**Reviewer's report**

**Title:** ABSOLUTE INCOME IS A BETTER PREDICTOR OF COVERAGE BY SKILLED BIRTH ATTENDANCE THAN RELATIVE WEALTH QUINTILES IN A MULTICOUNTRY ANALYSIS: COMPARISON OF 100 LOW- AND MIDDLE-INCOME COUNTRIES

**Version:** 0  **Date:** 23 Nov 2017

**Reviewer:** Andrew Channon

**Reviewer's report:**

This paper presents an innovative method to assess the link between income and SBA coverage using a new method to measure income at the household level from aggregate level data. It indicates that income measured in this way is a better predictor of SBA coverage at the country level than the use of the standard wealth quintiles and links this nicely to policy/interventions in specific countries to explain the result.

The paper is partially convincing about the benefits of this method, although there are a number of other aspects which, if added, would make it more convincing. There are a number of other areas which need to be addressed too before publication, although many of these are minor. As with any paper there are a few typos, but generally the introduction and discussion were interesting and relevant.

**Major Issues which should be addressed**

1. An aspect that is not discussed is the purchasing power in different countries/locations within countries. It states on p4, line 97 that 'income… has an absolute value and can therefore be compared across as well as within surveys'. Although clearly it can be compared there needs to be some acknowledgement of this issue, possibly in the discussion. Obviously the paper does use the 2011 purchase power parity adjusted international dollars, but that is at a country level and there may be variations within a country. The comparison may be affected by the relative proportions of people living in urban/rural areas or in different districts.

2. P6 line 147 - the classification of the birth attendants as skilled/unskilled depends on who the country recognises as skilled - where is this information taken from and did this vary in
different countries over time? Could some of the results be explained by changes in who is designated as skilled over time?

3. The main extra analysis needed is further comparisons with other wealth indices. The results compare the wealth quintiles against absolute income (for each quintile). This leaves out other comparisons which may be simpler to do than the absolute income. This is the reason that the response to the question 'Does the work include the necessary controls' on the review form is answered 'No'. There are two further comparisons that should be tested:

   a. Using the actual mean wealth index score for each quintile, as is often given in the DHS surveys. This will indicate whether there are larger gaps between some quintiles than others, in a similar way to absolute income. It would be very interesting to see if this improves the fit from the current model using quintiles (which assumes equal distance between each quintile) and how close this gets to the fit of the model with absolute income.

   b. Similarly to the above, much work was conducted by Rutstein and Staveteig (2013) and Smits and Steendijk (2015) on an international wealth index which takes account of the differences between countries. This should be another comparison to the two already conducted.

4. Table 1 - the parameters for the asset quintiles for Model 1 and Model 3 are the same, although the coefficients expressed as percent point are different. Is this correct?

Minor Issues

P3 line 69 - 'requests the enhancement of country capacity' - please change the word 'requests' - it is a target/goal rather than a request.

P3 line 80-81 - rephrase the sentence as it doesn't make sense.

P3 paragraph starting in line 82 - this paragraph is interesting, but very short for what is a complex and debated issue. Suggest either expanding to cover some of this debate - about how income affects health - or to reduce the paragraph down to say simply that there is a link and many other papers have discussed this, with further references highlighted rather than just the one that is noted at the moment.

P3 line 87 and elsewhere - 'health surveys done in LMICs' - better to say 'conducted in LMICs'?

P7 line 166 - countries chosen on 'contrast levels and patterns of inequality' - it looks like these were chosen based on income levels. Clarify.
P9 line 206 - the Ethiopian HHs in the top quintile do not look like they have the same income that Nigerian HHs in the intermediate or third quintile. From the graph it looks like they have an income slightly less than the second quintile in Nigeria.

Discussion - the Figure numbers throughout are incorrect.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
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