"Does Monetary Poverty Capture All Aspects of Poverty? Results from 119 Countries"

by Jed Friedman, Francisco Ferreira, Maria Ana Lugo, Daniel Mahler, Minh Cong Nguyen and Dhiraj Sharma

Sabina Alkire, OPHI, University of Oxford, 7 November 2019
Nice!

• Clearly written landmark study.
• Pioneering: systematically cross $1.90 with other indicators. First paper to do this at scale, quality.
• New tables – Table 4, Table 8
• Illuminating rural-urban, hh comp. disaggregation
• Huge amount of work and huge addition to the literature and understanding.
Base Methodology: one concern

Paper *changes* weights of indicators in hh which lack children or which have a missing indicator, then *re-weights* other indicators up to dimensional weight.

Why? to reduce sample drop; improve retained sample

Unadmitted: *This destroys dimensional breakdown.*
Unknown: *How often does this happen?*
### Base Methodology: one concern

<table>
<thead>
<tr>
<th></th>
<th>$</th>
<th>Enrol</th>
<th>Attain</th>
<th>Water</th>
<th>Sanit</th>
<th>Elect</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ana</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Baba</td>
<td>1</td>
<td>.</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cai</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Consider 3 persons who are each deprived in money, educational attainment, and sanitation only, but

- Ana has all six indicators
- Baba does not have a school-aged child
- Cai is missing data on water
### Base Methodology: one concern

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<th>Water</th>
<th>Sanit</th>
<th>Elect</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ana</td>
<td>1/3</td>
<td>0</td>
<td>1/6</td>
<td>0</td>
<td>1/9</td>
<td>0</td>
<td>11/18</td>
</tr>
<tr>
<td>Baba</td>
<td>1/3</td>
<td>.</td>
<td>1/3</td>
<td>0</td>
<td>1/9</td>
<td>0</td>
<td>14/18</td>
</tr>
<tr>
<td>Cai</td>
<td>1/3</td>
<td>0</td>
<td>1/6</td>
<td>.</td>
<td>1/6</td>
<td>0</td>
<td>12/18</td>
</tr>
</tbody>
</table>

So the weights change for Baba and Cai – other indicators are reweighted.

The 3 are deprived in the same indicators, but their deprivation scores are different.
Base Methodology: one concern

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<td>1/9</td>
<td>0</td>
<td>11/18</td>
</tr>
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<td>.</td>
<td>1/3</td>
<td>0</td>
<td>1/9</td>
<td>0</td>
<td>14/18</td>
</tr>
<tr>
<td>Cai</td>
<td>1/3</td>
<td>0</td>
<td>1/6</td>
<td>.</td>
<td>1/6</td>
<td>0</td>
<td>12/18</td>
</tr>
<tr>
<td>Cens Hj</td>
<td>100%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>100%</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensional Breakdown:** Adjusted Headcount Ratio $M_0$ is the weighted sum of the censored headcount ratios

\[
(1/3) \times 100\% + (1/6)\times100\% + (1/9)\times100\% = 11/18 = 0.61
\]

Equivalently, the Adjusted Headcount Ratio is the mean of the vector of deprivation scores:

\[
1/3 \times (11/18 + 14/18 + 12/18) = 0.68 \text{ NOT THE SAME}
\]
Base Methodology: one concern

Paper *changes* weights of indicators in hh which lack children or which have a missing indicator, then *re-weights* other indicators up to dimensional weight.

Why? to reduce sample drop; improve retained sample

Unadmitted: *This destroys dimensional breakdown.*

**Option 1:** report # of observations treated thus & explore the issue and justify dimensional breakdown if small.

**Option 2:** a) mark hh without children non-deprived in enrolment; b) usually drop hh missing indicators (bias ✓)
Overlaps: one concern

The Venn Diagrammes create a union-based subindex for each ‘dimension’. E.g. a person is deprived in infrastructure if they are deprived in 1, 2, or all 3 infrastructure indicators.

This is a useful, but very crude summary of material. The joint distributions are by indicator not dimension. But no information is provided about indicator pairs.

It seems essential to add a new table on matches/redundancy using from pairwise deprivation cross-tabs.
Redundancy: The % of possible matches between a pair of deprivations that occur (the % of matches / minimum $h_i$)

