## Peer Review Report

# Review Report on Ghana's Livelihood Empowerment Against Poverty (1000) program seasonally impacts birthweight: a differences-in-differences analysis

Original Article, Int J Public Health

Reviewer: Reviewer 2
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## EVALUATION

**Q 1** **Please summarize the main findings of the study.**

This study analyzes the impact of social cash transfers on birth weight in Ghana and finds some positive effects.

**Q 2** **Please highlight the limitations and strengths.**

The main strength is the setting and program – it is important for us to understand how similar programs affect child outcomes.

There are several major limitations: an analytical approach that does not match the sampling (DID vs. RDD), missing outcome data, and an outcome variable that may respond to treatment in many ways.

**Q 3** **Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.**

Major
– This study was clearly set us for a RDD design, but is now estimated as DID, which is a bit problematic given that there are clear differences at baseline, and common trends assumptions are rather unlikely to hold
– Differences in seasonal impacts are estimated very noisily, and there is no formal test of whether these coefficients are different (I doubt they are)
– The main outcome chosen is highly problematic – not only because it is missing for half the sample, but also because having a birth may respond to the treatment, making causal interpretation of the estimates presented very difficult. This sample was set up to track a cohort of children under age 2 over time, and not to compare earlier to later births.

Minor
• Birthweight as indicator of fetal health is a bit unusual – maybe perinatal health or just early infant health?
• Please provide exchange rates (or USD equivalents) for local currency amounts
• Seasonal hypothesis: is the idea here that birth weight is primarily driven by food supply in the last trimester? Otherwise the mapping from rainy season food supply to fetal growth would not be very clear
• Study design: it is not quite clear why 5 districts were chosen and how they relate to the 10 pilot districts – are the 5 a subset of the 10? And how were the initial 8000 identified? Is this just the full pool of applicants?
• I think a study map with the pilot and selected districts would be useful
• Timing of things is also not clear. The paper says the pilot started in 2015, but then it is not clear when households applied and how study participants were recruited. How much exposure did women have before the baseline survey? If none, how much after the baseline did the program start?

• The choice of birthweight as outcome is not obvious: given that all moms had small children or were pregnant at baseline, shouldn't the outcome have been child growth or development? Did you just focus on families that had another child after the initial survey??
• Figure 1: I am confused by this figure: if the baseline sample contained 1674 children, 180 were lost, and 788 were added – how can that result in 1585 children in the treatment arm??
• Figure 2: the distribution of births within the year seems inconsistent with what has been seen in other data sets. Is it possible that this is just an artefact generated by the sampling strategy, i.e. by the fact that pregnant women were specifically targeted by this project?
• Page 8: what variables was household size collinear with? Seems rather unusual…
• Table 1: the baseline imbalance in the main outcome variable of interest is rather large – was that anticipated?
• Table 2: using imputed outcome data seems a bit unusual – can these estimates really be interpreted causally?
• Table 2: the numbers presented on baseline treated mean do not match Table 1. For example, LBW < 2.5kg was 8.4% in T1 in the treatment arm, and is shown as 10.8 in Table 2 – differences for <=2.5kgs are much larger
• Discussion: would be good to also look at 2018 review which identified quite a few more studies (https://adc.bmj.com/content/103/10/920).

## PLEASE COMMENT

**Q 4** **Is the title appropriate, concise, attractive?**

Title is okay, but could be more concise

**Q 5** **Are the keywords appropriate?**

Okay.

**Q 6** **Is the English language of sufficient quality?**

Yes

**Q 7** **Is the quality of the figures and tables satisfactory?**

No.

**Q 8** **Does the reference list cover the relevant literature adequately and in an unbiased manner?)**

The paper focuses on one recent review, but there are several other (even if more descriptive) papers that should be looked at.

## QUALITY ASSESSMENT

**Q 9** **Originality**

**Q 10** **Rigor**

**Q 11** **Significance to the field**

**Q 12** **Interest to a general audience**

**Q 13** **Quality of the writing**

**Q 14** Overall scientific quality of the study

REVISION LEVEL

**Q 15** Please make a recommendation based on your comments:

Major revisions.