

Uttar Pradesh, India



EquityTool: Released December 8, 2021

Source data: [India NFHS4 2015-2016](#)

of survey questions in original wealth index: 43

of variables in original index: 137

of survey questions in EquityTool: 11

of variables in EquityTool: 11



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 | ... An airconditioner /cooler? | Yes | No |
| Q7 | ... An electric fan? | Yes | No |
| Q8 | ... A motorcycle or scooter? | Yes | No |
| Q9 | What is the main material of the roof of your home? | RCC/RBC/Cement/Concrete | Other |
| Q10 | What type of fuel does your household mainly use for cooking? | LPG/Natural Gas | Other |
| Q11 | What kind of toilet facility do members of your household usually use? | No facility / Uses open space or field | Other |

Technical notes:

This EquityTool is unique, in that we have created a measure of the relative wealth of residents of one state in India. Given the sample sizes in the NFHS-4 study, this was possible to do using our standard process. The NFHS-4 dataset provides the relative wealth of residents in each state, in addition to a national wealth index. The standard simplification process was applied to achieve high agreement with the original wealth index. Kappa was greater than 0.75 for the state wide and urban indices. To improve the ability to differentiate between the wealthiest residents in urban areas, 2 additional variables were added. 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.

Using the same factor weights and process used to create the India national EquityTool is our preferred method for producing state-level EquityTools because it is the most replicable. For comparison, we also created the state-level EquityTool by conducting principal component analysis for Uttar Pradesh and using the resulting factor weights. However, we found that this process did not lead to EquityTools with significantly higher agreement with the full wealth index, and it was less replicable than using national weights.

Finally, we compared the EquityTool created for Uttar Pradesh with the EquityTool we created for India. Using the originally created India tool to determine the relative wealth of UP residents performs similarly to the tool created specifically for the state. If a user had already collected data using the India EquityTool, for residents of UP, the only difference in analysis is the cut-points for the wealth quintiles. Metrics for Management can provide this information upon request.

Level of agreement:

| | State Population (n=76,233) | Urban only population (n=20,380) |
|-----------------|--------------------------------|-------------------------------------|
| % agreement | 87.0% | 84.8% |
| Kappa statistic | 0.796 | 0.761 |

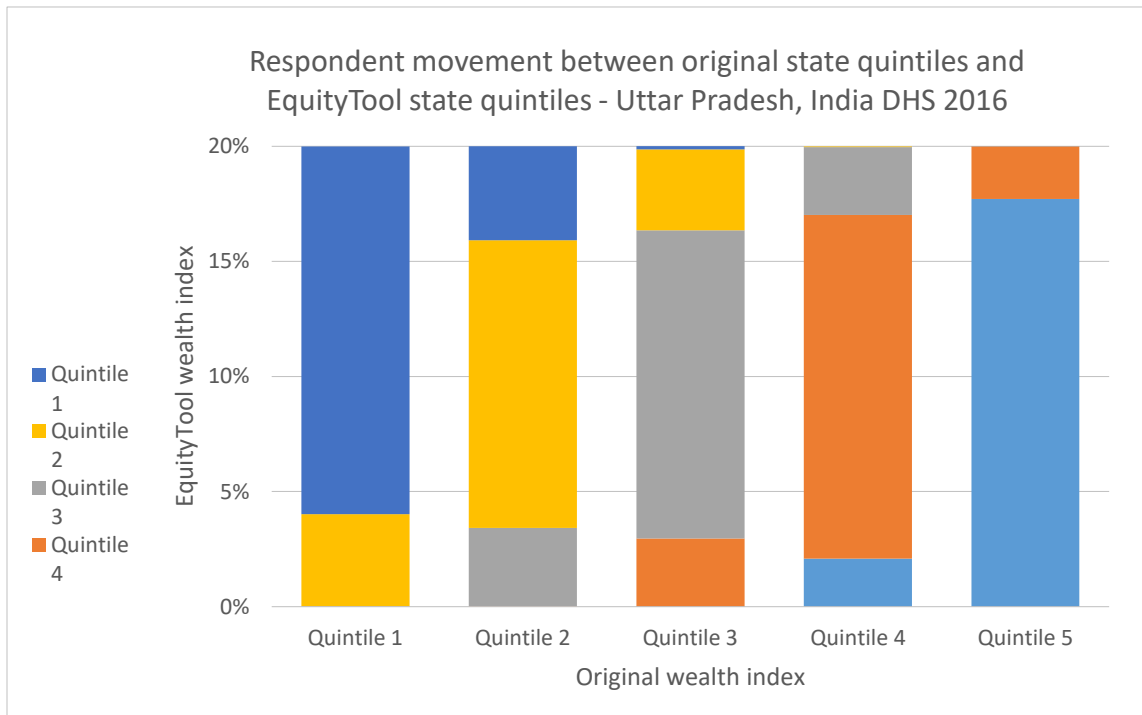
Respondents in the original dataset were divided into three groups for analysis – those in the 1st and 2nd quintiles (poorest 40%), those in the 3rd quintile, and those in the 4th and 5th quintiles (richest 40%). After calculating their wealth using the simplified index, they were again divided into 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% are still identified as being in the poorest quintile when we use the simplified index. However, approximately 4% 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 11 questions produces results that are not identical to using all 43 questions in the original survey.

