


Food Balance Sheets (FBS) - Module3

1. Module 3

1.1 Welcome

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism



Food Balance Sheets (FBS)

Lesson 3
Linking the Supply Utilization Account (SUA) to FBS
and Balancing Mechanism

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Notes:

1.2 Lesson objective

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Lesson objective

In this lesson we will learn about the Food Balance Sheet (FBS) with respect to:

1. Linking SUA to FBS;
2. Balancing mechanism in FBS.



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Notes:

1.3 Outline

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Outline

- Supply and Utilization Account (SUA)
- Commodity trees
- Processing shares
- Distributing the imbalance at FBS level
- Constraints on the balancing process



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Notes:

1.4 Supply Utilization Accounts


Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Supply Utilization Accounts

FBS are typically only published at the primary commodity equivalent level in order to facilitate interpretation and policy formation.

Accounting for supply and use only for the primary commodity would not provide a holistic picture of how the commodity is being consumed, traded, or otherwise used after being processed into various derived products.

For example, a balance solely for wheat would in most cases include little or no food use, because wheat is commonly processed into flour before it is consumed by humans, and flour is then used to produce various other derived products like bread, pastries, and pasta.



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Notes:

1.5 Supply Utilization Accounts

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Supply Utilization Accounts

Because there is both supply and demand occurring for each of these products (both primary and derived), individual accounts should be kept for both the primary product *and* all of its derived products.

These accounting balances for individual products are called Supply Utilization Accounts (SUAs).

FBS	SUA
<ul style="list-style-type: none">• Publish at the primary commodity equivalent level.• Doesn't provide a holistic picture on how the commodity is being consumed, traded, or otherwise used after being processed into various derived products.	<ul style="list-style-type: none">• The accounting balances for individual products are called Supply Utilization Accounts (SUAs).• Supply and demand occurring for each products, both primary and derived.

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Notes:

1.6 Supply Utilization Accounts

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Supply Utilization Accounts

For the purposes of deriving FBS, SUAs are typically organized into tables where the SUA for the primary commodity is at the top, and the SUAs for all of the products derived from that commodity follow.

Sample for blank SUA table for paddy rice:

Product	Production	Imports	Exports	Stock change	Food	Food processing	Feed	Seed	Net Tourist Food	Industrial Use	Loss	ROU
Paddy rice	-	-	-	-	-	-	-	-	-	-	-	-
Husked rice	-	-	-	-	-	-	-	-	-	-	-	-
Milled paddy rice	-	-	-	-	-	-	-	-	-	-	-	-
Rice bran	-	-	-	-	-	-	-	-	-	-	-	-
Broken rice	-	-	-	-	-	-	-	-	-	-	-	-
Rice flour	-	-	-	-	-	-	-	-	-	-	-	-

Primary commodity paddy rice that is processed can be both processed to produce husked rice, or milled paddy rice and rice bran. This process can also produce broken rice that can be used to produce rice flour. Each of these subsequent processing levels is linked back to the previous level through an extraction rate.

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Notes:

1.7 Supply Utilization Accounts

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Supply Utilization Accounts

Once individual SUAs have been elaborated for the primary commodity and all of its derived products, the accounts cannot simply be added together to arrive at one primary equivalent balance.

The balances are elaborated by weight in MT (metric ton) of primary commodity-equivalents. One MT of a derived product is not equivalent to one MT of the primary commodity.

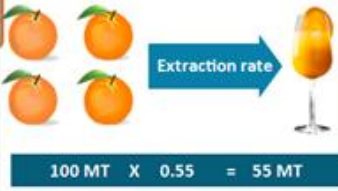


Illustration:

Company X sells both fresh oranges and orange juice, and they offer to sell the customer either 100 MT of fresh oranges or 100 MT of orange juice for the same price. Furthermore, Company X offers to process the fresh oranges into juice free of charge at an extraction rate of 55 percent (that is, 0.55 MT of juice output per 1 MT of fresh orange input). FBS compilers will recognize that the customer should most definitely choose the juice instead of the fresh oranges, because 100 MT of fresh oranges will only yield around 55 MT of juice after processing.

