

Nepal

EquityTool: Update released January 25, 2018

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 The original version is no longer active but is available upon request.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 December 9, 2015

Source data: [Nepal DHS 2016](#)

of survey questions in full wealth index: 42

of variables in full index: 128

of survey questions in EquityTool: 8

of variables in EquityTool: 9



Questions:

	Question	Option 1	Option 2	Option 3
Q1	Does your household have... a television?	Yes	No	
Q2	... a cupboard?	Yes	No	
Q3	... a table?	Yes	No	
Q4	... a fan?	Yes	No	
Q5	What is the main material of the floor of your dwelling?	Earth/Sand	Other	
Q6	What is the main material of the exterior walls of your dwelling?	Cement	Other	
Q7	What is the main material of the	Cement	Other	

Q8	roof of your dwelling? What type of fuel does your household mainly use for cooking?	LPG	Wood	Other
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Technical notes:

To create the EquityTool, we simplify the original, full wealth index that is found in the relevant DHS dataset, using the factor weights published by ICF. In the case of the Nepal 2016 DHS dataset, those factor weights were not available to us at the time we created the EquityTool. Therefore, the full wealth index was recreated, using a process in line with [guidance from ICF](#). We used the factor weights derived from this recreated wealth index to identify important variables, and as the basis for scoring in our EquityTool analysis.

From there, 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](#).

Level of agreement:

	National Population (n =11,040)	Urban only population (n = 6,978)
% agreement	85.7%	87.3%
Kappa statistic	0.78	0.81

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.

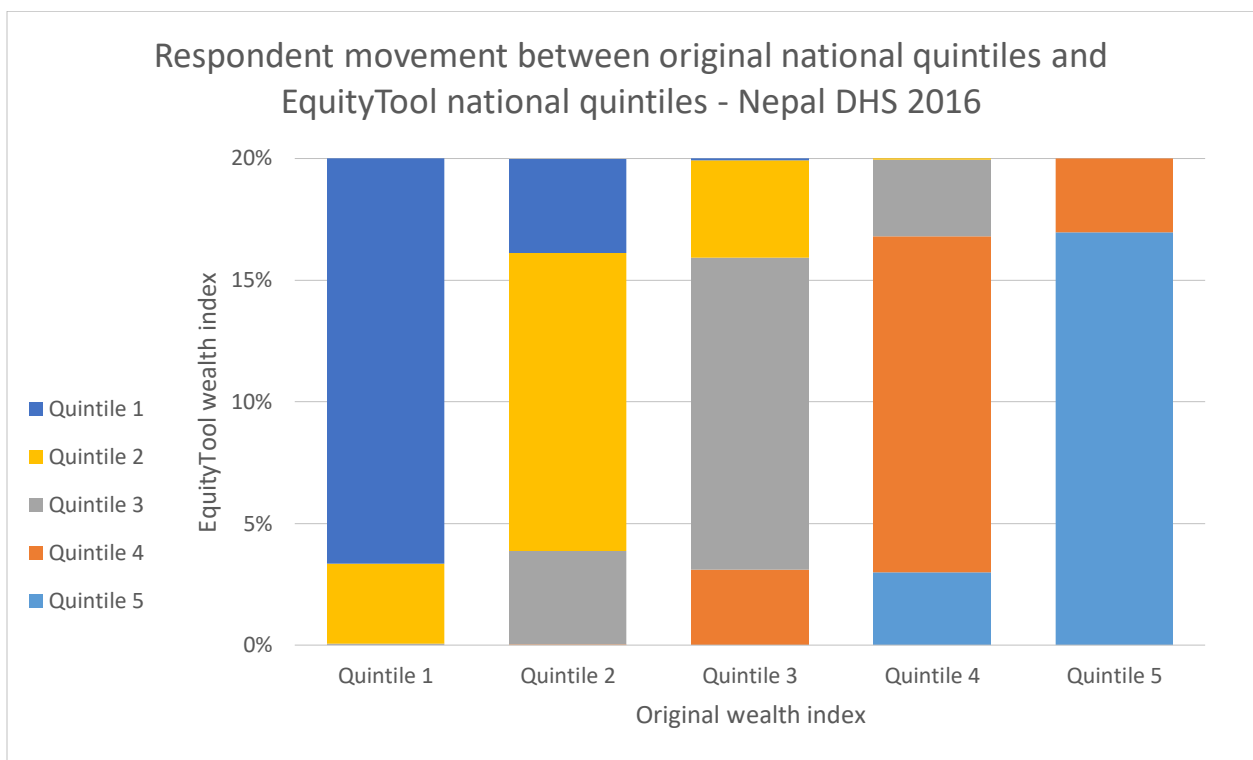
What does this mean?

