Food and Agriculture Organization
of the United Nations

RuLIS User Guide

Customized Indicators

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1   Introduction

1.1   About Customized Indicators

This section of the RuLIS platform allows computing "customized" indicators interactively on the web, using variables from microdata, but without the need of accessing them. This facilitates the use of surveys whose microdata are not publicly disseminated. Users can compute indicators – different from those available in the other sections of the RuLIS platform -- and export results in CSV or XLS formats. The application is available under the "Custom Indicators" tab, on the left panel of the web portal page.

1.2   How to create a customized indicator

To create a customized indicator for the first time, please click on the "New Customized Indicator" button. This opens the page for creating indicators (Figure 1).

If you would like to combine saved customized indicators to a new customized indicator, please click on "Existing Customized Indicators" first and then on "Combine saved customized indicators" (Figure 2). Combined customized indicators are combinations of customized indicators (please refer to Section 2.4 for more details).

To open the custom indicator page and select the setting for creating a new indicator, click the "New customized indicator" tab.

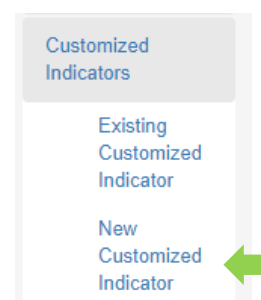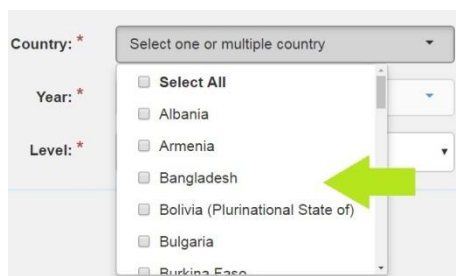*Figure 1. Create a customized indicator*

Figure 2. Combining saved customized indicators

Figure 3. Select country(s)

The next step is to select options given in the drop down menu on the page described below.

SELECT COUNTRY(S)
From the drop down menu, choose the country or countries for which the customized indicator will be computed. This field is obligatory.

Figure 4. Select year(s)

For each country selected, a set of the years with available microdata for computation of the indicator appears. Select any number of years (for example, for Armenia, microdata are available for 2010 and 2013). Either one year or both years can be selected. This field is obligatory.

Figure 5. Select data level

SELECT DATA LEVEL

Indicators can be computed from household- or individual-level data. The user can choose between either options.

After selecting the data level, a list of relevant variables appears. Some surveys also contain community-level data. Those data also appear in such cases, as an option together with the household- and individual-level data. This field is obligatory.

*Figure 6. Select function*

SELECT FUNCTION

The drop down menu shows a range of functions that can be used to aggregate the microdata variables (see the table below). This field is obligatory.

Table 1. Available functions in computing the customized indicators

Function	Description of the function
Sum	Summarizes all elements in the variable vector.
Max	Maximum value in the variable vector.
Min	Minimum value in the variable vector.
Avg	Simple average of the variable vector, missing observations excluded.
WAvg	Weighted average of the variable vector, missing observations excluded (household or individual weights applied, depending on the level of the data).
Median	Median value in the variable vector, missing observations excluded.
WMedian	Weighted median value in the variable vector, missing observations excluded (household or individual weights applied, depending on the level of the data).

After selecting any of the fields indicated above, additional functionalities open up for defining more features of the indicator that is being computed. The options available depend on the selected function.
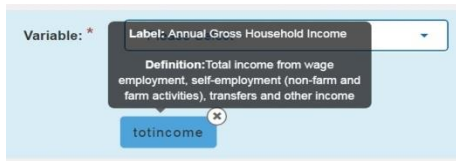
Figure 7. Selecting variables
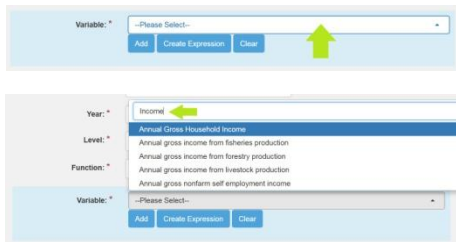
The next step is to select the variable from the drop down menu that is to be used to carry out the function, and then click "Add". This field is obligatory.

To search for variables in the drop-down menu, type a keyword in the top line of the drop down menu. For example, all variables with the word "income" in their description can be searched.
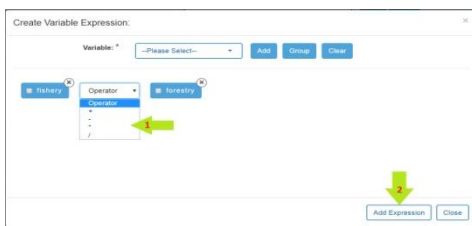
After selecting a variable and clicking the "Add" button, that variable appears in the line below, with a small ⊗. It can be removed from the selected list by clicking on that box. The platform allows users to select more than one variable.

