Cameroon

EquityTool: Update released 01 November 2020
The EquityTool has been updated based upon new source data. The original version is no longer active but is available upon request.

Previous version Released 9 December 2015

Source data: [Cameroon DHS 2018](#)

# of survey questions in original wealth index: 41
# of variables in original index: 140

# of survey questions in EquityTool: 9
# of variables in EquityTool: 11

Questions:

	Question	Option 1	Option 2	Option 3
Q1	Does your household have... a television?	Yes	No	
Q2	... a cable/satellite subscription?	Yes	No	
Q3	... a refrigerator or freezer?	Yes	No	
Q4	... a blender/grinder?	Yes	No	
Q5	... a fan?	Yes	No	
Q6	Does any member of your household have a bank account?	Yes	No	
Q7	Does any member of your household have a watch?	Yes	No	
Q8	What type of cooking fuel does your household mainly use for cooking?	Liquefied petroleum gas (LPG)	Wood	Other cooking fuel

Q9	What kind of toilet facility do members of your household usually use? Is it shared?	Flush to septic tank, not shared with other households	Pit latrine without slab/open pit, not shared with other households	Other toilet facility

Technical notes:

The standard simplification process was applied to achieve high agreement with the original wealth index. Kappa was greater than 0.75 for the national and urban indices. Details on the standard process can be found in this article. The data used to identify important variables comes from the factor weights factor weights released by ICF.

Level of agreement:

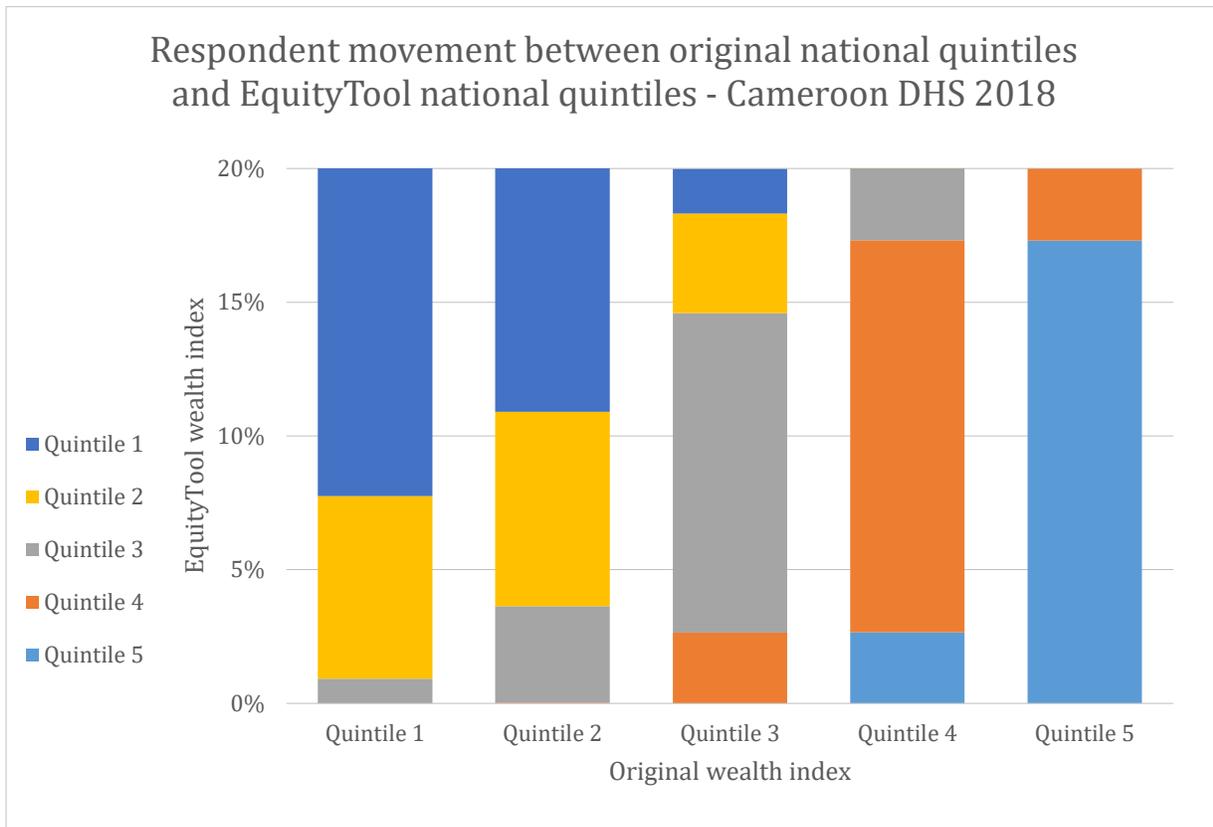|	National Population (n=11710)	Urban only population (n=6467)
% agreement	84.7%	84.3%
Kappa statistic	0.760	0.754

