Food Balance Sheets (FBS)

Introduction to Food Balance Sheets

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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

- 1948: FAO Conference **encouraged governments** to develop their own FBS with FAO assistance (Handbook published in 1949) – by 1977 FBS for 162 countries compiled

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 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).

SUPPLY = UTILIZATION

$$P + I - \Delta St = X + Fo + Fe + Se + T + IU + Lo\ (+ ROU)$$

(+ food processing)

Where:

P = production
I = imports
ΔSt = Δ stocks
X = exports
Fo = food
Fe = feed
Se = seed
T = tourist food
IU = industrial use
Lo = loss
Rou = residual or other uses

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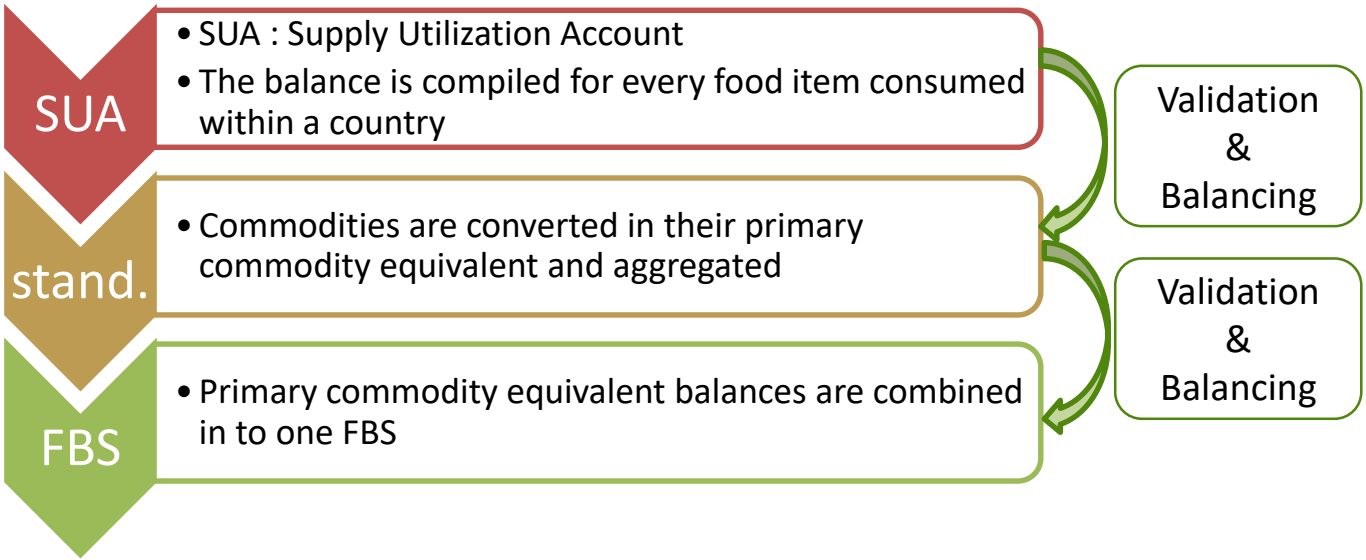
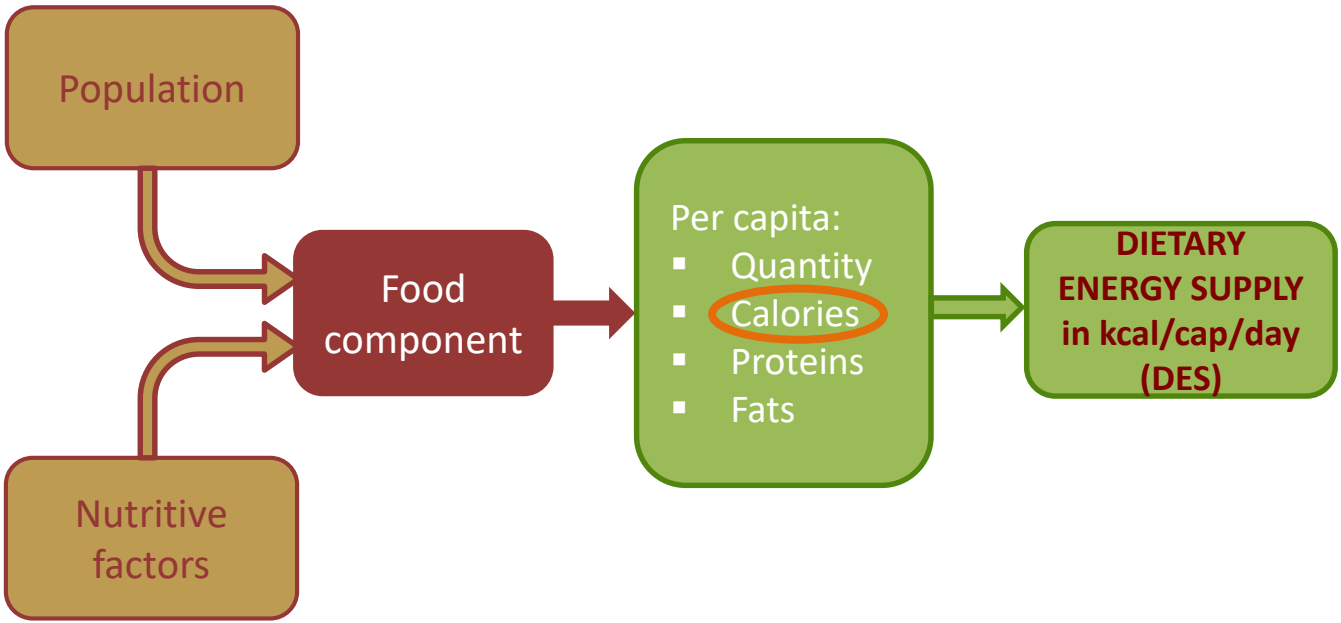
3. Definition of SUA and FBS

