The Riches in various data banks on poverty: a comparative study on the assessment of poverty measurements around the globe

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ABSTRACT

In the context of Integrated Microfinance Management and Sustainable Development, establishing the impact of such interventions is a challenging endeavour. Such an approach is substantiated by the degree to which the poverty-related phenomena are measurable, or whether they can be measured at all. In contribution to the implementation of the IMM concept, the objective is to elaborate on the way in which development is currently expressed, and in particular the way in which poverty is being defined and measured up until today. In order to make this topic tangible, the recent changes and evolution of the parameters which are underlying this definition are referred to e.g. the Human Development Index (HDI), the International Poverty Line (IPL), the Purchasing Power Parity Exchange Rate (PPP), or the Multidimensional Poverty Index (OPHI), among others. In addition, an analogy is presented to the anthropological characteristic of the LEAD approach, i.e. the LEAD School of Ethnoscience. Even though the mentioned parameters are widely used and standardised to a large extent, they are all indicator instruments which, even by their respective promoters, are considered to have their shortcomings. They need to be considered in relationship to the purpose they have of expressing the transition of one state of (well-)being to the next. Although most attention is usually paid to the limitations of their discriminating ability, the eligibility of a number of these parameters is consequently presented. The literature has ample descriptions of inventive proxy variables, workarounds and substitutes. There is, however, no specifically targeted criticism because of such approach. This paper seeks to contribute to the understanding and consensus on the applicability of some parameters, or their alternatives.

INTRODUCTION

It is important to know the implications of expressing the living standard and well-being in terms of numerical values of consumption of food, shelter, physical household assets, as well as health status, education or life expectancy. Ultimately, whether the experience of poverty could be expressed in terms which are consistent with the perception of the people who suffer. In order to enable the discussion, certain examples of measurement are taken from recent publications such as of the World Bank’s International Comparison Programme (2011), The World Economic Forum (2015), the Bretton Woods Project (2014), The Indian Express (2015), and UNDP’s Human Development Report (2015). A comparison is made of the indicators which were used and the motivation of the authors concerned. There is attention for the methodological implications of international, regional, local rural and urban differences, as well as time / periodical aspects or subjective cultural influences. The paper seeks the feasibility of incorporating objective (material) indicators along with subjective indicators, and deliberates on the choice of indicators and their intrinsic and semantic value in the description of poverty. The recent lifting of the threshold of poverty from $1.25 to $1.90 a day (World Bank 2011) has sparked a range of reflections on the development and applicability of the indices used by several organisations to display the world’s imbalance of living standards. The poor people distribution over continents is currently estimated as
THE POVERTY PARADIGM SHIFT

Over the years the discussion on how to measure poverty has seen a gradual shift from finding consensus on concrete figures such as income, consumption quota or material assets (translated whenever possible in monetary terms) into more complementary indices such as access to material and immaterial resources (e.g. education, health care, social networks) or the influence of environmental conditions. The initial reference was the poverty line, established through the calculated average of a number of poor countries by the World Development Report (1990). The tools focusing on monetary aspects like GDP, PPP, FGT (Foster Greer Thorbecke index), Gini-coefficient, among others are all used in the context of making comparisons across economies and regions. The movement to extend this type of reference has led to discussions on the development of new sets of indicators which encompass more than income, food or combined indicators which enable a classification of a living standard, comprising subjective attributes such as (physical and mental-) well-being, life satisfaction, connectedness, safety, equal rights, among others. The second discussion has to do with the distinction between the level of measurement, such as community level, household level, or individual level (and recently: satellite imaging). The third discussion could be described as the time perspective; the influence of a state of poverty seems to have a larger impact as the conditions are experienced for a longer period of time (e.g. four consecutive years, Gesthuizen 2006, Di Tella et al 2007, Otten et al 2014), sometimes also related to the transitions that can be experienced in a certain (cultural) area in terms of climate or ecological changes, or deprivation through social conflict (e.g. South Sudan as of 2014). It also refers to the concept of a so called “shockproof” condition, meaning that the poverty is expressed in the degree to which a household can survive a temporary setback in means of living (usually caused by an external agent), and the time it takes to overcome that status (Ravallion 2015) without external input. It is also important to consider the semantic differences between ‘poverty’ and related terms such as social exclusion, marginalisation, well-being, life satisfaction, happiness or inequality, which may all be attributes of a condition of ‘poverty’ that are measured by the same parameters but cannot be used interchangeably. A number of these attributes have since the eighties been included in the set as a result of the search for non-monetary aspects.