Respondents in the original dataset were divided into three groups for analysis – those in the 1st and 2nd quintiles (poorest 40%), those in the 3rd quintile, and those in the 4th and 5th quintiles (richest 40%). After calculating their wealth using the simplified index, they were again divided into the same three groups for analysis against the original data in the full DHS. Agreement between the original data and our simplified index is presented above.

What does this mean?

When shortening and simplifying the index to make it easier for programs to use to assess equity, it no longer matches the original index with 100% accuracy. At an aggregate level, this error is minimal, and this methodology was deemed acceptable for programmatic use by an expert panel. However, for any given individual, especially those already at a boundary between two quintiles, the quintile the EquityTool assigns them to may differ to their quintile according to the original DHS wealth index.

The graph below illustrates the difference between the EquityTool generated index and the full DHS wealth index. Among all of those people (20% of the population) originally identified as being in the poorest quintile, approximately 61.2% are still identified as being in the poorest quintile when we use the simplified index. However, approximately 34.1% of people are now classified as being in Quintile 2. From a practical standpoint, all of these people are relatively

poor. Yet, it is worthwhile to understand that the simplified index of 9 questions produces results that are not identical to using all 41 questions in the original survey.

Respondent movement between original national quintiles and EquityTool national quintiles - Cameroon DHS 2018
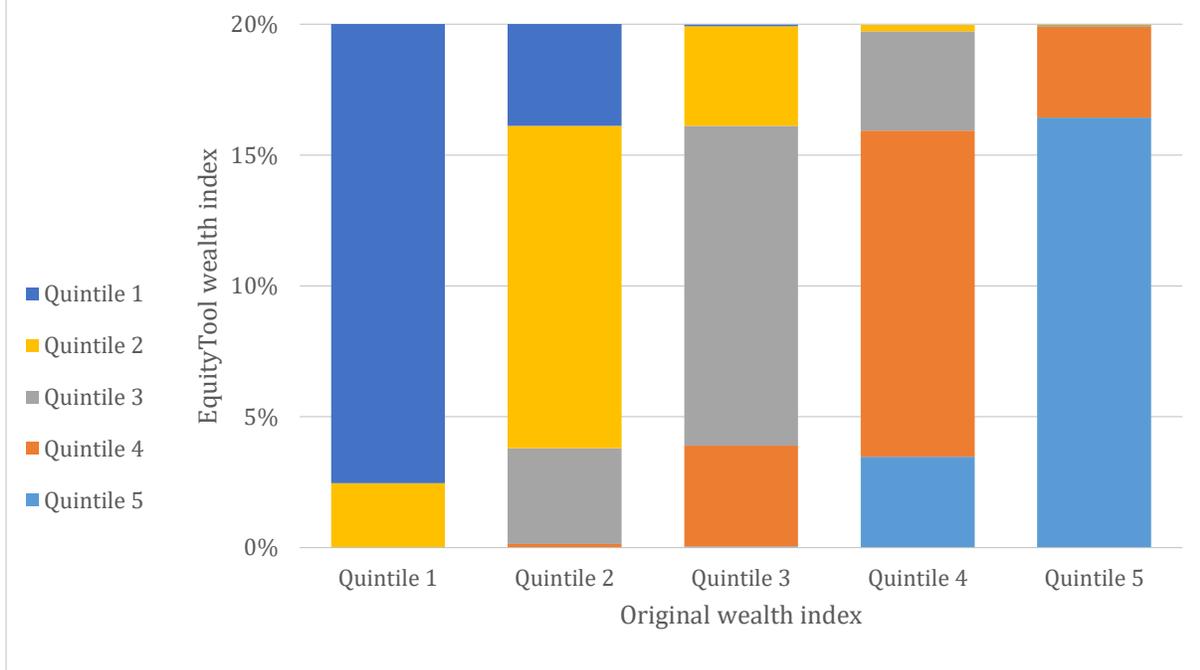
The following table provides the same information on the movement between national quintiles when using the EquityTool versus the original DHS wealth index:

		EquityTool National Quintiles					
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Original DHS National Quintiles	Quintile 1	12.24%	6.83%	0.93%	0.00%	0.00%	20%
	Quintile 2	9.11%	7.27%	3.61%	0.02%	0.00%	20%
	Quintile 3	1.67%	3.73%	11.94%	2.65%	0.00%	20%
	Quintile 4	0.00%	0.01%	2.67%	14.65%	2.66%	20%
	Quintile 5	0.00%	0.00%	0.01%	2.69%	17.30%	20%
	Total	23.02%	17.83%	19.17%	20.01%	19.96%	100%

The following graph provides information on the movement between urban quintiles when using the EquityTool versus the original DHS wealth index:

The following table provides the same information on the movement between urban quintiles when using the EquityTool versus the original DHS wealth index:

		EquityTool Urban Quintiles					
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Original DHS Urban Quintiles	Quintile 1	17.55%	2.45%	0.01%	0.00%	0.00%	20%
	Quintile 2	3.91%	12.32%	3.66%	0.14%	0.00%	20%
	Quintile 3	0.06%	3.80%	12.22%	3.85%	0.05%	20%
	Quintile 4	0.00%	0.24%	3.79%	12.47%	3.47%	20%
	Quintile 5	0.00%	0.03%	0.06%	3.47%	16.43%	20%
	Total	21.52%	18.85%	19.75%	19.93%	19.95%	100%

Data interpretation considerations:
1. This tool provides information on relative wealth – 'ranking' respondents within the national or urban population. The most recent available data from the WorldBank indicates that 37.5% of people in Cameroon live below $1.90/day[1]. This information can be used to put relative wealth into context.

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[1] From povertydata.worldbank.org, reporting Poverty headcount ratio at $1.90/day at 2011 international prices.

2. People who live in urban areas are more likely to be wealthy. In Cameroon, 37.3% of people living in urban areas are in the richest national quintile, compared to only 2.3% of those living in rural areas[2].
    a. If your population of interest is predominantly urban, we recommend you look at the urban results to understand how relatively wealthy or poor they are, in comparison to other urban dwellers.
    b. If the people you interviewed using the EquityTool live in rural areas, or a mix of urban and rural areas, we recommend using the national results to understand how relatively wealthy or poor they are, in comparison to the whole country.
3. Some regions in Cameroon are wealthier than others. It is important to understand the country context when interpreting your results.
4. In most cases, your population of interest is not expected to be equally distributed across the five wealth quintiles. For example, if your survey interviewed people exiting a shopping mall, you would probably expect most of them to be relatively wealthy.

Changes from the previous EquityTool

We released an EquityTool on 9 December 2015 which compared user data to a benchmark of 2011. A new source survey, the 2018 DHS was recently released, and allows us to benchmark results to a more recent population. This is important, because wealth generally increases over time, and comparing your respondents to an old benchmark population will lead to over-estimating the relatively wealthy in your survey. The new EquityTool was generated using the exact same methodology as the previous version, and in generating the new EquityTool, no attempt was made to account for the fact that a previous version existed. In other words, we did not explicitly try to keep the same questions or response options as the previous tool.

For those who have not previously conducted an EquityTool based study in Cameroon, the remainder of this section is not particularly relevant. For those who have used the previous EquityTool, you may be interested to know how the two versions compare.

	Previous	Current
Source Data	DHS 2011	DHS 2018
# of questions in EquityTool	9	9
# of questions in full wealth index	45	41
Kappa statistic (EquityTool vs full wealth Index) for 3 groups	National 0.770 Urban 0.776	National 0.760 Urban 0.754

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[2] From the Cameroon DHS 2018 final report, available at
https://dhsprogram.com/pubs/pdf/FR360/FR360.pdf

Practical considerations for users of the previous EquityTool

Comparing the results of surveys that used the previous EquityTool against those that use the current EquityTool is difficult. It will not always be clear whether any difference is because of actual differences in the wealth level of the respondents or because the EquityTool has changed.

