Food Balance Sheets (FBS)

Introduction to Food Balance Sheets
Outline

1. Overview
2. History
3. Definition of SUA and FBS
4. Potential Uses
5. Interpreting FBS data
Overview
1. General Purpose of the FBS

Global recognition that statistically sound, reliable data on food and agriculture are needed
e.g. to understand the current situation of agriculture and food supplies within any given country, track progress against established goals, and inform future evidence-based policy decisions.

The FBS - by bringing together various key data variables (e.g. agricultural production, trade, feed, losses) – provide precisely such a cross-validation tool as well as a complete picture of the food supply situation in a country in any given time period. Various indicators can also be calculated.
2. History

- 1936: preparation of a systematic international comparison of food consumption data (requested by the League of Nations)

- After World War II: 1st intensive use of FBS to analyze the food security situation in Europe to inform that Marshall Plan allocations

2. History

≈ 2015: intensive focus of finalizing the **revised FBS methodology**. Same overall framework, but important innovations.

**Main changes:**

a) Updating the overall approach solve the balance (more refined)

b) Updating/refining the imputation methods of the FBS components – harness links between the various FBS variables/elements and information from outside the FBS
   e.g. the new feed use imputation method (animal number, type of breeding...)

c) More accuracy with the various variables
   e.g. other utilization只是为了 tourist food, other utilizations

d) Less discretion of the compiler

e) International classifications adopted (FCL replaced by CPC and HS)
Definition of SUA and FBS
3. Definition of SUA and FBS

The FBS is a national accounting/statistical framework, presenting a comprehensive picture of the pattern of a country's food supply and utilizations during a specified reference period (usually calendar year).

\[
\text{SUPPLY} = \text{UTILIZATION}
\]

\[P + I - \Delta St = X + Fo + Fe + Se + T + IU + Lo (+ ROU) (+ \text{food processing})\]

Where:

- \(P\) = production
- \(I\) = imports
- \(\Delta St\) = \(\Delta\) stocks
- \(X\) = exports
- \(Fo\) = food
- \(Fe\) = feed
- \(Se\) = seed
- \(T\) = tourist food
- \(IU\) = industrial use
- \(Lo\) = loss
- \(Rou\) = residual or other uses
3. Definition of SUA and FBS

**FBSs** are derived from the SUAs

- **SUA**: Supply Utilization Account
- The balance is compiled for every food item consumed within a country

- Commodities are converted in their primary commodity equivalent and aggregated

- Primary commodity equivalent balances are combined into one FBS

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**Validation & Balancing**

**Food and Agriculture Organization of the United Nations**

**FOOD BALANCE SHEETS**
3. Definition of SUA and FBS

Food component

Population

Nutritive factors

Per capita:
- Quantity
- Calories
- Proteins
- Fats

DIETARY ENERGY SUPPLY in kcal/cap/day (DES)
### 3. Definition of SUA and FBS: FAOSTAT example

<table>
<thead>
<tr>
<th>Item</th>
<th>Pop. (1000 persons)</th>
<th>Food Balance Sheet</th>
<th>Per Capita Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>China - 2013</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1000 tonnes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>1,416,667</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>3,108</td>
<td>98.04</td>
<td>95.37</td>
</tr>
<tr>
<td>Vegetal Products</td>
<td>2,382</td>
<td>58.4</td>
<td>37.1</td>
</tr>
<tr>
<td>Animal Products</td>
<td>726</td>
<td>39.64</td>
<td>58.77</td>
</tr>
<tr>
<td>Cereals - Excluding Beer</td>
<td>486,280</td>
<td>21,671</td>
<td>(14,349)</td>
</tr>
<tr>
<td>Wheat and products</td>
<td>121,331</td>
<td>7,572</td>
<td>(1,834)</td>
</tr>
<tr>
<td>Rice (Mill. Equivalent)</td>
<td>136,873</td>
<td>2,714</td>
<td>(3,998)</td>
</tr>
<tr>
<td>Barley and products</td>
<td>1,699</td>
<td>2,528</td>
<td>(1)</td>
</tr>
<tr>
<td>Maize and products</td>
<td>218,524</td>
<td>7,407</td>
<td>(8,516)</td>
</tr>
<tr>
<td>Rye and products</td>
<td>550</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Oats</td>
<td>514</td>
<td>152</td>
<td>-</td>
</tr>
<tr>
<td>Millet and products</td>
<td>1,747</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Sorghum and products</td>
<td>2,895</td>
<td>1,198</td>
<td>(1)</td>
</tr>
<tr>
<td>Cereals, Other</td>
<td>1,249</td>
<td>96</td>
<td>-</td>
</tr>
<tr>
<td>Starchy Roots</td>
<td>173,223</td>
<td>31,671</td>
<td>63</td>
</tr>
<tr>
<td>Cassava and products</td>
<td>4,600</td>
<td>30,666</td>
<td>63</td>
</tr>
<tr>
<td>Potatoes and products</td>
<td>95,988</td>
<td>1,172</td>
<td>-</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>70,741</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Yams</td>
<td>1</td>
<td>8</td>
<td>(7)</td>
</tr>
<tr>
<td>Roots, Other</td>
<td>1,895</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Sugar Crops</td>
<td>138,111</td>
<td>929</td>
<td>-</td>
</tr>
<tr>
<td>Sugar Cone</td>
<td>128,851</td>
<td>929</td>
<td>-</td>
</tr>
<tr>
<td>Sugar Beet</td>
<td>9,260</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
3. Definition of SUA and FBS

