

Computations

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Another feature of IFs is the Computations button. Computations allow users to create a formula of variables which correlate historic data with forecasted data, format data for uniform analysis, or provide for interesting combinations of variables that are not directly available in IFs.

For example, you know that there is a variable used in IFs called LIT (percentage of population who are literate) but you need to know the absolute number of literate people in each country, not just the percentage. If you would like to compute from the Self Managed Variable/Parameter screen, you have two options:

- Create Computations "On the Fly"
- Create Algebraic Computations

Computation on the Fly

Computations "On The Fly" can be conducted from the Type Name Box located on Self-Managed Full Variable/Parameter selection screen.

Basic arithmetic operations. For instance, to compute ratios of two variables, type the name of a variable followed by a "/", e.g. GDP/ Then select one or more subdimensions as appropriate. Then type the denominator variable, e.g. POP, selecting appropriate subdimensions. In the status box you will see an indication (truncated) of your computational specification. When you exit to display and select a display form such as Table, you will obtain a display of GDP/POP. Be sure to specify GDP/ (or another variable for the numerator) for as many regions (or other subdimensions) as you wish before specifying POP (or other denominator variable) for the same number of regions (or other subdimensions). For instance, it is permissible to specify GDP/ for ALL regions, then POP for all regions, in order to see GDP per capita for all regions. Similarly, you can compute products of two variables. The process is the same as for ratios, except that you use the "*" operator. For additions use "+" and for subtractions use "-". In addition to specifying variable names, you can also put numbers into a computational sequence, for instance 1000 as the entry following GDP/ That allows you to scale a value.

The percentage of one variable of another. Select the "full set" of variables for display purposes and type the name of a variable followed by a "%", e.g. CS% Select one or more subdimensions as appropriate. Then type the denominator variable, e.g. C, selecting appropriate subdimensions. When you exit to display and select a display form such as Table, you will obtain a display of CS as a percent of C. Be sure to specify CS% (or another variable form the numerator) for as many regions (or other subdimensions) as you wish before specifying C (or other denominator variable) for the same number of regions (or other subdimensions). For instance, it is permissible to specify CS% of agriculture for ALL

regions, then C for all regions, in order to see consumption of agriculture goods as a portion of total consumption for all regions.

A sum across a dimension of a variable. Precede the variable name by "WW" in order to activate the summing (think "world-wide" for WW). For instance, specifying variable name "WWPOP" will produce the sum of population across all regions. When you wish to produce a sum across one dimension of a two-dimensioned variable, specify "ALL" as the element for the dimension across which to sum.

Computation Systematically (Algebraic Computations)

To access Computations, open Self-Managed Full Variable/Parameter Display.

Click on Computations. A new window will appear. In the box, type in a formula you would like IFs to calculate. For our example, we know that we have the percent of literate people in each country and the absolute number of people in each country, so we simply need to multiply the percentage of literate people with the total population. Our formula will be $a*b$ (or any other letter). Use standard symbols in order to distinguish different mathematical functions. Use * for multiplication, / for division, + for addition, - for subtraction, () to group terms etc. After typing in this formula, click Enter. This will bring up a new window. From this window, you can accomplish the following:

Formula Name, Dimensions Name, Units Name: These three naming options are available but only the Formula Name is required. The Dimensions Name could be used to describe, for example, the geographic bounds of your formula. The Units Name could be used to describe the units being displayed in your formula (thousands of US\$).

After you have typed in the names you prefer, click Enter. This will bring you back to the Type your Formula window, also known as the Computations window.

The variables you used in your formula are now displayed in lower half of the Computations window in the left column: Now, click on Select Vars or on the variable. You will return to the Full Variable/Parameter Selection window where you will select a variable. For our example, we have two variables. For the first variable, we would like to select the LIT.

After you have selected the LIT variable, you will be asked to choose a geographic location. For our example, make sure country/region is selected and choose ALL. After choosing your first variable, you will return to the Computations window. From there, choose your second variable, which will return you to the Full Variable/Parameter Selection window. From there, choose the POP variable for ALL counties/regions. Now, your formula of variables will be displayed in the Display Box.

Click on Display and choose a Line Graph. You can now display the absolute population in each country that is literate, a variable that is not directly available for display in IFs, but that is available after creating a formula of variables.

Save Formula in Analog Option: Click on this option to save your formula. This will bring up a warning that, if you want to firmly save changes, you will have to manually copy IFsVar.MDB from the local driver to the Data directory after exiting IFs.

Display Formula: Select this option to display the formula currently used.

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