The technical comparison section below, particularly the 3rd comparison, illustrates how quintile results compare when using the previous EquityTool and the current one. Generally, there is a partial shift down in quintiles when using a more recent EquityTool. In other words, the current EquityTool will usually put some respondents into a lower quintile than the previous one would.

It is generally best to use the current version of the EquityTool, since it will give more accurate quintile estimates. If you are currently collecting data, it is best to continue to use the previous tool. Note that if you have created a survey in the EquityTool web application using the previous EquityTool, that survey will continue to use the previous EquityTool.

If conducting a follow-up survey to a baseline that used the previous EquityTool, and the most important result is change from the baseline, it may be preferable to continue to use the previous EquityTool for comparability. If you need to do this, please contact us at support@equitytool.org.

**Technical comparison between the current and previous EquityTool**

All of the questions and response options for the previous EquityTool are found in the new source data (DHS 2018). This makes comparison between the two versions of the EquityTool, and two different data sources, easier.

The comparison will be assessed in 3 different ways, described below.

1. Using the same 9 questions and response options, and scoring system as in the previous EquityTool, with two different benchmark populations.

This analysis simulates results if the only thing which changes is the benchmark against which respondents are compared. In the 7 years between the two source data studies, there has not been a significant change in assets that are indicative of wealth. In the graph below, the previous EquityTool, derived from the 2011 DHS, is applied to the 2011 DHS data and the newer 2018 DHS data. In both 2011 and 2018, the proportion in the first quintile is higher than those in the other quintiles, especially the second quintile. This indicates that the 2011 EquityTool was weak at differentiating between quintile 1 and quintile 2. This difference declines slightly in 2018, from 35.9% in quintile 1 and 4.0% in quintile 2 to 32.0% in quintile 1 and 10.3% in quintile 2. This change indicates that there was some movement from quintile 1 to quintile 2 between 2011 and 2018, however the first two quintiles remain unbalanced. The proportion in

the three higher quintiles remain close to 20% from both surveys. Of the 11 variables in the updated EquityTool, seven were also in the 2011 EquityTool.

Comparing Populations in 2011 and 2018, using the 2011 EquityTool
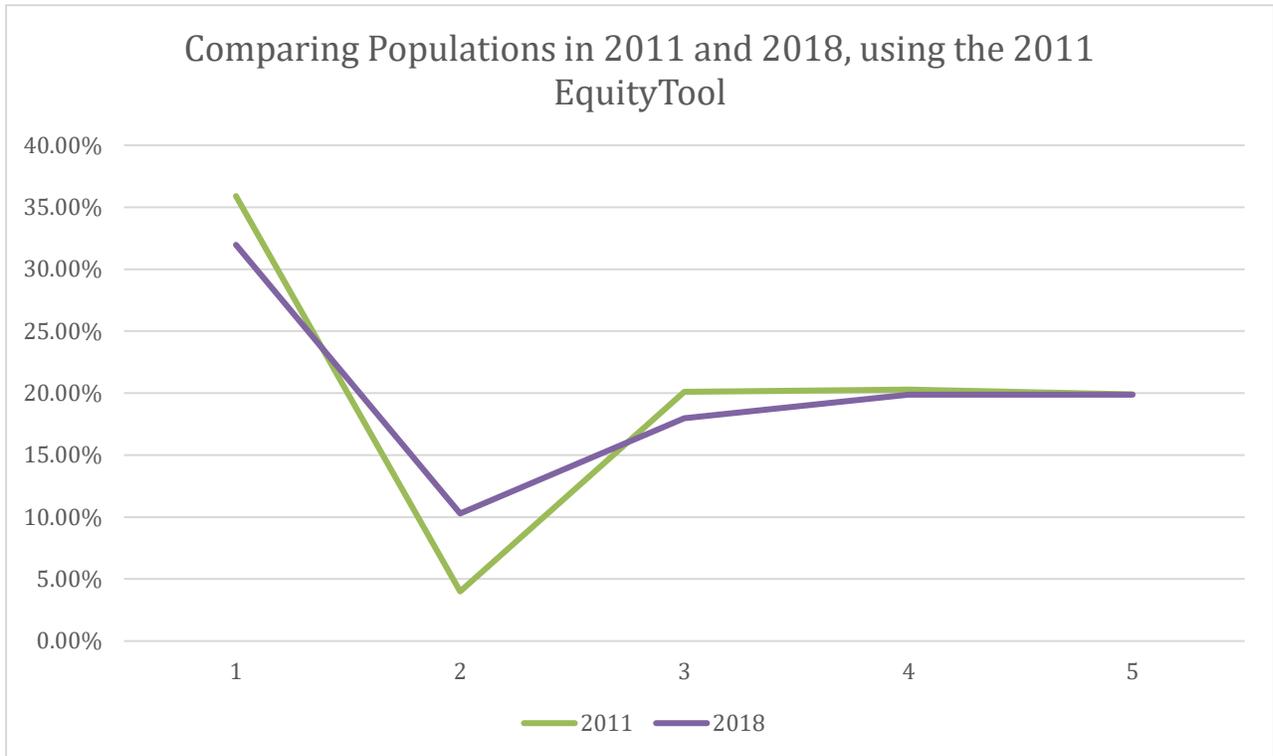
The distributions produced using the previous EquityTool and updated EquityTool categorize the same population into similar wealth quintiles, suggesting there would not be significant issues associated with continuing to use the previous tool.

