Reviewer’s report

Title: Effects of Spatial and Material affluence on health insurance subscription among women in Ghana

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Reviewer: Joseph Mensah

Reviewer’s report:

1. Major Compulsory Revision

• On Introduction: P.3: There is a logical cliché in the basic assumption underlying this paper which posits that “The poorer women, all things being equal, are rational and would therefore purchase health insurance under a progressive scheme regardless of their spatial environment.” This assumption is couched in the specious position that the poor can somehow purchase insurance, even when they cannot afford it. A “poor” person, by definition someone who is incapable, or has difficulty, purchasing a commodity or service; however, this incapacitation is simply assumed away with this assumption. The fact that they are also rational does not in any way allow them to be able to purchase the insurance—their basic background of being “poor” remains unchanged, and the ability to purchase any commodity or service relates more to having money than to rationality—while the poor may have the latter, they, by definition, lack the former. This apparent inconsistency needs to be resolved throughout the paper.

2. Minor Essential Revisions

• On Abstract: Re-write the result section under the Abstract to make it simple. The statement “the proportions of women not registered decrease with increase in material affluence” for instance, entails a double negative that makes it hard to follow. Similarly, there is a contradiction—or at least a disjuncture—in the statement “…the proportion of respondents not registered during the data collection was highest (70%) in the coastal areas followed by Savannah, and Forest Belt. However, inferential analysis at the bivariate state showed that the likelihood of registration was significant among respondent from the Savanna area.” The authors need to offer some explanation for this tension.

• Indeed, for the most part, the analysis is done using those “who are not registered” in the Health Insurance Scheme, making it hard to follow, especially when it is used in the context of another negative statement. I suggest, the authors turn the analysis around and do it based on those “who are registered” in the system, whenever possible.

• The notions of the poor versus non-poor, leaves one to wonder where the “rich” falls in this dichotomy. Is the “rich” the same as the “non-poor”? If so, say so; one
can also assert that there can be the poor, non-poor, and the rich. Even the idea of the poorest versus least poor, as used throughout the paper is not straightforward at all.

• Page 5: The northern segment of the Brong Ahafo Region could very well be part of the Savanna Ecological Zone, and the authors need to add this caveat to their spatial categorization of the nation into 3 ecological regions. Brong Ahafo is best seen as the forest-savannah contact zone, so some qualification is needed here. Indeed, geographers would tell you that regionalization is not a true science; there is always a border line case, and the authors need to allude to this, to avoid the erroneous impression that these 3 regions are iron-clad ecological zones.

• The writing under the “findings” could be enhanced by simplification. For instance the statement: “Table 1 presents proportion of respondents who have not registered for insurance compared with socioeconomic characteristics ” is very awkward. One cannot compare “people” with “socio economic characteristics.” It should be that the “Table presents respondents who are not registered, broken down by various socioeconomic characteristics.”

• The entire first paragraph under the “Findings” on p6 needs to be simplified; it involves a lot of “double negatives,” making it hard to follow. Again this is due to the fact the analysis is done using those who are no members of the scheme, rather than those who are member, and this make it difficult to follow the analysis, especially when the discussion deals with negatives. The fact that the highest proportion of those who were registered were the poorest needs to be explained, and not just left hanging—for it is not self-evident as to why the poorest would be the ones buying insurance. As noted earlier on, the poor could be rational, but they are still poor and therefore we cannot simply assume that they will buy insurance—they still need money to purchase it and to be poor is to be without the money.

• “Little over half of women in the highest quintile (of what? “of wealth”—I suppose, please state so).

• The writing is hard to follow; a lot of assertions in the findings are left unexplained, and they are not self-evident at all.

• Table 2 is said to cover 3 models (see page 8, paragraph 2). However, only 2 models are presented in the table and one is even mislabeled “Mode2,” instead of Model 2.

• The fact that the main figures reported in Table 2 are the beta values should be made explicit. I suggest that the labeling of the table is done different, as follow:

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td># 95% CI</td>
<td># 95% CI</td>
</tr>
<tr>
<td>Coastal 1</td>
<td>1 [1,1]</td>
</tr>
</tbody>
</table>

Finding

• P6: The Table is tested by way of a Chi-square test at the alpha-level of 5% or
confidence interval of 95%; and this should be clearly stated. I know they have stated “there were significance association at 5%”, but this is incomplete. 5% of what? And what statistical test was used—I am assuming it was Chi-square, given that the level of measurement of most of the data in the table is nominal.

- The idea of health “insurance ownership” (p. 10 for example) should be changed to “insurance membership”: I suggest the authors describe these women as subscribers or members of the insurance scheme and not owners.

- Discussion: P. 12. The authors somewhat see “vulnerability” in discussing health insurance mainly in terms of money to the extent of them asserting that “We expected the vulnerable, in this case, the poor across all geographical spaces would make rational decisions to own insurance.” I have already expressed my reservation with the assumption that the poor are rational so one can expect them to purchase health insurance, without taking into account their inherent inability to pay. An additional logical cliché concerns the fact that in dealing with health insurance, one can argue that the ‘vulnerable’ is not necessarily the poor but arguably the sick and the elderly. If one is poor, yet healthy and young, it is hard to see his or her vulnerability in this context. This has to be sorted out.

- Also geographic literature has long moved away from environmental determinism—the argument that somehow the environment has the causal ability (or causality) in human affair. The prevailing view is that, while the environment may pose some impediment, ultimately human ingenuity is the key to all development. The argument in this paper borders on “environmental determinism,” and I suggest the authors tone down this angle of the paper, by limiting the emphasis placed on the impact of the ecological zones on health insurance.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interest.