FBSs are derived from the SUAs



3. Definition of SUA and FBS



3. Definition of SUA and FBS: FAOSTAT example

China - 2013													Food Balance Sheet			
Item	Pop.	Domestic Supply				Domestic Utilisation							Per Capita Supply			
		Prod.	Imp.	Stock Var.	Exp.	Total	Food	Proc.	Feed	Seed	Losses	Oth. Use	Total		Prot.	Fat
	(1000 persons)	(1000 tonnes)											Kg/Yr	KCal/Day	g/Day	
Population	1,416,667															
Grand Total														3,108	98.04	95.87
Vegetal Products														2,382	58.4	37.1
Animal Products														726	39.64	58.77
Cereals - Excluding Beer		486,280	21,671	(14,349)	2,284	491,318	212,393	10,113	197,082	11,184	20,278	40,267	150	1,416	33.59	5.91
Wheat and products		121,931	7,572	(1,834)	713	126,956	89,386	317	26,694	4,600	3,010	2,948	63	546	17.4	2.9
Rice (Milled Equivalent)		136,873	2,714	(3,998)	565	135,024	109,725	12	12,117	4,679	6,406	2,085	77	797	14.47	2.68
Barley and products		1,699	2,528	(1)	615	3,611	235	3,091	30	49	200	7	0	1	0.03	0
Maize and products		218,624	7,407	(8,516)	252	217,262	9,618	6,693	153,802	1,651	10,295	35,203	7	54	1.17	0.18
Rye and products		650	-	-	-	650	122		480	21	27		0	1	0.02	0
Oats		614	152	-	4	762	215		500	17	30		0	1	0.03	0.01
Millet and products		1,747	4	-	13	1,738	834		800	25	78		1	5	0.12	0.03
Sorghum and products		2,895	1,198	(1)	17	4,075	1,855		1,998	20	178	24	1	10	0.29	0.09
Cereals, Other		1,249	96	-	104	1,240	405		661	122	53		0	2	0.06	0.01
Starchy Roots		173,223	31,671	63	883	204,074	95,732	8,453	78,534	3,102	8,568	9,692	68	152	2.63	0.32
Cassava and products		4,600	30,466	63	203	34,925	2,657		22,873		138	9,257	2	6	0.05	0.01
Potatoes and products		95,988	1,172	-	441	96,719	57,732	8,453	22,196	3,102	4,803	434	41	79	1.89	0.11
Sweet potatoes		70,741	17	-	122	70,636	33,734		33,368	-	3,533	1	24	64	0.65	0.19
Yams			1		8	(7)	1						-	-	0	0
Roots, Other		1,895	15	-	109	1,801	1,609		98		95		1	3	0.05	0.01
Sugar Crops		138,111	929	-	5	139,034	31	129,020	9,983				0	-	0	
Sugar cane		128,851	929	-	3	129,777	31	122,563	7,183				0	-	0	
Sugar beet		9,260	-	-	3	9,257		6,457	2,800							

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).

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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:
http://www.fao.org/faostat/en/#home

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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

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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)

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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

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References

- *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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