Reviewer's report

Title: Estimating the period mean age at first birth from household surveys

Version: 1 Date: 9 March 2015

Reviewer: Vladimira Kantorova

Reviewer's report:

Minor Essential Revisions

The authors assessed two methods to estimate the period mean age at first birth from sample surveys - one based on methods used in populations with accurate vital statistics, and the second adapted from the analysis of marriage trends - the singulate mean age at first birth and compared them to the median age at first birth published in the reports from the Demographic and Health Surveys.

1. While the authors correctly point out that period mean age at first birth would enable to compare levels and trends in the mean age at first births in developing countries (based on surveys) with those in developed countries (based on vital statistics), no such comparison is presented in the paper. A figure and a short description of the trends in selected developed and developing countries would be very useful. In particular, considering that 20-25 years ago some developed countries had a low mean age at first birth comparable to the current situation in developing countries.

2. While the authors compare the two methods, the difference in results (Figure 1) is caused not only by the changes in childlessness, but also because of changes in the birth rates over time - in the appendix they note that the assumption is done that birth rates do not change over time, but in the main text the difference is explained only in terms of childlessness. I would suggest to compare all three measures - two methods of calculating mean age at first birth and median age at first birth - in terms of timeliness, cohort/period measure, comparability with vital statistics measures etc to provide a clear conclusion that the measure suggested is superior to other two measures.

3. More details should be provided on how the fertility rates by age for the first birth order are calculated for the 3-years period before the survey. If the DHS standard approach is applied, reference to manual would be useful.

4. Figure 2 could be replaced with the figure reflecting changes over time and thus changes in the onset of childbearing. Changes over time are more important than geographical variation, especially when countries of North Africa or West Asia included in DHS are not representative of the regions.

5. Figure 3 is little bit confusing - cohort ages (40-44 to 25-29) seems to be related to the x-axis calendar years. However, cohort ages are related to the individual lines of medians and should be therefore next to each line. Y-axis
needs decimal point to be understandable.

6. In conclusions the authors could discuss whether the mean age at first birth should be added to standard DHS indicators.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests.