

Effects of Interviewer-Respondent Familiarity on Contraceptive Use and Abortion Data

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Problems with reproductive health data in non-Western settings are widely noted, have long been lamented, and have also been the focus of much innovative methodological work on data collection (Axinn 1991; Mensch et al., 2008; Mensch, Hewett, & Erulkar, 2003; Luke, Clark, & Zulu, 2011; Plummer, 2004; Poulin, 2010). Notwithstanding advances arising from this literature, we remain far from being able to identify methods that can ascertain the *true* values for behaviors such as contraceptive use, sexual activity, abortions and testing for sexually-transmitted infections (STIs). These data problems may be particularly problematic in developing societies where the underlying reproductive behaviors are more morally sensitive and politically contentious, and where development efforts remain focused.

The research described in this extended abstract is directed at one of the primary sources of data problems, with an empirical focus on abortion and contraceptive use data. In particular, using data from a unique experimental design fielded in the Dominican Republic in 2010, we identify how levels of familiarity linking interviewers and respondents alter the types of reproductive health responses we obtain.

The Problem

In most of the methodological literature referenced above, data collection problems are solved by distancing the interviewer from the respondent through forms of self-administered questionnaires, including audio computer-assisted self-interviewing (ACASI). These methods have some advantages and testing continues. They appear to reduce social desirability bias as shown in an experiment conducted in Brazil (Mensch et al., 2008). However, they also suffer from apparent higher levels of random measurement error.

In this paper, we discuss an alternative approach. We ask how staying within a traditional face-to-face interview mode but breaking from the “stranger interviewer norm”—the routine policy of using outsider interviewers who have no social connection to respondents—affects the collection of data on contraceptive use and abortion. In prior papers we have shown that the stranger-interviewer approach to data collection may be problematic (Weinreb, 2006), and that empirical effects vary across domains of questions (Sana, Stecklov, & Weinreb, 2012; Weinreb, Sana, & Stecklov, 2011). Recent evidence from an experiment in Malawi on the potential value of “best-friends” as reporters on sensitive reproductive and sexual behavior provides further support for the assertion that taking advantage of prior webs of social connectedness may improve the quality of data on these issues (Yeatman & Trinitapoli, 2011).

In our experiment, we compare the data outcomes from the standard approach that relies on the stranger-interviewer norm to one where interviewers are residents of the survey site, some

of whom reported knowing the respondents they interviewed prior to the interview interaction. Our ability to experimentally manipulate the type of social connection between interviewers and respondents provides us with new insight into the potential sources of measurement error and also motivations that might underlie deception and effort in survey responses.

Data and Methods

Our data are based on an experiment we designed and carried out in a town of the Dominican Republic (DR) to which we will refer as San Benito in 2010. The Dominican Republic (DR), a developing country where seven rounds of the Demographic and Health Survey have been implemented to date and where the fertility rate fell from very high levels to near replacement level in a few decades, offers a compelling setting for carrying out our research on how women report on the use of contraceptives and abortion practices in the course of a survey. The DR is a middle-income state with 9 million inhabitants and a GNI per capita of 7,150 USD, life expectancy at birth of 68 years, and 64 percent urban. Two elements of the research design make it suitable for our purposes. First, we randomized insider, local-stranger, and outsider interviewers across respondents—we define these categories below. Second, the survey instrument includes questions on reproductive behavior, including contraceptive use and abortions, and we use these questions in combination with additional information in the survey to study how responses to questions on reproductive behavior are affected by the nature of the prior existing relationship, if any, between interviewer and respondent. Our sample design is somewhat complex (details in the paper), but overall, 509 interviews were completed. Outright refusal to participate, as in most less developed settings, was low, albeit somewhat lower for women interviewed by locals (insiders and strangers) as opposed to outsiders.

The project's systematic randomization of female respondents to female interviewers from within an identical subsample, and randomization across time, allows us to make direct comparisons between response patterns associated with different types of interviewers. In particular, it allows us to attribute any observed differences in mean or variance of response value across the three types of interviewer-respondent match to the difference in interviewers' level of prior familiarity with the respondent: 1) "insider" interviews where the interviewer and the respondent know each other or at least know someone in the household; 2) "stranger" interviews where the interviewer does not know the respondent but where the interviewer and the respondent are both from San Benito and 3) "outsider" interviews where the interview is from Santo Domingo, the capital, and thus neither from the same community nor directly acquainted with the respondent.