The SUA/FBS is an analytical dataset that:

- shows the sources of supply and its utilization for each food item (SUA) or food group (FBS);
- provides the availability for human consumption (in quantity & kcal);
- shows the changes in the types of food consumed;
- Future: micronutrient information (minerals & vitamins).
3. Definition of SUA and FBS

The two pillars of the SUA/FBS:

1. Production data (Annual Production Questionnaire)
2. Trade data (Customs offices -> COMTRADE)

Link on the FAOSTAT webpage:
3. Definition of SUA and FBS

Fundamental principles

As the FBS require data from different sources, basic statistical principles to ensure that the FBS are (i) reproducible, (ii) coherent, and (iii) transparent should be applied:

a) Sound Measurement first
   Countries should invest in improving measurement of input data.

b) Document data, process & methodology
   Compilers should document data sources, applied methodologies and solutions to identified data inconsistencies. Attention to units of measurement and classifications.

c) Peer review and collaboration
   Validation by multiple actors
Potential Uses of the FBS
4. Potential Uses

➤ Basis for policy analysis aimed at ensuring food security:

- Estimate a country’s overall **DES** and macronutrient availability (proxy of food consumption)
- Estimate the food shortages/surpluses
- Estimate the amount of food aid
- Determine the availability of a certain class of food
- Inform agricultural trade policy
- Analyze livestock policies (e.g. the degree to which primary food resources are used to produce animal feed)
4. Potential Uses

➢ Calculation of derived indicators

- Estimate Dietary Energy Supply Adequacy

\[
\text{DES adequacy} = \frac{\text{DES}}{\text{ADER}}
\]

- Self-sufficiency ratio (SSR): P as % of dom. Supply

\[
\text{SSR} = \frac{\text{Production}}{\text{Production} + \text{Imports} - \text{Exports} - \Delta \text{Stock}}
\]

- Import dependency ratio (IDR): I as % of dom. supply

\[
\text{IDR} = \frac{\text{Imports}}{\text{Production} + \text{Imports} - \text{Exports} - \Delta \text{Stock}}
\]
4. Potential Uses

➢ **Statistical purposes:**

- Framework for data reconciliation (≠ sources)
- Harmonization of data collection efforts
- Data validation (supply and demand picture)
- Improve National Account estimates
- Means of comparing food availability (from FBS) and food consumption (from HH surveys)

  e.g. to cross-check the data on food consumption (and *vice versa*); as a proxy of food consumption in the absence of data.
4. Potential Uses

- Comparing food availability across time
- Track changes in dietary composition & growth of consumption in new products
- **Measure two key SDG indicators:**
  - 2.1.1 PoU (in the absence of household consumption data)
  - 12.3.1 PHL
Interpreting FBS data
5. Interpreting FBS data

➤ "Food availability", not "food consumption"

- DES is likely to overestimate the amount of food actually consumed

- FBS food availability takes into accounts all consumption within a country (HH, schools, hospitals,...)

➤ Average of food/nutrient availability (distribution among different groups of people is not considered)
5. Interpreting FBS data

Commodity Balances ≠ FBS

- FBS: only food-related commodities (e.g. rubber is not included)

- FBS: the quantity estimates of food must be reported in their caloric equivalent

- FBS: contains aggregated estimates of both a primary commodity and all of its derived products (expressed at the primary commodity equivalent level)
  - many countries produce commodity balances for primary products, but do not account for goods derived from those primary products → underestimate total consumption
• Guidelines for the compilation of Food Balance Sheets (FAO, 2017), chapter 1 (Global Strategy & FBS Team)

• The FAO source book for the compilation of Food Balance Sheets (FAO, 2016) (Global Strategy & FBS Team)

• Food Balance Sheets, A handbook (FAO, 2001) (FBS Team)
THANK YOU!

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www.fao.org/faostat