inferential properties of repeated sampling schemes.
- **Model Variance:** suitable when estimation relies on models using auxiliary variables.
- **Global Variance:** when model-based approaches are used jointly with inference based on the sampling design.

The publication emphasizes the importance of **estimating** and **disseminating** accuracy measures:

- Enables users to assess the fitness for use of an estimate.
- Build public trust in data and their use.

Addressing disaggregation at the analysis stage

Possible approach for indirect estimation: model-assisted approach based on the pioneering work of Kim and Rao (2012) considering the integrated use of: 1) a small survey collecting information on the variable of interest; 2) a more extensive survey or census not measuring the variable of interest but gathering relevant auxiliary variables.



Source: FAO, 2020.

A practical application based on SDG Indicator 2.1.2

The approach has been adopted to produce disaggregated estimates of **SDG Indicator 2.1.2** on the Prevalence of Moderate and Severe Food Insecurity based on the Food Insecurity Experience Scale (FIES).

Two data sources:

- Malawi's Fourth Integrated Household Survey (IHS4) 2016-17
- Malawi FIES survey module collected through the Gallup World Poll – 2016

Objective: Estimate Indicator 2.1.2 by sex, age class, and income quintile.

The guidelines present results along with their accuracy measures

An introduction to Small Area Estimation

The guidelines also provide an **introduction to small area estimation methods** (SAE) by:

- Presenting the process flow for SAE implementation;
- Providing an overview of main **unit-level** and **area-level** approaches;
- Indicating main references on the topic;
- Giving tools to assess the quality of small area estimates.

Way forward

Starting from this work, the FAO will:

- Develop **case studies** on additional indicators under its custodianship (e.g. 2.3.1, 2.3.2, 5.a.1);
- Use **small area estimation** to produce disaggregated estimates of SDG Indicators;
- Develop methodologies and guidelines to integrate survey data with additional data sources: **census data**, **administrative data**, **geo-spatial information**.

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Thank you!

Access the Guidelines here:
http://www.fao.org/3/cb3253en/CB3253EN.pdf