The challenge which runs along in the background is not so much the development of measurement instruments which are valid as an individual gauging device, but whether they can be applicable on a global level. The idea is that even though poverty is experienced in a certain geographically defined area, the methodologically valid comparison with other geographical areas turns it into a universal and tangible phenomenon which could be addressed by a combined effort of political will and commitment. After all, the Yanomamó along the banks of the Orinoco were self-sustaining to a large extent without having any reference to comparable situations outside their area (Good 1997), and most of the Kurya people of Ikorongo always had food because they engage in hunting, herding, farming and poultry simultaneously, also when there was no money changing hands (Shetler1996), but neither group called itself “poor” because there was no reference to validate the term.

The need for global comparison however could theoretically be turned around 180 degrees by maintaining that the perception of the local people with regard to their living conditions as being ‘positive’ or ‘negative’, in view of their own long term survival, is an alternative acceptable gauging device. If that were the consensus, there would be no need to develop a comparable scale in absolute numbers, but we would could make do with an ordinal variable that read ‘bad - sufficient – good’, and have it scored by our groups of respondents in order to establish their relative living standard. To exemplify this The Gallup Organisation organised something similar by a World Poll in 2006 whereby the respondents were asked to rate their satisfaction with their standard of living on an ordinal scale, and these were later compared with the income distribution in the same areas, a post hoc connection with a monetary measurement item. Though all authors concerned agree that there is a wider range of factors which determine this level of satisfaction, they could probably not be reduced to one single denominator (Deaton 2008, Roser 2016). In the light of that

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oceania</td>
<td>50 Thousand</td>
</tr>
<tr>
<td>Europe</td>
<td>0.3 Million</td>
</tr>
<tr>
<td>North America</td>
<td>5.9 Million</td>
</tr>
<tr>
<td>South America</td>
<td>15 Million</td>
</tr>
<tr>
<td>Africa</td>
<td>436 Million</td>
</tr>
<tr>
<td>Asia</td>
<td>551 Million</td>
</tr>
</tbody>
</table>

(Table cf. Max Roser, OurWorldinData.org, 2016, Oxford UK)
In their work, the researchers on their fieldwork experience in the
also taking into account the contextual feedback of the
comparison as a basis to compose an overall analysis,
weighting of the scores per country of study in mutual
without inherent classification. They then used the
scales, based on their perceptions of achievement, but
anthropological method of semantic differentiation
asked open ended questions in a style analogous to the
for several countries. In the process the respondents were
of “a life goal satisfaction approach” which is worked out
(2009),
Referring to the work of Copestake and Camfield
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If the correlation between a higher average income and
higher living standard satisfaction is not obvious from
research data, it is interesting whether the opposite could
be maintained. Fact remains however that low income
countries display less satisfaction than high income
countries overall (Deaton 2008). Furthermore, Deaton
shows in his paper that there is no cut off above which
level there is no increase in satisfaction as national
income goes up; contradicting the hypothesis on basic
needs (the ‘sequence’). Having established that however,
he follows his interpretation stating that the highest gain
in satisfaction levels is with low income countries as
income increases. That would indicate that the biggest
proportional advance is made inside the lower brackets
of the poverty scale, while the correlation stays linear
further up. Finally the most important conclusion would
have to be that he finds there is no positive relationship
between increase in life satisfaction and economic
growth rates, although it should be stressed that in this
example there is no focus on a rural low income country
sample, but a global tendency.

