India

EquityTool: Released March 30, 2019

Source data: India NFHS4 2016

# of survey questions in original wealth index: 43
# of variables in original index: 137

# of survey questions in EquityTool: 12
# of variables in EquityTool: 12

Questions:

	Question	Option 1	Option 2
Q1	Does your household have: … A pressure cooker?	Yes	No
Q2	… A colour television?	Yes	No
Q3	… A refrigerator?	Yes	No
Q4	… A table?	Yes	No
Q5	… A washing machine?	Yes	No
Q6	… A sewing machine?	Yes	No
Q7	… An air conditioner/ cooler?	Yes	No
Q8	… A mattress?	Yes	No
Q9	… A motorcycle/scooter?	Yes	No
Q10	What is the main material of the roof of your home?	RCC / RBC / Cement / Concrete	Other

Q11	What type of fuel does your household mainly use for cooking?	LPG/ Natural Gas	Other
Q12	What kind of toilet facility do members of your household usually use?	No facility/ Uses open space or field	Other

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 released by ICF. For Question 12, other toilet facility refers to any type of flush toilet or pit latrine, or a composting or dry toilet.

Level of agreement:

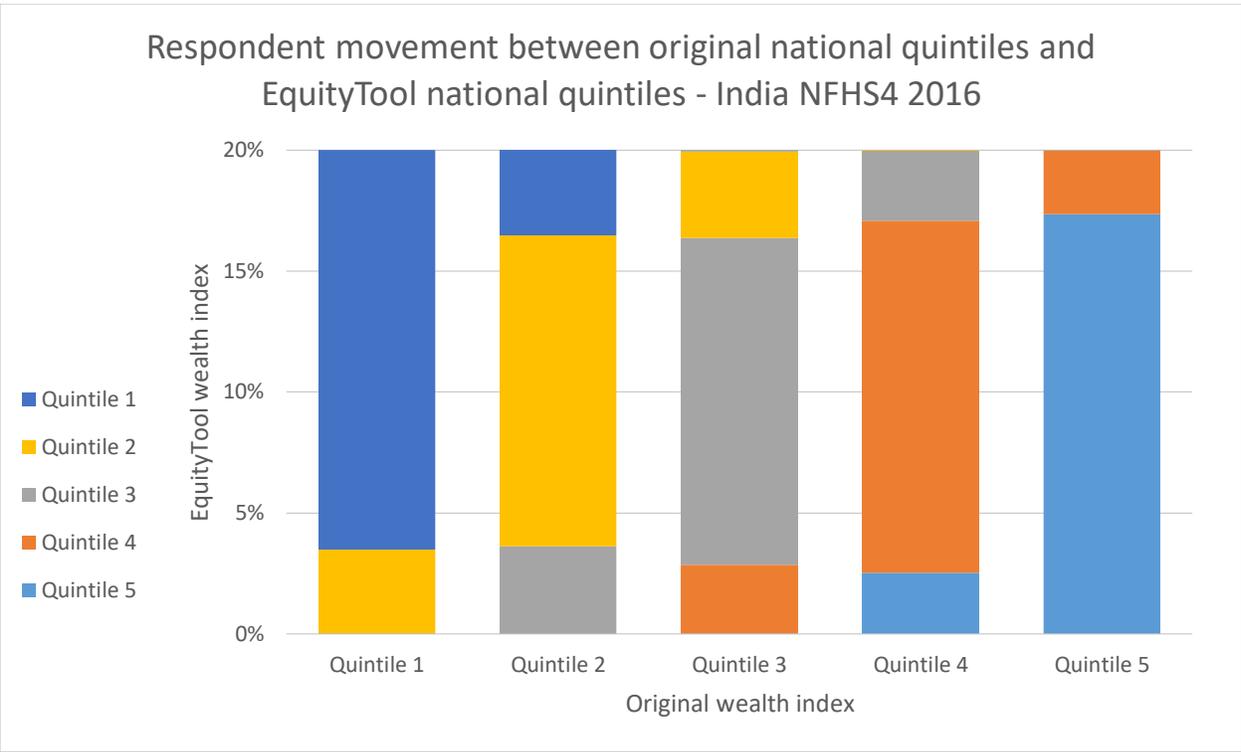|	National Population (n=601,509)	Urban only population (n=175,946)
% agreement	87.0%	84.2%
Kappa statistic	0.796	0.753

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 16.5% are still identified as being in the poorest quintile when we use the simplified index. However, approximately 3.5% 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 12 questions produces results that are not identical to using all 43 questions in the original survey.

Respondent movement between original national quintiles and EquityTool national quintiles - India NFHS4 2016

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	16.5%	3.5%	0.0%	0.0%	0.0%	20%
	Quintile 2	3.5%	12.9%	3.6%	0.0%	0.0%	20%
	Quintile 3	0.0%	3.6%	13.5%	2.9%	0.0%	20%
	Quintile 4	0.0%	0.0%	2.9%	14.6%	2.5%	20%
	Quintile 5	0.0%	0.0%	0.0%	2.6%	17.4%	20%
	Total	20.1%	19.9%	20.0%	20.1%	19.9%	100%

