Mali

EquityTool: Released July 2, 2019

Source data: [Mali MICS 2015](#)

# of survey questions in original wealth index: 61
# of variables in original index: 144

# of survey questions in EquityTool: 19
# of variables in EquityTool: 22

Questions:

	Question	Option 1	Option 2	Option 3
Q1	In your house, do you have… electricity?	Yes	No	
Q2	… a television?	Yes	No	
Q3	… a bed?	Yes	No	
Q4	… a fan?	Yes	No	
Q5	… a cupboard	Yes	No	
Q6	… a CD/DVD player?	Yes	No	
Q7	… a refrigerator?	Yes	No	
Q8	… a chair?	Yes	No	
Q9	… a motorcycle or scooter?	Yes	No	
Q10	In your house, do you have soap, washing powder, or ash/sand/dirt for washing your hands?	Yes	No	
Q11	Does any member of this household have a bank account?	Yes	No	

Q12	Where is your principal source of drinking water located?	Outside of the plot, but less than 30 minutes round-trip	Within the plot, OR more than 30 minutes	
Q13	Main material of exterior walls of the house?	Brick	Other	
Q14	Main material of roof of house?	Cement	Mud with wood	Other
Q15	Main material of floor of house?	Earth/sand floor	Ceramic tile floor	Other
Q16	In your house, what is the main fuel used for cooking?	Charcoal	Wood	Other
Q17	Does your household own…. Any pigs?	No	Yes	
Q18	… Any camels or dromedaries?	No	Yes	
Q19	… Any Guinea fowl, ducks, turkeys or geese	No	Yes	

Technical notes:
We were unable to achieve agreement of kappa>=0.75 between the original MICS wealth index and a simplified index using our standard simplification process, detailed in this article. Using a revised approach, described below, high agreement (kappa>=0.75 for both urban and national indices) was achieved.

To create the EquityTool, we simplify the original full wealth index that is found in the relevant benchmark dataset, usually using published factor weights. In the case of MICS data, the factor weights are not publicly available, however UNICEF has shared the original syntax files used to create wealth indices with us. We attempted to recreate the original wealth index, following the original syntax files. In this process, we discovered inconsistencies in the provided files, deviating from the stated logic. These inconsistencies were found in two important areas of the wealth index creation: in the creation of 3 variables which form part of the original wealth index, and in the decisions made during principal components analysis on exclusion of variables. We therefore recreated the full wealth index 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. Syntax and factor weights available upon request.

In our standard process, we prioritize variables which appear in the common principal components analysis, indicative of wealth irrespective of urban or rural residence. In the Mali EquityTool, this approach did not result in a simple index, and we included animal ownership in order to better differentiate wealth among urban residents. Only 26% of urban dwellers own

any farm animal, however animal ownership is more common among poorer residents. Inclusion of these variables improved identification of those who are relatively less wealthy.

The 2015 MICS survey in Mali was conducted in all regions of the country, with the exception of 28 enumeration areas within the regions of Timbuktu and Gao.

Level of agreement:

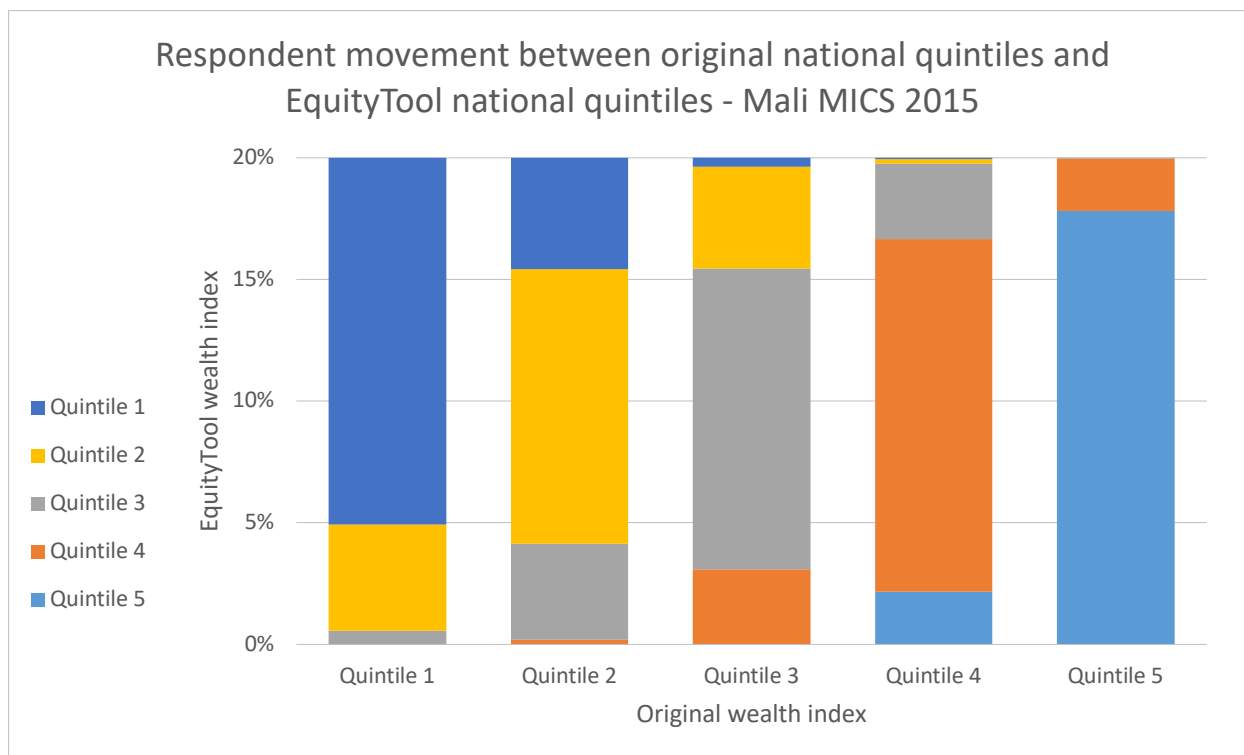|	National Population (n=11830)	Urban only population (n=3390)
% agreement	84.3%	84.1%
Kappa statistic	0.755	0.752

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 MICS survey. 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 wealth index.