Table 1. Checklist for exploratory semi-structured
interviews in Peru

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sphere, not necessarily to ‘define’ poverty as such, but to
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The next significant example of incorporating non-economic-monetary indices is found
in the Oxford Poverty & Human Development Initiative
(OPHI) (Alkire & Foster 2010). The global MPI was
developed by OPHI with the UN Development
Programme (UNDP) to be used in the Human
Development Report in 2010. In that model, indices like
health, sanitation, education and living standard have
been taken up in a list of ten variables. In their
methodology the weighting (of which the mathematical
rationale is not explained here Ed.) is done on a number
of the complementary parameters whereby the lack of
access (‘deprivation’) has to be one third of the total
scaling in order to be assessed as poor, whereby the
measurement is done on an individual level, while there
is also an indication of intensity, expressed through the
number of deprivations. This specific set of indicators
has apparently seen constant evolution as the current set
is described as the fourth generation. This approach is in
the direction of contextual and environmental parameters
but does not show an integration of subjective
measurement.

Table 2. The deprivation threshold of those who are
both MPI poor and destitute

As the conventional type of data are commonly used in
ethnographic fieldwork, it was interesting to note that
during fieldwork in Tanzania (Mara 2015) the
designation of the local research assistants of the
households they interviewed, often deviated from the
other variables which were used as SES indicators, i.e.
regular income, additional income (from side activities),
and self-assessed status (poor-average-rich) as they were
answered by the household heads themselves. In a
number of cases the research assistants had classified
these as ‘poor’ where the household had used ‘very
poor’ and also ‘average’ where the household had used
‘poor’. These designations were again sometimes
inconsistent from the income intervals whereby the
50,000 shilling scaled slots (very poor-poor-average-
rich-very rich) were designated by the local council’s
education inspectors on the basis of their community
experience. And here too, households were often not in
the income category where they were expected to be on
the basis of their self-assessment, or the assistants’
designation. That provided insight into the subjectivity
of the categorisation (Data: Serengeti Fieldwork, 2015,
Ed.)

Table 3. SES Categorization
When extended to other assets such as land and cattle however the picture becomes more consistent with the data. To illustrate the case there were households consisting of elderly people supervising grandchildren that did not have any registered income or assets, but stated they had complete satisfaction because there were ample (family-related) resources in land and livestock, and “there was food on the table very day”. It is the type of example that underlies the discussion on mixing income and consumption in the World Bank’s Povcal.Net database, and as Roser (2016) comments, it shows that the difference in the consumption comparison is smaller than the one on income.

Another factor that has to be taken into account is where individual household members may have a different status from a household’s overall assessment. It would methodologically be sound to interview individuals and have their individual response as the outcome by which the categorisation is to take place. It would also emphasise the usefulness (in applicability) of subjective indicators of poverty, like accessibility of provisions, state of health, education level, the experience of social exclusion, or the degree of satisfaction with a certain lifestyle, since they would ideally be measured on a personal level to begin with.

As an illustration of the direct opposite, more recently, scientists of Stanford University (Burke et al, Science Magazine, August 2016) analysed satellite imaging data, and found that the combination of infrastructural quality, taken as road accessibility, road surface quality (paved, unpaved, potholes) and housing rooftop material (thatch, sheets, tiles), proved to be reliable indicators of poverty. Again though, they were validated post hoc in the context of traditional economic numerical standards, by comparing them to the available data from household surveys in the same area. The motivation of considering these type of indicators has an additional logistical dimension, namely that such kind of aerial monitoring could be done very swiftly, and truly globally, without having to undertake labour intensive household surveys. That means that the absence of data could be compensated provided that the said parameters are proven to be globally applicable.

DISCUSSION

To present an overview of the main indicators currently used the following matrix shows the type and the categorisation as they were extended with new owns over time. The purpose of finding measurements which can discriminate between standards of living and have a global applicability is for the sake of comparison and reaching consensus (cf. ‘Absolute poverty’), or, ultimately to devise policies that lead to a more equal distribution of the world’s resources. If there is no mechanism to achieve this, then there should be a way of making a local phenomenon transferrable in terms of intrinsic value, analogue to what the PPP Exchange Rate concept tries to do. The suggestion here is making a projection whereby the perception of a certain population is the vantage point but is yet comparable to the perception of another population in another area (cf. ‘Relative Poverty’).