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Notes:

1.8 Supply Utilization Accounts

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Supply Utilization Accounts




Illustration:
In order to produce 100 MT of orange juice, about 182 MT of fresh oranges would be needed as input. This calculation can be done by simply rearranging extraction rate formula. As seen in the illustration, derived products can be converted back to their primary commodity equivalents simply by dividing by the extraction rate.

$$100 \text{ MT} : 0.55 = 182 \text{ MT}$$

Derived products must first be converted back to their “primary commodity equivalent” (the amount of primary commodity input that would be required to produce a given amount of derived product output), and then all of the primary commodity equivalents can be added together to arrive at one overall balance.

This process of converting derived products to a primary equivalent so that they can be added up is called “vertical standardization.” FBS for primary equivalent products are created by standardizing and adding up individual SUAs for derived products.

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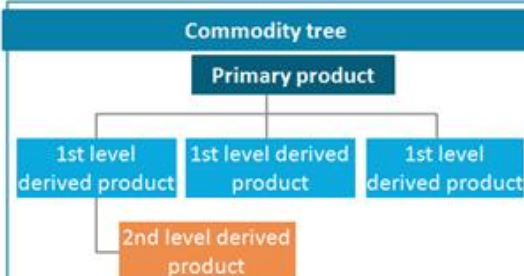
1.9 Commodity trees

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Commodity trees

commodities using extraction rates is fundamental to the FBS compilation process. This process is simple to understand if there is only one

—most food manufacturing commodities produce multiple outputs, and it is even possible for those outputs to undergo further transformation into second-tier



```
graph TD
    A[Primary product] --> B[1st level derived product]
    A --> C[1st level derived product]
    A --> D[1st level derived product]
    B --> E[2nd level derived product]
```

In order to better conceptualize these complicated primary/derived product relationships and better organize the work of standardization, commodities and their derived products are organized into “commodity trees.”

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Notes:


1.10 Commodity trees

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Commodity trees

Commodity trees are so-called because they “stem” from one primary product and then branch out into one or successive levels of processed products, with each level linked by extraction rates.

Commodity trees are designed to be exhaustive, such that all processing uses of a particular commodity are covered. This means that they can be more or less complicated depending upon the number of derived products, the number of processing levels, and the creation of co-products during processing.



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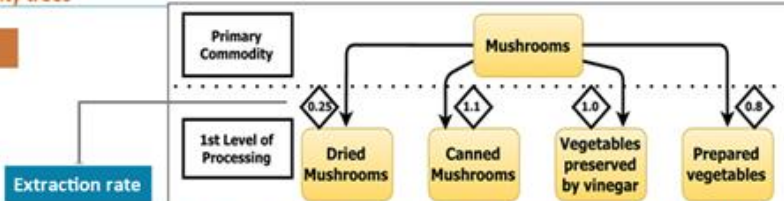
Notes:

1.11 Commodity trees

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Commodity trees

Example



The primary commodity “mushrooms” can potentially be processed into four different derived products: dried mushrooms, canned mushrooms, vegetables preserved by vinegar, and prepared vegetables.

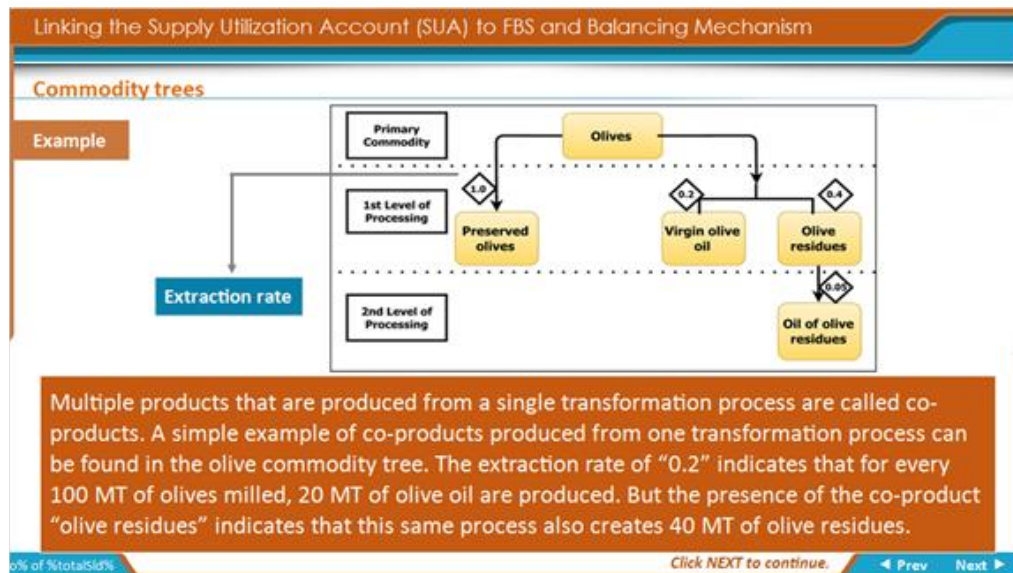
the extraction rate of “1.1” for the production of canned mushrooms from fresh mushrooms, indicating that for every 100 MT of mushrooms entering the canning process, 110 MT of canned mushrooms results. While this rate at first appears to be nonsensical, it is due to the fact that brine is added in the process of canning, which increases the total product weight.