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 16.6% are still identified as being in the poorest quintile when we use the simplified index. However, approximately 3.9% 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 8 questions produces results that are not identical to using all 42 questions in the original survey.

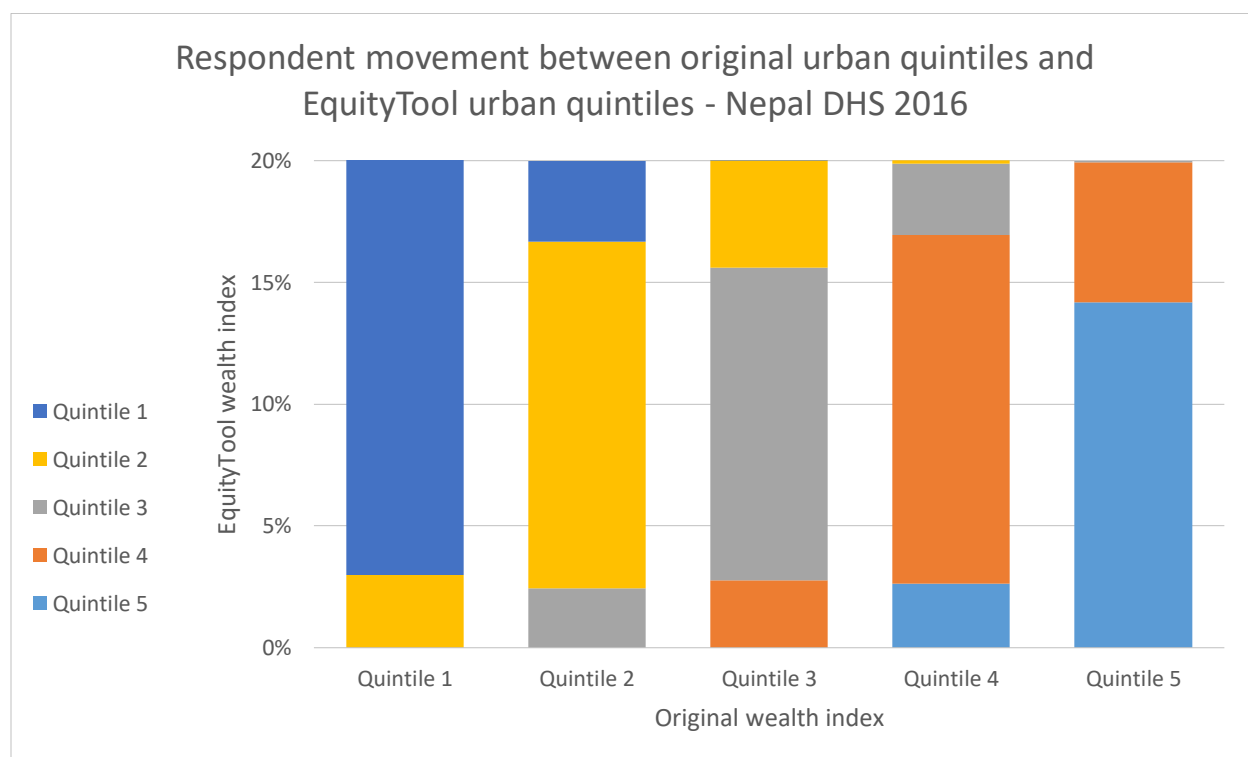


The following table provides the same information on the movement between national quintiles when using the EquityTool versus the original DHS wealth index:



		EquityTool National Quintiles					
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Original DHS National Quintiles	Quintile 1	16.6%	3.3%	0.1%	0.0%	0.0%	20%
	Quintile 2	3.9%	12.3%	3.8%	0.0%	0.0%	20%
	Quintile 3	0.1%	4.0%	12.8%	3.1%	0.0%	20%
	Quintile 4	0.0%	0.1%	3.2%	13.8%	3.0%	20%
	Quintile 5	0.0%	0.0%	0.0%	3.0%	17.0%	20%
	Total	20.6%	19.6%	19.9%	20.0%	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	17.0%	3.0%	0.0%	0.0%	0.0%	20%
	Quintile 2	3.3%	14.25%	2.4%	0.0%	0.0%	20%
	Quintile 3	0.0%	4.4%	12.8%	2.8%	0.0%	20%
	Quintile 4	0.0%	0.1%	2.9%	14.3%	2.6%	20%
	Quintile 5	0.0%	0.0%	0.0%	5.7%	14.2%	20%
	Total	20.3%	21.8%	18.2%	22.9%	16.8%	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 15% of people in Nepal live below \$1.90/day¹This information can be used to put relative wealth into context.
2. People who live in urban areas are more likely to be wealthy. In Nepal, 24.5% of people living in urban areas are in the richest national quintile, compared to only 4.2% of those living in rural areas²
 - 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 districts in Nepal 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 December 9, 2015 which compared user data to a benchmark of 2011. A new source survey, the Nepal DHS 2016 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 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 Nepal, 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 2016
# of questions in EquityTool	10	8
# of questions in full wealth index	45	42
Kappa statistic (EquityTool vs full wealth Index) for 3 groups	National: 0.79 Urban: 0.75	National: 0.78 Urban: 0.81

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 a 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

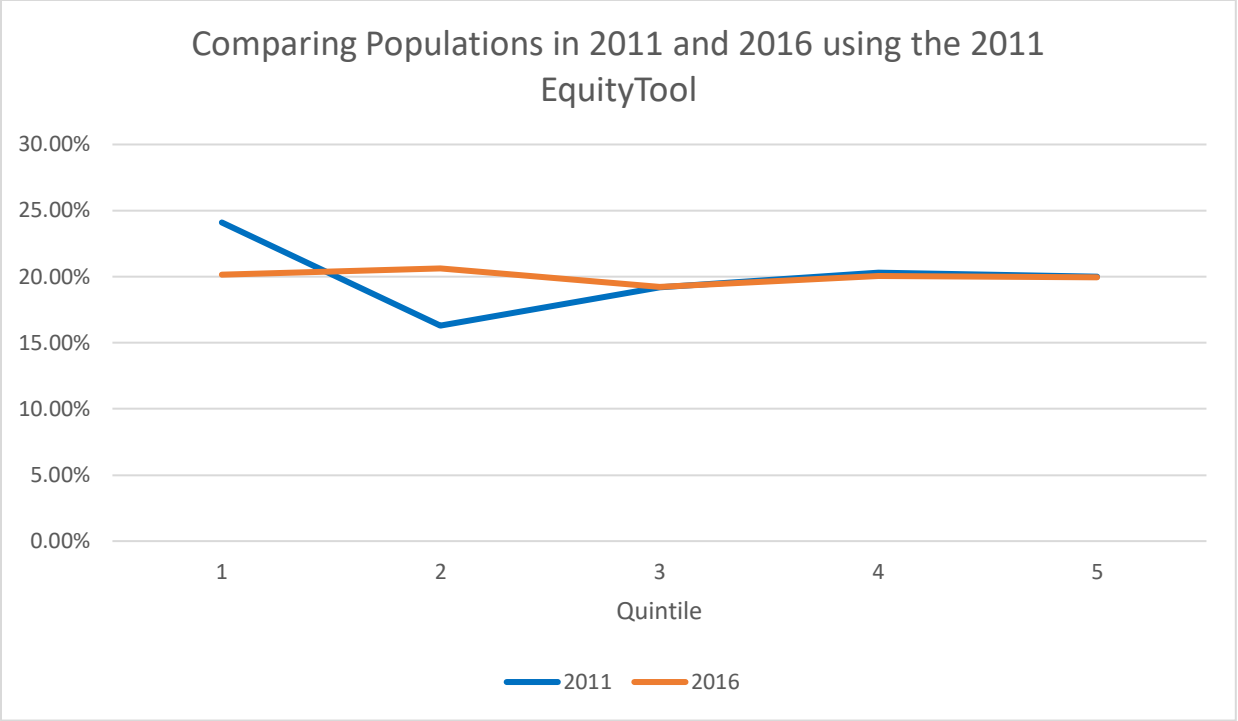
All of the questions and response options for the previous EquityTool are found in the new source data (DHS 2016). Additionally, in the case of Nepal, all of the questions included in the 2016 EquityTool also exist in the previous (2011) EquityTool. This makes comparison between the two versions of the EquityTool, and two different data sources, easier.