Another mechanism to achieve “model reduction” is to focus only on the ‘poorest of the poor’ (Robinson 2002), as is instrumental in the context of implementing integrated microfinance. That would theoretically eliminate the necessity to have a comparison across borders, expressed in numerical values, as the distance to the local peer group, i.e. those that are doing moderately well or above, becomes the criterion. It also eliminates certain methodological problems such as unrepresentative sampling. If a bias is created on national level data by lack of response in specific layers of society, the focus on smaller units on community level could maintain its validity. It would simultaneously take away the intraregional bias between urban and rural, because the evaluation would be made as it would be in a case study. In this case it is well to remember that urban poor are often worse off than rural poor, because of the often ‘invisible’ resources for survival such as land, livestock and extended family members which are probably absent in an urban environment. This distinction carries the intricacy of being linked to another parameter in demographic data, i.e. the influence of urbanisation in otherwise predominantly rural settings (infrastructural parameters become very interesting in that situation as the physical distance to facilities would be limited yet there could be no access to possible benefits, e.g. the favelas in Sao Paulo, or similar conditions in a metropolis like Lagos or Manilla).

Table 4. Variable measurements

CONCLUDING REMARKS

Finally, to make the connection with the school of Ethnoscience as advocated by the LEAD programme Leiden University, it is the perception of their condition by the people themselves that becomes the targeted approach. It has been established that there is a
correlation between self-assessment of living conditions and income levels (Ravallion 2016) that is consistent over boundaries, and that participation of the respondents in their assessment as a method is complex but sustainable (‘Participatory Rapid Appraisal’ – PRA, cf. White and Pettit 2004). The challenge then may be shifted to another sphere, namely that the correlation (Copestake et al. 2007) between subjective measurements based on individual experience and economic numerical ones can be established to the extent that both can be used simultaneously and complementary. What we have seen in this overview is that on several occasions investigators have attempted to add Ethnoscience based parameters to traditional economic or monetary ones.

ACKNOWLEDGEMENT

We acknowledge the input and the support of all our colleagues at the LEAD programme of Leiden University and our colleagues at Padjajaran University in Bandung. In particular we are grateful for the inspiration and guidance from Prof. Dr. L.J. Slikkerveer as the director of LEAD, and Mr. K. Saefullah, M.A. as our sparring partner in the activities leading up to the conference.

REFERENCE


**Table 1: Checklist for exploratory semi-structured interviews in Peru**

| Goals: Let’s suppose that a person would like to move to live here. What things do they need to be happy? What things are necessary to be happy? |
| Resources: How do they get those things? (Ask for each goal mentioned by the respondent). |
| Emotions (individual level): How do you feel in relation to...? (Ask this for each goal mentioned by the respondent). |
| Emotions (collective level): How do people of this community feel about...? (Ask this for each goal mentioned by the respondent). |
| Values: Who are the people you most admire in this community? (Alternative question: for non-formal comprehension: Who are the best persons of this community? What are the things that you admire in this person (Ask for each person mentioned). |
| Social networks: Where do you find support when needed? |
| Happiest life episodes: What were the happiest moments of your life? |
| Unhappiest life episodes: What were the unhappiest moments of your life? |

source: Copestake & Camfield, 2009, Un. of Bath, UK

**Table 2: The deprivation thresholds of those who are both MPI poor and destitute**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Indicator</th>
<th>Deprived if</th>
<th>Relative Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Years of schooling</td>
<td>No household member has completed at least one year of schooling (&gt;5)</td>
<td>1/6</td>
</tr>
<tr>
<td>Health</td>
<td>Child School Attendance</td>
<td>No child is attending school up to the age at which they should finish class 6</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Child Mortality</td>
<td>2 or more children have died in the household</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Nutrition</td>
<td>Severe undernutrition (any adult BMI (&lt;17.5kg/m²) or any child &lt;3 standard deviations from the median)</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Electricity</td>
<td>The household has no electricity (no switch)</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Improved Sanitation</td>
<td>There is a facility (open defecation)</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Safe Drinking Water</td>
<td>The household does not have access to safe drinking water, or safe water is more than a 45-minute walk round trip</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Housing</td>
<td>The household has a defecation or dung floor (no change)</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Cooking Fuel</td>
<td>The household uses firewood or charcoal as non-deprived</td>
<td>1/6</td>
</tr>
<tr>
<td></td>
<td>Assets</td>
<td>The household has no assets (radio, mobile phone etc.) and no car</td>
<td>1/6</td>
</tr>
</tbody>
</table>

Source: AF method – Alkire & Foster - c.s. OPHI, Oxford 2016
<table>
<thead>
<tr>
<th>SES 3.8</th>
<th>&lt;50</th>
<th>50-100</th>
<th>100-150</th>
<th>150-200</th>
<th>200-250</th>
<th>250+</th>
<th>tot</th>
<th>share</th>
</tr>
</thead>
<tbody>
<tr>
<td>very poor</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>96</td>
<td>10</td>
<td>4.0%</td>
</tr>
<tr>
<td>poor</td>
<td>61</td>
<td>19</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>182</td>
<td>96</td>
<td>32.0%</td>
</tr>
<tr>
<td>average</td>
<td>25</td>
<td>36</td>
<td>13</td>
<td>30</td>
<td>43</td>
<td>182</td>
<td>96</td>
<td>32.0%</td>
</tr>
<tr>
<td>rich</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>96</td>
<td>32.0%</td>
</tr>
<tr>
<td>very rich</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>total</td>
<td>96</td>
<td>55</td>
<td>16</td>
<td>54</td>
<td>20</td>
<td>30</td>
<td>49</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Fieldwork in Serengeti by the author

### Table 4. Variable measurements

<table>
<thead>
<tr>
<th>measurement</th>
<th>Scaling</th>
<th>Level</th>
<th>sphere</th>
<th>category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>Interval</td>
<td>Household</td>
<td>Monetary</td>
<td>Objective</td>
</tr>
<tr>
<td>Consumption</td>
<td>Interval</td>
<td>Household</td>
<td>Monetary</td>
<td>Objective</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>Interval</td>
<td>Country</td>
<td>Monetary</td>
<td>Constructed</td>
</tr>
<tr>
<td>Health status</td>
<td>Ordinal</td>
<td>Individual</td>
<td>Mental</td>
<td>Subjective</td>
</tr>
<tr>
<td>Health care system</td>
<td>Nominal</td>
<td>Household</td>
<td>Mental</td>
<td>Subjective</td>
</tr>
<tr>
<td>Life expectancy **</td>
<td>Ratio</td>
<td>Individual</td>
<td>Physical</td>
<td>Subjective</td>
</tr>
<tr>
<td>School attendance***</td>
<td>Ratio</td>
<td>Individual</td>
<td>Mental</td>
<td>Objective</td>
</tr>
<tr>
<td>Household size</td>
<td>Absolute</td>
<td>Household</td>
<td>Physical</td>
<td>Objective</td>
</tr>
<tr>
<td>Perceived status (econ.)</td>
<td>Nominal</td>
<td>Household</td>
<td>Mental</td>
<td>Subjective</td>
</tr>
<tr>
<td>Roofing material</td>
<td>Nominal</td>
<td>Household</td>
<td>Material</td>
<td>Objective</td>
</tr>
<tr>
<td>Safe water source (pot.)</td>
<td>Nominal</td>
<td>Household</td>
<td>Material</td>
<td>Objective</td>
</tr>
<tr>
<td>Road accessibility</td>
<td>Nominal</td>
<td>Household</td>
<td>Material</td>
<td>Objective</td>
</tr>
<tr>
<td>Energy consumption #</td>
<td>Interval</td>
<td>Household</td>
<td>Material</td>
<td>Objective</td>
</tr>
</tbody>
</table>

*Land and Livestock **possibly adjusted for age-group ***access as well proportional use # MPI uses cooking fuel separately, ## considered either legally, physically or psychologically,(de Bekker, 2016)