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Notes:

1.12 Commodity trees



Notes:

The tree structures for nearly all commodities that undergo processing are available on FAO's website. Countries are encouraged to review those trees and update them as necessary for their purposes. These factors are contained within the document, Technical Conversion Factors for Agricultural Commodities, available here: <http://www.fao.org/fileadmin/templates/ess/documents/methodology/tcf.pdf>.

1.13 Processing Share

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Processing Share

processing share is the percentage of the amount of a given commodity sent to processing that is thought to be dedicated to a specific transformation process. These shares are then used to calculate the amount of input used for a given transformation process

The quantity of input required for any processed Good B is equivalent to the quantity of its source Good A that is sent to processing, multiplied by the *a priori* processing share.

$Q \text{ Input for B} = Q \text{ of A sent to processing} * B' \text{ s Processing share}$

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1.14 Processing Share

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Processing Share

Example FBS compilers in Country A know that olives are processed domestically into both preserved olives and virgin olive oil. Although the FBS compilers know that the amount of olives sent to processing is 150,000 MT but they do not know exactly what quantities are directed to each of the different transformation processes. By using supply chain studies and consulting with market experts, the compilers learn that only a small fraction of olives are processed into preserved olives—around 10 percent, indicating that 90 percent of olives are milled for olive oil.

		Olives	Preserved olives	Virgin olive oil	Olive residues
A	Amount Processed	150,000			
B	Processing Share		10%	90%	90%
C	Amount of Input		15,000	135,000	135,000

Co-products from the same transformation process will have identical processing shares, as they are two goods derived from a single input. In this example, that means that the processing shares for virgin olive oil and olive residues will both be 90 percent, since the two are outputs of a single transformation process. The processing shares for the different transformation processes must sum to 100. FBS compilers must ensure that all transformation processes are accounted for.

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Notes:

For this example, although there are three output goods, there are only two transformation processes, so we only need to add the 10 percent processing share for preserved olives and the 90 percent processing share for olive oil as a check here.

1.15 Processing Share

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Processing Share

Example Using these input quantities, we can then go one step further and add the product-specific extraction rates noted in the olive commodity tree above to calculate production of the derived good by multiplying the amount of input on Line C by the product-specific extraction rates on Line D

		Olives	Preserved olives	Virgin olive oil	Olive residues
A	Amount Processed	150,000			
B	Processing Share		10%	90%	90%
C	Amount of Input		15,000	135,000	135,000
D	Extraction Rate		100%	20%	40%
E	Production		15,000	27,000	54,000

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Notes:

1.16 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

The exercise of compiling food balance sheets is merely using measured and imputed data to balance the supply = utilization identity. While this is a simple and intuitive construct, balancing the equation in practice is not so straightforward, for some reasons:

Only in a very limited number of cases are countries measuring all of the supply and demand variables. What tends to occur instead is that supply-side variables are measured, while more of the demand-side variables are imputed using statistical models or estimated by subject matter experts.

In the rare cases where all supply and demand variables are measured independently, it is not likely that the point estimates alone would lead to a precisely-balanced supply and demand equation, because of discrepancies in data sources, data collection and compilation methods, reference periods and measurement errors occurring at any of these stages.

For these reasons, an overall strategy for balancing the equation must be found.

