Author's response to reviews

Title: Explaining Inconsistencies Between Data on Condom Use and Condom Sales

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Reply to the Reviewer

Minor Essential revisions:

1. The reviewer correctly pointed out that the population size data in the Appendix referred to the total population, including both men and women. We have revised the Appendix, which now shows the population size for men and women separately.

Discretionary revisions:

1. The reviewer is correct that many of the earlier DHS surveys included data on coital frequency, as we had pointed out in the paper. However, as the reviewer points out, using these data requires assuming that coital frequency has not changed much since the 1980s and early 1990s. An increasing body of evidence suggests that the HIV crisis is affecting age at first intercourse, number and type of sexual partners etc., which raises doubt about this assumption. Hence, rather than using data of uncertain quality, the authors advocate collecting up-to-date data on coital frequency in future surveys.

2. The reviewer remarked that the data on the number of condoms sold and distributed refer to distribution to central warehouses, which may be a misleading indicator of actual sales of condoms to consumers. The authors agree and make this important point throughout the paper. As suggested by the reviewer, the authors contacted the DELIVER project for information about their estimates of the consumption levels. DELIVER estimates the number of condoms dispensed to user quantities based on logistics information. At present estimates are readily available for only two of the four countries in our study. Given the limited data, and given that a detailed analysis of the reliability of these estimates is beyond the scope of the present paper, the authors have elected not to include these estimates.

3. The reviewer noted that calculations based on the coital frequency from the Kenya DHS II yield results that are fairly close to the number of condoms distributed in recent years. Although the results may appear consistent, is implies assuming that coital frequency has remained constant since 1993 (when the DHS II survey was conducted). Since the HIV epidemic is likely to have affected sexual behavior, this assumption may or may not hold.

4. The reviewer commented that the large fluctuations in condom distribution are unlikely to be the result of stock-ups alone. The reviewer speculates that the rebound in 1999-2000 indicates that overall condom use increased dramatically since 1990, and suggests estimating condom distribution using a smoothed trend. However, such a smoothed trend would be very sensitive to outliers. For instance, calculating the trend for 1990-1998 would yield results that are radically different than those for 1990-2000. Hence, we do not believe this is a viable approach for estimating condom consumption in recent years.