2. Keeping the same 9 questions and response options as the previous EquityTool, but calculating scores based upon the 2018 data.

As an alternative, one might wish to use the same questions as the previous tool, but update the weighting. This seems reasonable, as the relative contribution of each asset towards overall wealth may have changed over time. Using new weights, but the same variables as the previous tool, we can see how well the resulting quintiles compare to the quintiles based on the full wealth index created by ICF.

The table below presents the agreement between the quintiles created from the full wealth index in the DHS 2018 dataset and the quintiles created by the previous EquityTool, the previous EquityTool variables with updated weighting, and the current EquityTool. As with the agreement statistics above, these figures are for the bottom 2 quintiles, middle quintile and top 2 quintiles.

	2011 EquityTool	2011 questions, 2018 scoring	2018 EquityTool
Agreement	88.1%	88.9%	84.7%
Kappa	0.813	0.826	0.760

The previous EquityTool has slightly better agreement with the full wealth index quintiles and all exceed our minimum kappa statistic of 0.75. Both tools have 9 questions, however the 2018 tool has 11 variables while the 2011 tool had 10 variables. Applying the updated weighting to the previous tool very slightly improves the agreement observed with the 2018 DHS data.

3. Comparing the previous nine questions and scores, and the new EquityTool (nine questions)

The table below shows how the previous and current EquityTool compare, using the same population. This is analogous to a comparison of the two versions of the EquityTool on the population you surveyed using our previous EquityTool.

Previous EquityTool Quintiles

		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Current EquityTool Quintiles	Quintile 1	17.50%	3.73%	1.79%	0.00%	0.00%	23%
	Quintile 2	11.84%	2.87%	3.12%	0.00%	0.00%	18%
	Quintile 3	2.63%	3.53%	10.00%	3.01%	0.00%	19%
	Quintile 4	0.00%	0.16%	3.06%	14.45%	2.34%	20%
	Quintile 5	0.00%	0.00%	0.00%	2.42%	17.54%	20%
	Total	32%	10%	18%	20%	20%	100%

The rightmost column indicates that the current EquityTool divides the population fairly evenly into 5 groups, thought slightly more people are assigned to quintile 1 than to the other groups. The bottom row shows that using the older EquityTool does not divide the population into roughly equal quintiles – it puts more people into Quintile 1 than Quintile 2. The cells within the table indicate how respondents are categorized, if measured using the two different tools. Of those who are categorized as quintile 1 using the current tool, 76% of them would have been considered in the poorest quintile in the previous tool (see the first row). Similarly, for those currently categorized as in the third quintile, 16% would have previously been categorized as being in the fourth quintile. If you had used the previous EquityTool, you can expect that with the

current version, your respondents will look very slightly more poor, but this difference is not likely to be programmatically significant, assuming that populations in Quintiles 1 and 2 are equally of interest.

Metrics for Management provides technical assistance services to those using the EquityTool, or wanting to collect data on the wealth of their program beneficiaries. Please contact support@equitytool.org and we will assist you.

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[1] From povertydata.worldbank.org, reporting Poverty headcount ratio at $1.90/day at 2011 international prices.
[2] From the Cameroon DHS 2018 household recode, available at https://www.dhsprogram.com/data/available-datasets.cfm

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