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1.17 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

The approach that has historically been adopted is to assign one element of the equation as the balancing item—that is, a certain variable is selected to represent the combination of its estimate *and* the residual imbalance of the equation.

The variable used as the balancing item can vary depending upon the nature of the product and the country's agricultural statistical systems, but feed and food are commonly used as balancers.

Example:

In their balance sheets for coarse grains, USDA estimates “feed and residual” use as the balancer to the equation, such that after production, trade, stocks, food, seed, and industrial use are measured or estimated, “feed and residual” is estimated as the remainder, i.e. supply minus all the measured uses except the unmeasured feed and residual component.

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1.18 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

The "one balancer" approach has been popular for decades, with its main advantage being convenience (this approach means that one variable in the equation does not have to be measured). But this approach has various drawbacks as well:

- In most countries, few of the utilization variables are measured, such that the supply = utilization equation will actually have more than one unknown
- Assigning one variable to be the balancer lumps all of the measurement error in each one of the other variables onto that single balancer variable
- Over time, if the errors are biased, those annual errors accumulate, such that the underlying variable that is purported to be estimated may become difficult to distinguish from the error itself
- The choice of variable to use as the balancer can be problematic

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1.19 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

The preferred approach to balancing the supply = utilization identity is one that not only acknowledges measurement error, but also seeks to use these errors of individual variables to help balance the overall identity. This is accomplished by specifying each of the variables as a range of possible values according to their measurement errors.

In this way, the basic identity should be expanded, as:

$$Production^* + Imports^* - \Delta Stocks^* = Export^* + Food^* + Food\ Processing^* + Feed^* + Seed^* + Tourist\ Food^* + Industrial\ Use^* + Loss^* + Residual\ Use^*$$

Where

$$Production^* = Production \pm e(Production)$$
$$Imports^* = Imports \pm e(Imports)$$

And so on for the other variables

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Notes:

1.20 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

$$Production^* + Imports^* - \Delta Stocks^* = Export^* + Food^* + Food Processing^* + Feed^* + Seed^* + Tourist Food^* + Industrial Use^* + Loss^* + Residual Use^*$$

The equation above represent the possible range, or tolerance interval, of each of the variables, which is specified as the sum of the original expected value for that variable and the measurement error of that variable.

The underlying principle of a statistically sound balancing method is that those elements with the largest tolerance intervals should be those where the bulk of the imbalance in the identity is distributed.

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Notes:

Further guidance on the estimation of these tolerance intervals is detailed in the next lesson

1.21 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism



Given this interpretation of the supply = utilization identity, the balancing process then becomes merely a matter of distributing the equation's imbalance, which will follow three basic steps:

Step 1. Calculate the imbalance from the supply = utilization identity, where the imbalance for a given commodity in the country in question.

Step 2. Distribute the imbalance throughout the supply = utilization identity.

Step 3. Check that all balanced quantities are within any set bounded values, and rebalance if necessary.

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Notes:

1.22 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

Among the many methods that can be used to distribute the imbalances, some of the most common are presented here, along with what can be considered as the first best or “gold standard” approach. The choice by countries on which approach to utilize may be influenced by a country’s statistical capacity, time constraints, desire for replicability, or structural constraints. Those approach are:

- 1 Distribute imbalance proportionally based on aggregated error
- 2 Assigning small, positive imbalance to a residual use category
- 3 Single balancer approach

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Notes:

1.23 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

- 1 Distribute imbalance proportionally based on aggregated error

The recommended imbalance distribution approach is to use the information about the uncertainty of point estimates to proportionally distribute the imbalance.

The necessary steps in this method include:

- Step 1: Use tolerance interval percentages and point estimates to quantify the error of each variable.
- Step 2: Sum up the individual errors of each variable to calculate an aggregated error for the equation.
- Step 3: Calculate the proportion of the aggregated error for each of the elements.
- Step 4: Distribute the imbalance proportionally
- Step 5: Ensure that any constraints are met, and recalculate if necessary.

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Notes:

If the quantity for a given variable should remain fixed because it is an official estimate, a tolerance interval of zero can be assigned.

Negative imbalance indicates that production and import variables must be increased and the remaining variables must be reduced from their pre-balanced values, while the opposite is true for a positive imbalance.