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

Respondent movement between original urban quintiles and EquityTool urban quintiles - India NFHS4 2016
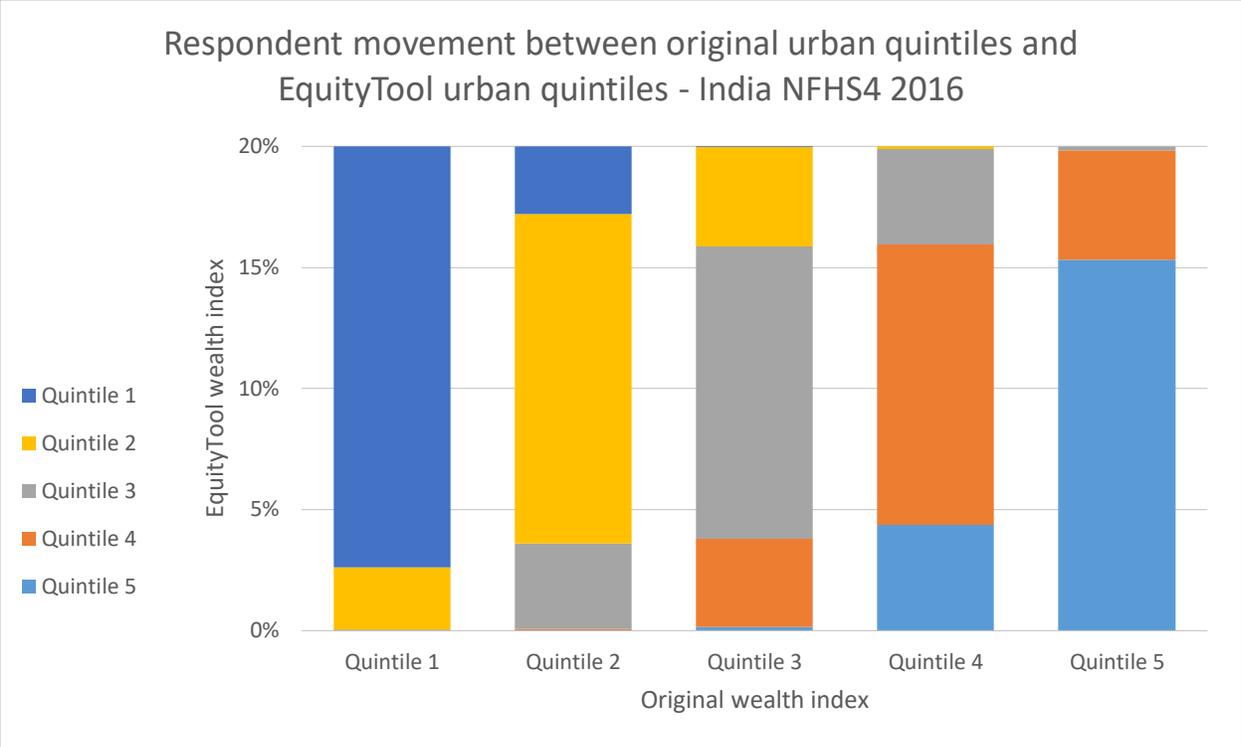
The following table provides the same information on the movement between urban quintiles when using the EquityTool versus the original DHS wealth index:

		EquityTool Urban Quintiles					
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Original DHS Urban Quintiles	Quintile 1	17.4%	2.6%	0.0%	0.0%	0.0%	20%
	Quintile 2	2.8%	13.6%	3.5%	0.1%	0.0%	20%
	Quintile 3	0.0%	4.1%	12.1%	3.6%	0.2%	20%
	Quintile 4	0.0%	0.1%	3.9%	11.6%	4.4%	20%
	Quintile 5	0.0%	0.0%	0.2%	4.5%	15.3%	20%
	Total	20.2%	20.4%	19.7%	19.8%	19.9%	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 21.2% of people in India live below $1.90/day[1]. This information can be used to put relative wealth into context.

2. People who live in urban areas are more likely to be wealthy. In India, 44.4% of people living in urban areas are in the richest national quintile, compared to only 7.9% 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 states in India 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 October 30, 2017 which compared user data to a benchmark from 2012. A new source survey, the 2016 NFHS4, was recently released and allows us to benchmark 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. Typically, we use data from the Demographic and Health Survey (DHS) or from UNICEF's Multiple Indicator Cluster Survey (MICS) to create each of our EquityTools. In creating the previous EquityTool for India, an exception was made to use an alternative data source – the India Human Development Survey II 2012—because no other recent data source was available.

For those who have not previously conducted an EquityTool based study in India, the remainder of this factsheet is not particularly relevant. For those who have used the previous EquityTool, you may be interested in the following practical considerations.

---

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

[2] From the [citation] dataset household recode, available at http://dhsprogram.com/

	Previous EquityTool	Current EquityTool
Source Data	IHDS II 2012	NFHS4 2016
Sample Size	42,152	601,509
# of questions in EquityTool	11	12
# of questions in full wealth index	51	43
Wealth Index Construction	Generated using DHS methodology	Available in source dataset
Kappa statistic (EquityTool vs full wealth index) for 3 groups	National: 0.779 Urban: 0.752	National: 0.796 Urban: 0.753

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.

Generally, people appear relatively less wealthy 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.

We recommend using the current version of the EquityTool because it will give a more accurate wealth estimate; however, 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 work.

If conducting a follow-up survey to a baseline that used the previous EquityTool, and the most important result is change from 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.

Unfortunately, differences in the questionnaire design for the two source datasets – the 2012 IHDS II and the 2016 India NFHS4—limit the utility of more detailed technical comparisons between the current and previous EquityTool, so we do not offer them here.

Detailed technical comparisons between the first version of the India EquityTool (benchmarked to the 2005-06 India NFHS3) and the current version of the EquityTool (2016 India NFHS4) are available upon request.

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.