When more than one variable is selected, the platform shows a box with the "Operator", which allows defining the mathematical operations to be performed on the two (or more) variables, such as addition, subtraction and element-by-element multiplication and division,

Combinations of initial variables can also be written in one-step by accessing the "Create expression" button. This enables users to work with more than one variable and to group them – that is, grouping them in parentheses.

As indicated, the selected variable appears in the line below by selecting one of the existing variables and clicking the "add" button. If two or more variables are added, the box with the set of operators appears between them, prompting the selection of the mathematical operation to be conducted using the variables. For example, to create a new income variable by aggregating fishery and forestry income, click the "Add expression" button at the bottom right corner.

To group variables in an expression (equivalent to adding brackets in a mathematical formula), click on the small box in the front of the variables of interest and then click the button "Group". To create a new variable, for example, the sum of forestry and fishery income per capita, income from fishery and forestry must be grouped together and then divided by household size. After adding the expression the user can always go back and modify original expression by clicking at the small pencil button next to ⊗.

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Figure 8. Selecting qualifiers
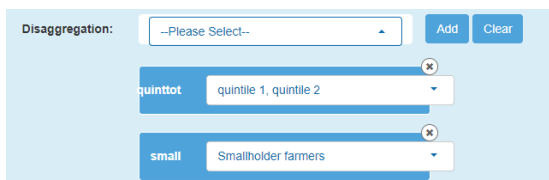
Figure 8. Selecting qualifiers

A list of standard RuLIS qualifiers is available under the "disaggregation"" section. By selecting one disaggregation group from the provided list and clicking the "Add" button, some or all of the disaggregation levels can be selected by opening the disaggregationlevels at the ⬒ button and checking the boxes in front of them. This field is not obligatory, and if nothing is chosen the data is not disaggregated by any qualifier, i.e. the indicator is computed at the national level.
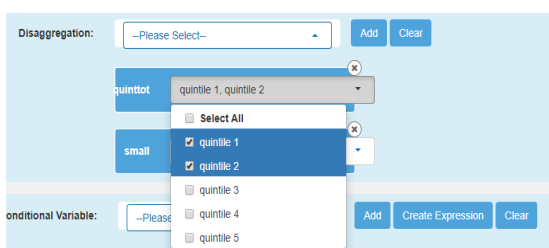
The platform allows for the selection of more than one disaggregation. If more than one disaggregation is selected at the same time, the platform assumes the logical operation "OR" within one qualifier. Thus, in the example on the left this means that we want to select all observations belonging to quintile 1 or quintile 2. Between two disaggregations, the platform assumes operation "AND", so in the same example if smallholder qualifier is selected, the platform will select observations belonging to first two quintiles and at the same time being smallholders.

SELECT A CONDITIONAL VARIABLE

Figure 9. Selecting a conditional variable (I)

Once variable(s) (or a combination thereof) are defined, the platform allows users to condition them to some other variable. This corresponds to computing the desired indicator from a sub-sample of the observations available for each variable (or a combination thereof). At this stage, any variable can be used as a condition. Qualifiers are in fact a specific set of conditional variables that are systematically used in the part of the platform that disseminates ready-made indicators. To use conditional variables, select the variable of interest from the drop down menu and click the "Add" button. Then, the fields operator box and an empty box appears next to the name of the variable for inserting the threshold value. This field is not mandatory, and if nothing is chosen, the indicator is computed from the whole sample, that is, at the national level.

Figure 10. Selecting a conditional variable (II)

Several conditions can be combined by selecting more than one conditional variables. For each condition added, an additional box appears for selecting either "AND" or "OR", to specify the logical operations between the conditions specified.

Also, in this case, conditional variables can be chosen among existing ones, or they can be defined as combinations of variables. Combinations can be set as simple expressions – addition, subtraction and element- by-element multiplication and division --or through the tab. This button defines a vector to be used as a condition. For example, the conditions can be used to make a subset of the sample (to create a smaller sample of the observations that satisfy a given condition. In this case, a specific conditional variable is defined as the sum of fishery and forestry incomes (please see above under the selecting variable session).

Finally, by clicking the button, results appear at the bottom of the page in in table format that can be exported to CSV or XLS formats (Figure 11).

Figure 11. Results table of customized indicators

Export to CSV   Export to XLS

Show 10 ▼ entries   Search: Search records

Country	Year	Result	Observations
Armenia	2010	613,328.76	651
Armenia	2013	767,608.35	407
Georgia	2013	2,522.48	1380
Georgia	2014	3,704.87	1481
Georgia	2015	3,497.61	1152

Showing 1 to 5 of 5 entries   Previous 1 Next

1.3   Error messages

When a computation of a custom indicator cannot be completed because, for example, a survey does not contain all the required data or there are no data that satisfy conditions inserted in the platform, a pop-up error message with a list of possible causes appears (Figure 12). Additionally, if an attempt is made to create a custom indicator without filling in all necessary data, a pop-up message reminds the user to fill in the missing information.