1.24 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

1 Distribute imbalance proportionally based on aggregated error

Example FBS compilers in Country Z have produced the following unbalanced supply and utilization table for sorghum in their country (for the purposes of this illustration, sorghum is not consumed as food or processed in Country Z, but is mostly destined for feed, and the country does not utilize a residual and other uses category).

Line	Product	Production (1)	Imports (2)	Exports (3)	Feed (4)	Seed (5)	Loss (6)	
A	Sorghum	892	307	48	1061	3	44	
B	Imbalance for A [A=A1+A2-A3-A4-A5-A6]							43
C	Tolerance Interval (in %)	±15.0%	±0.0%	±0.0%	±40.0%	±15.0%	±15.0%	

Given the data on Line A, the imbalance in the supply and demand account is calculated in Line B (calculated as Imbalance = Production + Imports – Exports – Feed – Seed – Loss, or $892 + 307 - 48 - 1061 - 3 - 44 = 43$).

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Notes:

Several variables have been eliminated from this short example, for simplicity's sake

1.25 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

1 Distribute imbalance proportionally based on aggregated error

Beginning from this table, the first step is to quantify the error into units instead of percentages. This can be done by multiplying the values in Line A by the percentages in Line C to arrive at the values in Line D

Line	Product	Production (1)	Imports (2)	Exports (3)	Feed (4)	Seed (5)	Loss (6)	
A	Sorghum	892	307	48	1061	3	44	
B	Imbalance for A [A=A1+A2-A3-A4-A5-A6]							43
C	Tolerance Interval (in %)	±15.0%	±0.0%	±0.0%	±40.0%	±15.0%	±15.0%	
D	Error [D=A*C]	133.8	0	0	424.4	0.5	6.6	

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1.26 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

1 Distribute imbalance proportionally based on aggregated error

The individual error estimates for each of the variables is added up to arrive at an estimate of the equation's aggregated error. In this case, all the values highlighted in green on Line D are added together to arrive at the aggregated error of 565.3 on Line E

Line	Product	Production (1)	Imports (2)	Exports (3)	Feed (4)	Seed (5)	Loss (6)	
A	Sorghum	892	307	48	1061	3	44	
B	Imbalance for A [A=A1+A2-A3-A4-A5-A6]							43
C	Tolerance Interval (in %)	±15.0%	±0.0%	±0.0%	±40.0%	±15.0%	±15.0%	
D	Error [D=A*C]	133.8	0	0	424.4	0.5	6.6	
E	Aggregated error [E=D1+D2+D3+D4+D5+D6]							565.3

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Notes:

1.27 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

1 Distribute imbalance proportionally based on aggregated error

From here, the proportion of the aggregated error that belongs to each one of the individual variables is calculated in Line F. This is done by dividing the error of each individual variable by the aggregated error estimate. For example, the proportion of aggregated error that is attributed to production in this scenario is 23.7 percent.

Line	Product	Production (1)	Imports (2)	Exports (3)	Feed (4)	Seed (5)	Loss (6)	
A	Sorghum	892	307	48	1061	3	44	
B	Imbalance for A [$A=A1+A2-A3-A4-A5-A6$]							43
C	Tolerance Interval (in %)	±15.0%	±0.0%	±0.0%	±40.0%	±15.0%	±15.0%	
D	Error [$D=A*C$]	133.8	0	0	424.4	0.5	6.6	
E	Aggregated error [$E=D1+D2+D3+D4+D5+D6$]							565.3
F	Proportion of aggregated error [$F=D/E$]	23.7%	0.0%	0.0%	75.1%	0.1%	1.2%	

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1.28 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

1 Distribute imbalance proportionally based on aggregated error

Next, the total imbalance in the equation (in this case, 43), is proportioned across the different variables according to their share of the aggregated error

Line	Product	Production (1)	Imports (2)	Exports (3)	Feed (4)	Seed (5)	Loss (6)	
A	Sorghum	892	307	48	1061	3	44	
B	Imbalance for A [$A=A1+A2-A3-A4-A5-A6$]							43
C	Tolerance Interval (in %)	±15.0%	±0.0%	±0.0%	±40.0%	±15.0%	±15.0%	
D	Error [$D=A*C$]	133.8	0	0	424.4	0.5	6.6	
E	Aggregated error [$E=D1+D2+D3+D4+D5+D6$]							565.3

The final step in this method is to ensure that any constraints are met and recalculate if necessary.