### Average Deprivation in Pair-wise Indicators across 101 Developing Countries

<table>
<thead>
<tr>
<th>Population deprived in each indicator</th>
<th>Years of schooling</th>
<th>School attendance</th>
<th>Child Mortality</th>
<th>Nutrition</th>
<th>Electricity</th>
<th>Sanitation</th>
<th>Drinking Water</th>
<th>Floor</th>
<th>Cooking Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of schooling</td>
<td>14%</td>
<td>14%</td>
<td>17%</td>
<td>27%</td>
<td>22%</td>
<td>40%</td>
<td>26%</td>
<td>27%</td>
<td>53%</td>
</tr>
<tr>
<td>School attendance</td>
<td></td>
<td>5%</td>
<td>5%</td>
<td>7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Mortality</td>
<td>17%</td>
<td>4%</td>
<td>5%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
<td>11%</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>Nutrition</td>
<td>27%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
<td>15%</td>
<td>19%</td>
<td>13%</td>
</tr>
<tr>
<td>Electricity</td>
<td>22%</td>
<td>8%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitation</td>
<td>40%</td>
<td>10%</td>
<td>10%</td>
<td>11%</td>
<td>15%</td>
<td>19%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking Water</td>
<td>26%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>8%</td>
<td>10%</td>
<td>13%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Floor</td>
<td>27%</td>
<td>8%</td>
<td>8%</td>
<td>9%</td>
<td>12%</td>
<td>17%</td>
<td>22%</td>
<td>9%</td>
<td>25%</td>
</tr>
<tr>
<td>Cooking Fuel</td>
<td>53%</td>
<td>12%</td>
<td>12%</td>
<td>14%</td>
<td>19%</td>
<td>21%</td>
<td>33%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>Assets</td>
<td>23%</td>
<td>8%</td>
<td>7%</td>
<td>7%</td>
<td>10%</td>
<td>14%</td>
<td>19%</td>
<td>8%</td>
<td>16%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage population simultaneously deprived in the column and row indicators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Own calculations using the proportion of pairwise simultaneous deprivation by country and multiplying this by the country population. The population suffering each pairwise deprivation was obtained among 101 countries. The proportion expressed in this table has the 5.2 billion population of developing countries in 2011 as a denominator.

Alkire Foster Seth Santos Roche Ballon 2015
On Measurement: Headcount Ratio

Paper profiles H without a justification. Requires justification: such as

Most common: easy to understand
Can compare multi. H to $1.90/day H.

But using H vs $M_0$ loses things of note:

Dimensional breakdown: lost with H
Leaving No One Behind: patterns differ

(India paper here) – H far less sensitive
On Measurement: H & M & D

As paper explains, D differs two ways:
   a) different identification (union vs 33%)
   b) D reflects inequality among the poor

Possible: AF 2019: M-Gamma class (*tomorrow*)
   a) same identification(s) (union, 33.33%)
   b) compare value of D to linked M

Suggestion: use 2+ poverty lines—global MPI tables report union, 20%, 33%, 40%, & 50%
Little suggestions

• List countries
• Check Fig 5 (hh composition) – labels error?
• Define ‘limited’ sanitation/water categories
• Report intensity of deprivations among poor (A)
• Report censored headcount ratios (poor & deprived)
• Provide 3 decimals on MPI (as is done for H)
• Words: (identified as) **poor vs deprived** (in indicator)
• Report confidence intervals/standard errors
• Provide online country tables with full details (multiple poverty cutoffs; all indicator details, SEs)
• Post country syntax for replication & research
Easy Illuminating Next Steps

• Consumption vs Income: look at overlaps of monetary/non-monetary by countries using each?
• 1.4% of all people are only monetary poor. Who are they? (hh size, gap) Is this income/consumption?
• Does big poverty gap => higher intensity of $M_0$?

• Show HH size for monetary, multidimensional
• Age disaggregation to profile child poverty

• For each indicator report number of overlaps (OPHI team posters – deprived only in x, x+1, x+2, x+3…
Ambitious Next Steps

- Conduct Robustness tests to parameters
  - Pairwise comparisons (changing weights, cutoffs)
  - Sets of the poor (Identification/targeting)
    - See OPHI team’s 2 *posters* on 231 weights and all poverty cutoffs, including for subnational regions
      - Note: OPHI’s stata programmes public in Dec 19

- Analyse global MPI and this measure
  - Triangulate 5 shared indicators (*data quality, total error*)
  - Analyse differences in levels and trends by country.
    - (This paper replaces *health* dimension with $1.90, and has 3 of the 6 MPI living standard indicators).
Example: Robustness (poster session)

Overall, 95.1% of MPI pairwise comparisons across countries are robust for poverty lines 20% to 50% considering standard errors. In Sub-Saharan Africa, it’s 95.6%; in South Asia and Arab States, 94.4%.

Overall, 89.7% of MPI pairwise comparisons across countries are robust for weights 25% to 50% per dimension, considering standard errors.

The bars to the right show the share of people who are only deprived in each indicator, vs deprived in that indicator plus one, two, three, up to 9 others.
Ambitious Next Steps

• **Recall**: a multidimensional poverty measure uses each household’s response to code that household as deprived or non-deprived in that indicator. For that reason, indicators with short recall periods are avoided.

• **Probe household consumption aggregate accuracy for joint distribution of deprivation studies:**
  • Is monetary poverty status accurate at hh level?
  • What proportion of poor persons’ consumption aggregate draws on 7-day recall questions? 30? 365?
  • Does this proportion vary for non-poor persons?
  • Re-analyse quarterly surveys, diaries & panel data to probe spurious volatility of different indicators.