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Figure 12. Error message listing possible causes

Results for above made selections are: ✕

No Result Found
Some Possible Reasons could be:
1)One or more variables do not have values OR
2)No data exist to satisfy the condition.

Close

1.4   Saving the created custom indicator

Figure 13. Saving a created customized indicator

To save the customized indicator, please click on "Save Customized Indicator" at the bottom of the page. In the window that appears, enter the new indicator information, including its name, a short description and information on the author of the indicator (Figure 13).

Create Customized Indicator: ✕

Indicator Name: *

Indicator Description: *

Author: *

Institution: *

Save   Close
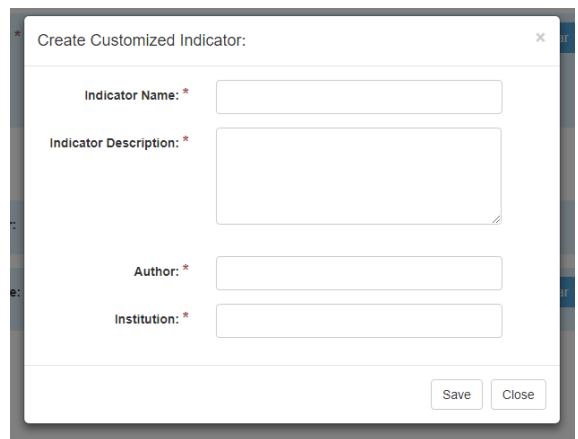
The saved indicator is stored in the "Existing Customized Indicators" tab. To view the setting of the indicator, click the 👁 button (Figure 14). To modify the initial setting and resave it under a new name, select "Copy Customized Indicator".

Figure 14. Modifying a customized indicator

Existing Customized Indicators

Show 10 ▾ entries   Search: Search Record

Id	Indicator Name	Indicator Description	Author	Institution	Created	Action
173	My new indicator	Describe your new custom indicator	My name	My work	19/12/2018 10:54:51 AM	👁

2 Examples

N.B. The numerical data in the figures below are purely coincidental therefore have only explanatory purpose.

Example 1 – Share of households with income from agriculture that exceeds 50 percent

"Households with income from agriculture equal to or greater than 30% of their total income, share of total households (%)" is a ready-made RuLIS indicator. For this indicator, 30 percent is an arbitrarily chosen threshold. To set a different threshold for this indicator, for example 50 percent, a new indicator needs to be created in the custom indicator section by choosing following settings:

SELECT COUNTRY(S), YEAR(S), LEVEL AND FUNCTION

After selecting the country and year for which the indicator is to be computed, select the household level of the data, and choose the "Count" function".

The count function is useful whenever a desired indicator is a share of a total sample or some selected subsample. In this example, it is necessary to determine the relative number of the households satisfying certain conditions in the total sample of the households.


SELECT CONDITIONAL VARIABLE

Under the field "Conditional variable" click the button ▢Create Expression This is required to set a condition value for the new variable, which is the share of the agricultural income in total household income.
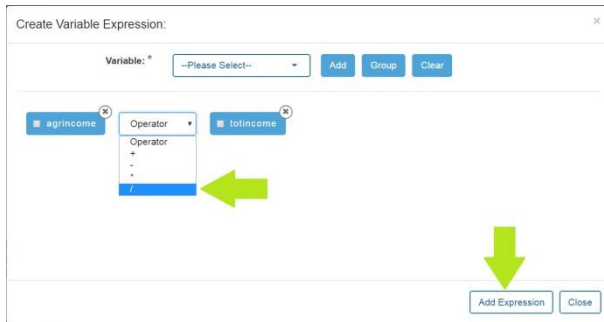
Select and add variables "Income from agriculture" and "Annual gross household income", and select the operator for division from the operator's list. This element-by-element operation and division results in the creation of a new vector, i.e. variable of share of agricultural income in total income for each household. After creating the expression, click the "Add Expression" button at the bottom right-hand side of the window.
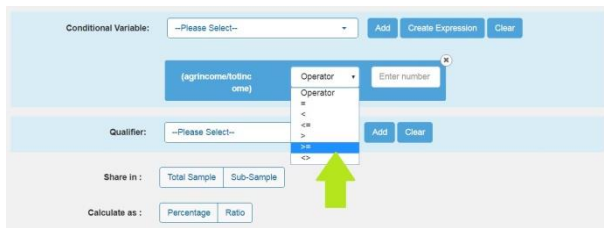
SET THE CONDITION

After adding expression, insert the threshold value in the [Enter number] field, and select the desired comparison operator (in this case >= is chosen).