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Notes:

In this particular simplification, no values violate any constraints, so no rebalancing is necessary and the account can be considered to be balanced.

1.29 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

2 Assigning small, positive imbalance to a residual use category.

An additional alternative approach that can be used (ideally in situations where the imbalance is small and positive) is the use of the "Residual and other uses" category, rather than the distribution of the imbalance across variables.

$$\text{Production} + \text{imports} - \Delta \text{Stocks} = \text{Exports} + \text{Food} + \text{Feed} + \text{Seed} + \text{Tourist Food} + \text{Industrial Use} + \text{Loss} + \text{Residual and other uses}$$

This approach could be utilized in cases where a positive imbalance is below an *a priori* threshold (for example, less than 5 percent of total supply or total demand). In this way, the error does not accumulate in any of the other variables, and it is dealt with in a transparent way.

At the same time, this approach should not be used for imbalances greater than a small threshold level, as imbalances of that size would indicate either that some utilization is being missed, or the estimation of at least one utilization is very imprecise. In those situations, countries may wish to continue to utilize "residual and other uses" to account for the imbalance up to the established threshold, and then re-distribute the remaining imbalance with proportional balancing.

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Notes:

1.30 Balancing Mechanism

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Balancing Mechanism

3 Single balancer approach.

The single balancer remains an option that countries may consider when elaborating their country-level FBS. However, particularly for countries where multiple variables are not measured, country-level FBS compilers are encouraged to try the proportional balancing approach first. If, for whatever reason, country-level FBS compilers decide that the single balancer approach is the most feasible for their particular circumstances, they should be aware of and broadcast the caveats and shortcomings of estimates produced using this methodology.

Not all variables are appropriate as balancers in the single balancer approach, and the degree of appropriateness may even differ from product to product. For example, feed may be considered as the preferred balancing item for the maize balance sheet, but for a commodity like apple juice that likely is never used as feed, it will not be possible to use feed as the balancer, and food use will instead be the preferred balancer.

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Notes:

1.31 Constrain on the balancing process

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Constrain on the balancing process

Step 3 of the recommend balancing approach alludes to the idea that the balancing process should take into account certain constraints on the values.

While some constraints may be universal across countries and products, country compilers may find that they need to impose additional constraints based on conditions inside their country.

Because it is not possible to foresee all possible constraining situations, only the universal constraints are explored.

Click on the boxes to explore

Row constraint	Column constraint
"Vertical standardization" constraint	Imbalance exceeds aggregate measurement error

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Notes:

Tab 1 (Slide Layer)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Constrain on the balancing process

Step 3 of the recommend balancing approach alludes to the idea that the balancing process should take into account certain constraints on the values.

Row constraint

The most obvious constraint on the process of allocation of the imbalance is that supply for each commodity must be equal to utilization for that commodity—referred to as a “row constraint.”

As an extension of this row constraint, a country’s exports of a given commodity cannot exceed their supply of that commodity.

$$Production + Imports - \Delta Stock > Exports$$

This particular row constraint can be a useful way of either identifying errors in trade data, or else alerting country-level FBS analysts to the fact that production of a new commodity is taking place inside their country.

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Tab 2 (Slide Layer)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Constrain on the balancing process

Step 3 of the recommend balancing approach alludes to the idea that the balancing

Column constraint

Compilers should also be aware that constraints may need to be imposed on changes in quantities over time. Two examples of this type of constraint should be highlighted here: single-year constraints, and multiple-year constraints. With respect to single-year constraints, compilers should note whether or not year-to-year changes are within the bounds of feasibility.

One example is changes in food availability and derived DES estimates. Barring catastrophe (war, natural disasters, etc.), DES estimates are unlikely to vary greatly on an annual basis, with aggregate changes of 100 calories per capita considered the absolute upper bound. Stocks represent another obvious example of the need for a single-year column constraint, as subtraction from stocks in a given year cannot be greater than the overall level of stocks.

Multiple-year column constraints should also be considered. In this case, stocks are again the most prominent example, as it is considered highly unlikely that a country would either add to stocks or take away from stocks for many years in a row. If compilers find this to be the case, then they should consider imposing a bound on the stocks changes in the balancing process to ensure that the pattern is discontinued.