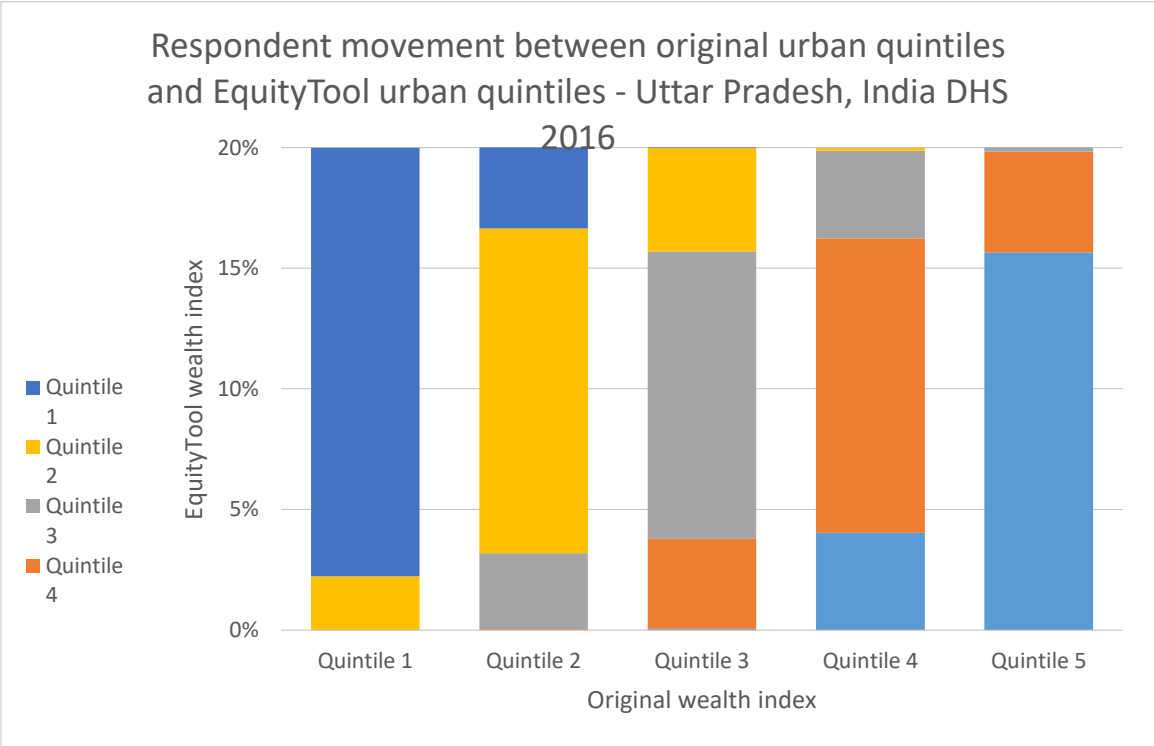


The following table provides the same information on the movement between national quintiles when using the EquityTool versus the original DHS wealth index:



| | | EquityTool State Quintiles | | | | | Total |
|---------------------------------------|------------|----------------------------|------------|------------|------------|------------|-------|
| | | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 | |
| Original DHS State Quintiles | Quintile 1 | 15.99% | 4.00% | 0.02% | 0.00% | 0.00% | 20% |
| | Quintile 2 | 4.08% | 12.51% | 3.40% | 0.01% | 0.00% | 20% |
| | Quintile 3 | 0.13% | 3.52% | 13.39% | 2.96% | 0.00% | 20% |
| | Quintile 4 | 0.00% | 0.04% | 2.95% | 14.93% | 2.09% | 20% |
| | Quintile 5 | 0.00% | 0.00% | 0.00% | 2.28% | 17.72% | 20% |
| | Total | 20.20% | 20.06% | 19.76% | 20.18% | 19.81% | 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 | 17.76% | 2.23% | 0.00% | 0.00% | 0.00% | 20% |
| | Quintile 2 | 3.36% | 13.46% | 3.14% | 0.04% | 0.00% | 20% |
| | Quintile 3 | 0.02% | 4.29% | 11.91% | 3.74% | 0.05% | 20% |
| | Quintile 4 | 0.00% | 0.11% | 3.64% | 12.20% | 4.04% | 20% |
| | Quintile 5 | 0.00% | 0.00% | 0.18% | 4.18% | 15.65% | 20% |
| | Total | 21.14% | 20.09% | 18.87% | 20.16% | 19.74% | 100% |

Data interpretation considerations:

1. This tool provides information on relative wealth – ‘ranking’ respondents within the state-wide or urban population. The most recent available data from the WorldBank indicates that 29% of people in UP live below the poverty line¹. 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 all of India, 44% of people living in urban areas are in the richest national quintile, compared to only 8% of those living in rural areas. In Uttar Pradesh, 55% of urban dwellers are in the wealthiest state quintile, compared to 8% of rural dwellers.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 State level results to understand how relatively wealthy or poor they are, in comparison to the whole country.
3. Some districts in Uttar Pradesh are wealthier than others. It is important to understand the local 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.

¹ From: <https://documents1.worldbank.org/curated/en/187721467995647501/pdf/105884-BRI-P157572-ADD-SERIES-India-state-briefs-PUBLIC-UttarPradesh-Proverty.pdf> The definition of the poverty line used is not clear.

² Calculated from the India NFHS4 2015-2016 dataset household recode, available at <http://dhsprogram.com/>