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

1. Using the same 10 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 5 years between the two source data studies, more people have acquired 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 to the newer 2016 DHS data. In 2011, the proportion of households in each of the 5 quintiles is very close to 20%. The discrepancy seen is due to the use of a shorter questionnaire than used by the DHS survey originally. However, when applied to the 2016 population, the previous tool distributes households more evenly across the 5 quintiles. This occurs because the 2011 EquityTool contains all of the variables that were deemed important to wealth in the 2016 DHS in the current EquityTool analysis, plus additional questions. In the case of Nepal, although the population may have gotten more wealthy, the assets that are most indicative of wealth haven't much changed.





Typically, we do not use the previous questions and weights, because over time, populations become wealthier. Thus, comparing your respondents to this skewed distribution becomes challenging.

2. Keeping the same 10 questions and response options as the previous EquityTool, but calculating scores based upon the 2016 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 2016 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, 2016 scoring	2016 EquityTool
# of questions	10	10	8
Agreement	86.6%	86.7%	85.7%
Kappa	0.79	0.79	0.78

In Nepal, where neither wealth nor the variables indicative of wealth have much changed, the previous tool performs well because it is a longer questionnaire, and contains more variables that predict wealth. The 2011 and 2016 EquityTools give similar results, and even the 2011 EquityTool would likely produce a good assessment of a current respondent pool's wealth distribution.

3. Comparing the previous 10 questions and scores, and the new EquityTool (8 questions)

As illustrated above, although all of the questions in the previous EquityTool are found in the current EquityTool, we found that 10 was more questions than we needed to accurately predict wealth.

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					Total
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	
Current EquityTool Quintiles	Quintile 1	20.2%	0.5%	0.0%	0.0%	0.0%	20.6%
	Quintile 2	0.0%	18.5%	1.1%	0.0%	0.0%	19.6%
	Quintile 3	0.0%	1.7%	17.4%	0.8%	0.0%	19.9%
	Quintile 4	0.0%	0.0%	0.7%	18.4%	0.8%	20.0%
	Quintile 5	0.0%	0.0%	0.0%	0.8%	19.1%	20.0%
	Total	20.2%	20.6%	19.2%	20.1%	19.9%	100%



The current and the previous EquityTool both do a good job of evenly dividing the population into 5 wealth quintiles. In fact, nearly all of the respondents in the 2016 DHS dataset are categorized into the same wealth quintile by both versions of the EquityTool. 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, nearly all 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, only a small proportion 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' wealth will look quite similar. The benefit of the current EquityTool is its reduced length, and updated benchmark population.

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.

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

[2] From the Nepal 2016 DHS dataset household recode, available at <http://dhsprogram.com>