DEFINE THE SAMPLE

The last part of this process is to define the part of the sample of indicator that is to be computed. To do this, it must be decided whether to compute the indicator as the percentage/ratio of the total sample or as some smaller subsample. To compute as a percentage of total sample, i.e. all households, click on the total sample. The results can be inquired either as a percentage or as a ratio. In this example, the preferred format of the numbers is percentage.

After clicking the "Result" button, the computed indicator is presented, as shown in Figure 15. For this example, the indicator is computed without setting any qualifiers, so the number displayed is for the national level. If qualifiers are selected, indicators are computed at the chosen disaggregated levels.

Figure15. Results of new customized indicator - example 1

2.1 Example 2 – Combining two dummies

The following is computed in this example: the share of households living in a dwelling with a non-dirt floor and a solid roof whose annual household income falls below a certain threshold is computed.

For this example, the country that we use is Malawi, 2013. We select household-level data, as dummies on dwelling conditions are household-level variables. The indicator representing the share of households at the national level is computed by using the weighted average function that uses (or applies) household weights when computing the average.

Under the variable section, the "Households with a non-dirt floor" and "Households with a solid roof" are selected. Those variables are then multiplied with each other to arrive at the new dummy of households with a non-dirt floor and a solid roof.

As this process involves computing the indicator only for households under certain income limits, the variable "Annual gross household income" under the conditional variable section is selected to set the threshold. For this example, it is necessary to compute the indicator only for households that have income below a certain amount (amount is in the local currency).

The final step for this example is to compute this indicator disaggregated by different types of households, selecting all levels of the "Household composition qualifier" The results for this indicator are shown in Figure 8.

2.2 Example 3 – Employment indicator with different age groups

In this example, the RuLIS indicator "Employment-to-population ratio" is recomputed using the age group 15-34 years instead of 15-24 years.

The sample is from Ecuador for the years 2006 and 2014. Individual-level data are used because employment is an individual-level variable. To compute the indicator to come with the percentage at the national level, a weighted average function that uses individual weights for the computation of the indicator is applied.

Under the variable section, "Employed" is selected and added.

"Individual age" is used as a condition variable to make a subset of individuals in the age group 15-35 years. The variable "Individual age" is added twice, first for individuals 15 years old or older and then for individuals 34 years old or younger. To attain the intersection of those two sets, the logical operator "AND" is used in the list of logical operators on the right-hand side of the page.

The results for Ecuador 2006 and 2014 are obtained by clicking the "Result" button, as shown in Figure 16.

Figure 15. Results of new customized indicator - example 3

2.3   Example 4 – Combined customized indicator

In addition to being able to create new custom indicators, two or more created customized indicators can be combined on this platform. In this example, the RuLIS ready-made indicator "Per capita income disparity between urban and rural areas, urban to rural ratio (real number)" is recreated using total income of households instead of per capita.

This feature is available at the "Existing Customized indicators" tab, by clicking at the "Combine saved customized indicators" button at the bottom of the existing customized indicators table.

To begin, we need to create "New Customized Indicator"; country and available years for that country are selected arbitrarily because the combined indicator section only uses a saved computation setting; the country and year is requested later in the process. Household-level data are used because the process involves computing (weighted) average of household income in urban areas, using the household-level variable, "Annual gross household income". The weighted average function is used because of interest in obtaining the nationally representative number.

Under the variable section, "Annual gross household income" is selected and added.

As the variable urban is already in the set of predefined disaggregations, the level "Urban" is selected in the disaggregation section. Otherwise, this average could be computed on any other subset defined under the "Conditional variable" section.

The "Result" button is then clicked and the "Save Customized Indicator" appears above the result table. Then, a window appears for inserting the basic information about the indicator that is being created. The basic information is then inserted and saved, and the new indicator appears in the list of existing custom indicators.

The same process is then carried out using the disaggregation "rural". The new custom indicator is saved under the new name and description.

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Create Customized Indicator:

Indicator Name: *	avg_inc_rural
Indicator Description: *	Weighted average of total income in rural areas
Author: *	My_name
Institution: *	My_work

Save   Close

Under the section "'Existing Customized Indicator'' by clicking on "Combine save customized indicator" country(s) and year(s) for which computations are to be performed are selected. Instead of a variable list, there is drop down menu called "Custom indicator" on which custom indicators to be combined are selected and added. In this example, the first selection is "avg_inc_urban" followed by "avg_inc_rural". The operator box between them appears to choose the operation to apply between the created customized indicators (Figure 17). It is important to note that the operation is between two indicators, i.e. two predefined numbers, two averages, and not variables.

Figure 16. Creating a new combined indicator

The results for this indicator for Ethiopia in 2014, as shown by clicking the "Result" button, are provided in Figure 18.

Figure 17. Results of a new combined customized indicator - example 4