The graph below illustrates the difference between the EquityTool generated index and the full wealth index. Among all of those people (20% of the population) originally identified as being in the poorest quintile, approximately 75% are still identified as being in the poorest quintile when we use the simplified index. However, approximately 21% 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 19 questions produces results that are not identical to using all 61 questions in the original survey.

Respondent movement between original national quintiles and EquityTool national quintiles - Mali MICS 2015

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

		EquityTool National Quintiles					
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Original National Quintiles	Quintile 1	15.07%	4.38%	0.54%	0.01%	0.00%	20.01%
	Quintile 2	4.57%	11.30%	3.95%	0.18%	0.00%	20.00%
	Quintile 3	0.37%	4.17%	12.38%	3.06%	0.02%	20.01%
	Quintile 4	0.04%	0.19%	3.11%	14.50%	2.16%	20.00%
	Quintile 5	0.00%	0.00%	0.02%	2.15%	17.81%	19.98%
	Total	20.06%	20.05%	20.00%	19.90%	20.00%	100.00%

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

Respondent movement between original urban quintiles and EquityTool urban quintiles - Mali MICS 2015
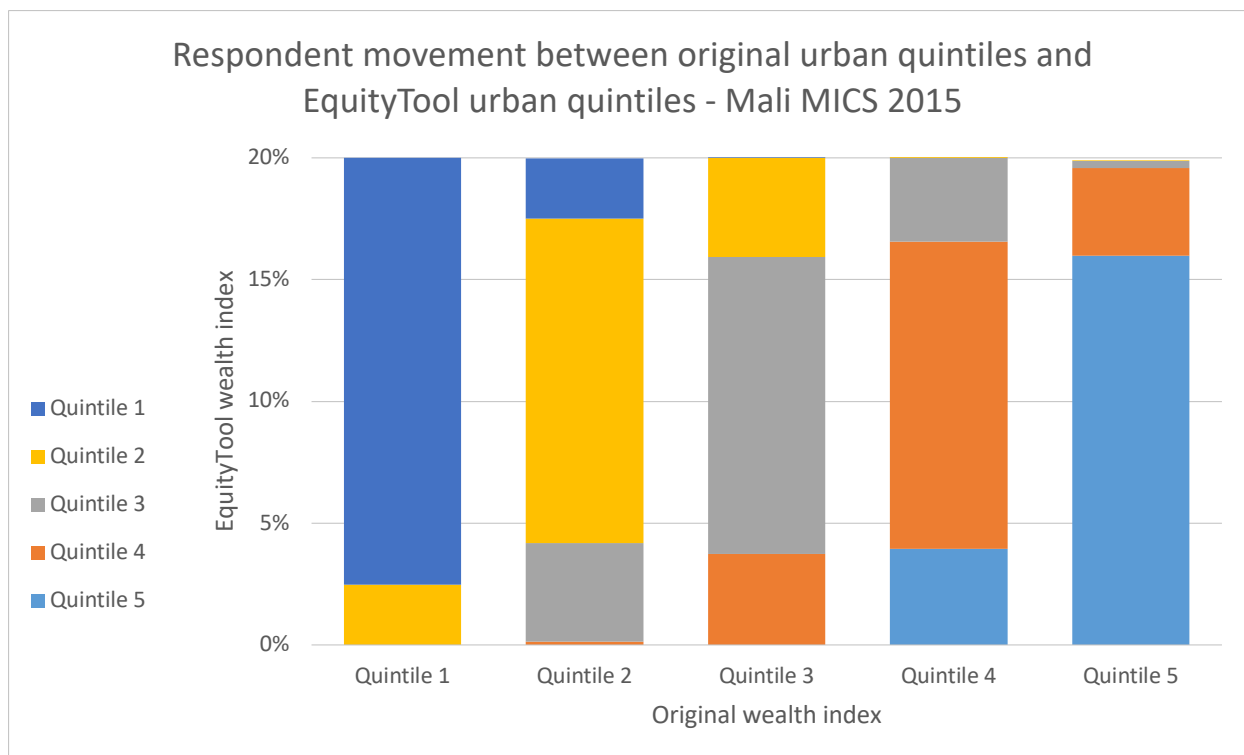
The following table provides the same information on the movement between urban quintiles when using the EquityTool versus the original wealth index:

		EquityTool Urban Quintiles					
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Original Urban Quintiles	Quintile 1	17.54%	2.47%	0.00%	0.00%	0.00%	20.01%
	Quintile 2	2.47%	13.34%	4.06%	0.12%	0.00%	19.99%
	Quintile 3	0.01%	4.07%	12.19%	3.74%	0.00%	20.01%
	Quintile 4	0.00%	0.10%	3.44%	12.60%	3.96%	20.10%
	Quintile 5	0.00%	0.02%	0.30%	3.58%	15.99%	19.90%
	Total	20.02%	20.01%	19.98%	20.04%	19.95%	100.00%

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 50% of people in Mali 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 2015, 65% of people living in urban areas were in the richest national quintile, compared to only 7.8% 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 "cercles" in Mali 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.

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 Mali MICS 2015 Final Report, available from www.mics.unicef.org/surveys