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Tab 3 (Slide Layer)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Constrain on the balancing process

Step 3 of the recommend balancing approach alludes to the idea that the balancing

process should take into account certain constraints on the values.

"Vertical standardization" constraint

Particularly in cases where production, trade, and other utilizations of derived products come from official data, it may be useful for countries to also specifically apply a "vertical standardization" constraint. That is, they must ensure that there is a sufficient quantity of primary product sent to processing to ensure that each of the derived product accounts do not have any negative discrepancies (the "row constraint" mentioned above).

If countries find that they don't seem to have enough input for the production of derived commodities, this is most commonly an indication that the estimated extraction rate may be too low (thus, a lower amount of input would be necessary to generate the same amount of output).

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Tab 4 (Slide Layer)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Constrain on the balancing process

Step 3 of the recommend balancing approach alludes to the idea that the balancing process should take into account certain constraints on the values.

Imbalance exceeds aggregate measurement error ✕

Country-level FBS compilers may identify cases in which the imbalance in the equation exceeds the aggregate measurement error. These instances can result from much larger error in one of the point estimates than is indicated by the assigned tolerance intervals.

This situation is not problematic per se in any of the approaches outlined above. However, it does indicate that the uncertainty levels are set too conservatively. As such, these cases are an opportunity for countries to re-examine official estimates for their accuracy, and in some cases to consider assigning a higher tolerance interval to those estimates if their precision is determined to be questionable.

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1.32 Quiz 1

(Multiple Choice, 10 points, 1 attempt permitted)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Quiz

Q 01 For the purposes of deriving FBS, SUAs are typically organized into tables where the SUA for the primary commodity is at the top, and the SUAs for all of the products derived from that commodity follow

Select one that apply.

☒ True

☐ False

SUBMIT

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Feedback when correct:

That's right! You selected the correct response.

1.33 Quiz 2

(Multiple Choice, 10 points, 1 attempt permitted)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Quiz

Q 02

Once individual SUAs have been elaborated for the primary commodity and all of its derived products, the accounts can simply be added together to arrive at one primary equivalent balance.

Select one that apply.

☐ True

☒ False

SUBMIT

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Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Quiz

Q 03

Processing share is the percentage of the amount of a given commodity sent to processing that is thought to be dedicated to a specific transformation process. These shares are then used to calculate the amount of input used for a given transformation process.

Select one that apply.

☒ True

☐ False

SUBMIT

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1.35 Quiz 4

(Multiple Response, 10 points, 2 attempts permitted)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Quiz

Q 04

Some of the most common methods that can be used to distribute the imbalances in FBS are presented in this lesson, along with what can be considered as the first best or "gold standard" approach. Those approach are:

Select all that apply.

☐ Intuitive approach

☒ Distribute imbalance proportionally based on aggregated error

☒ Assigning small, positive imbalance to a residual use category

☒ Single balancer approach

SUBMIT

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1.36 Quiz 5

(Multiple Response, 10 points, 2 attempts permitted)

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Quiz

Q 05

Please select correct statements given below:

Select all that apply.

☒ The most obvious constraint on the process of allocation of the imbalance is that supply for each commodity must be equal to utilization for that commodity—referred to as a "row constraint."

☒ Not all variables are appropriate as balancers in the single balancer approach, and the degree of appropriateness may even differ from product to product.

☒ Derived products must first be converted back to their "primary commodity equivalent" (the amount of primary commodity input that would be required to produce a given amount of derived product output), and then all of the primary commodity equivalents can be added together to arrive at one overall balance.

☐ The quantity of input required for any processed Good B is equivalent to the quantity of its source Good A that is sent to processing.

SUBMIT

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1.37 Conclusion

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism

Conclusion

You have finished lesson 3.
In this lesson, we have discussed:

1. Linking SUA to FBS;
2. Distributing the imbalance at FBS level;
3. Constraints on the balancing process.



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Click NEXT to continue. ◀ Prev Next ▶

Notes:

1.38 Thank You

Linking the Supply Utilization Account (SUA) to FBS and Balancing Mechanism



Food Balance Sheets (FBS)

Thank You!

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Notes: