Reviewer’s report

Title: Socio-economic and demographic Determinants of Under-five Mortality in rural northern Ghana

Version: 2 Date: 17 June 2014

Reviewer: Anita McGahan

Reviewer’s report:

Thank you for the opportunity to read this important article. As I read through it, several opportunities for its development came to mind:

1. Is the result regarding polygamy attributable to an increase in knowledge in the mother’s immediate community or the availability of multiple caregivers? I wonder if there’s any way to discern this in the survey, perhaps by analyzing separately the likelihood of under-five death among mothers based on the numbers of children in their households born to co-wives (i.e., on the theory that many prior children in the household would point to the importance of co-wife knowledge whereas fewer prior children would point to the importance of available alternative care-givers).

2. The results on polygamy also raise a question about the causes of under-five mortality. Are children born into polygamous families more likely to die of particular infection, malnutrition, or domestic violence? The mechanisms by which larger families protect children from mortality might be quite different in each instance. Additional analysis on the composition of polygamous families (i.e., numbers of children per co-mother; number of co-mothers; relative ages of other children) might shed light on the relative importance of each of these mechanisms.

3. Similarly, can you shed any light on the mechanisms of death among older mothers? Is the mother’s age at birth a direct influence on child mortality, or are other factors relevant, such as competition for resources between the under-five child and other household children?

4. The conclusions as stated advocate for the slate of known important interventions (i.e., education, autonomy and income). Because these are already well known, the conclusions are not powerful. What this study could offer that would be powerful would be an expression of the relative impact of each of these opportunities for intervention. How important is maternal education, for example, as compared to maternal autonomy? What specific types of education are most important? How vulnerable are children born into families with many older siblings, and what is the specific influence of education on under-five mortality in these complex families?

5. Contrary to what the conclusion states, the results on polygamy seem to suggest that autonomy of at least one type – i.e., polygamy -- may not promote under-five survival. Please consider reporting a more nuanced assessment of the
mechanisms of autonomy. When is the presence of more women in the household supportive of under-five survival and when does more women adversely influence child survival? How is polygamy related to autonomy?

6. Please report in the conclusions on the relative importance of these factors in rural and urban areas.

Minor concerns

1. The first sentence contains a typo: The article refers to nearing the close of 2015 instead of nearing the close of the first half of 2014.

2. I recommend revising the first sentence to replace “unattainable” with “unattained” (the dramatic decline in under-five mortality in RLS suggests that achieving MDG4 is attainable if programs such as those you analyze are implemented).

3. Also in the background section, don’t you want to indicate that this paper will explore how established programs affect under-five mortality?

4. There are missing propositions throughout the draft. Please have a copy editor go over it for grammatical errors.

Level of interest: An article whose findings are important to those with closely related research interests

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

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.