Since there are also important situational differences within interview settings that are also a product of insider-stranger differences—in particular, outsider interviewers were less likely to be invited into the inner sanctum of people's houses, meaning that they conducted their interviews in more public places (front room)—we also correct for these situational factors before making inferences about the actual source of observed reporting differences.

There is evidence to suggest that the degree of social connectedness between interviewers and respondents might play a role in survey data quality. The question is whether there is reason to believe that strangers might be better at collecting data on contraceptive use and if so how can this be tested. To date, most contraceptive use data is based on DHS type survey designs, where trained staff – typically from centralized locations – are sent to conduct interviews in randomly selected clusters throughout a country. This is in fact the approach that was used in the DR in the seven DHS surveys conducted there over the past two decades. Prevalence of modern contraceptive method in the latest survey – 2007 – in the same province as San Benito was estimated at 79.5% for women in unions. While this estimate needs to be refined to better approximate the characteristics of our town and women, it provides an initial benchmark. And according to this benchmark, our preliminary results are fascinating. We find that respondents reported 66% contraceptive use to outsiders, but only 44% to locals. T-tests showed that this was largely an effect of respondents married or in unions reporting much higher contraceptive use to outsiders: 82% vs. 50%. The evidence then shows that contraceptive use prevalence estimates obtained in our sample closely match those obtained using standard DHS protocols where interviewers are by definition outsiders. This is methodologically reassuring but raises the important question of whether outsider numbers are “true” or whether they are in fact over-reported.

Although we have no way to directly validate reported contraceptive use and abortions, we indirectly validate those reports in two ways. First, we look at the direction of response bias. There are reasons to expect that contraceptive use, associated with a modern, Western behavior, might be overstated to outsider interviewers. Johnson-Hanks (2005) – speaking about Cameroon but equally valid in many developing countries – notes that contraceptive use is associated with Western conventions and is a necessary sign of modernity. This is true in the DR too. The government has been actively and openly encouraging contraceptive use, with campaigns aimed at women all over the country. Therefore, declaring oneself to an interviewer to be using contraceptives is an implicit declaration of belonging to modern society. The DR government has been actively and openly encouraging contraceptive use, with campaigns aimed at women all over the country. While difficult to predict *a priori*, this form of social desirability bias is likely to be more strongly emphasized when communicating with people whom the respondent perceives as coming from the most cosmopolitan, modern and advanced part of the country—in our case, the outsider interviewers were all from the capital city of Santo Domingo. On the flipside, since contraceptive prevalence is now so high, there are few costs associated with admitting use. Thus, we hypothesize that respondents might be more likely to exaggerate contraceptive use reports when responding to strangers as opposed to people they know from their community.

Our second approach to validating the reported contraceptive use draws on Bongaarts’ model of the proximate determinants (PD) of fertility (Bongaarts, 1978). The PD model enables us to utilize data collected in the DHS on fertility, breastfeeding, abortion, and ages at marriage. We use these values and match them to identify the values most consistent with our sample of women in our experimental sample. The combination of both sources of data enables us to

determine whether the local, which includes insiders and strangers from San Benito, or outsider reports on contraceptive prevalence are most likely to be accurate.

Our results in Table 1 demonstrate the relation between degree of connectedness and reported contraceptive use in one part of our sample. Three separate categories are defined for our interviews: These three levels of variation, described above, provide us with the experimental stimulus. Two compelling outcomes are immediately obvious. One, insiders and strangers apparently obtain similar reports. Two, there is a marked difference in contraceptive use responses is very large when we compare either type of local interviewer to outsiders. We find a 32-34% *difference* in contraceptive prevalence rates across two modes of interview. This dwarfs effects associated with other modifications in data collection mode. This difference is a key finding we investigate in more detail in our work. We further intend to complement this analysis with empirical investigations of the responses to the abortion questions. The abortion responses are also likely to be biased, on average, as we expect abortions to be under-reported. This will make it particularly interesting to determine whether responses are more UNDER-reported to insiders or to strangers. Thus, without knowing whether any one particular respondent lied, we are able to identify whether lies are more common when interviewers are known to respondents or not.

Table 1. Probit estimates of current contraceptive use (with associated 95% confidence intervals), by interviewer-type

VARIABLES	All data	Insider-interviews	Stranger-interviews	Outsider-interviews
Predicted p (\bar{x})	0.460	0.375	0.388	0.711
Insider interviewer	-0.303** (-0.48 - 0.12)			
Local stranger interviewer	-0.300** (-0.48 - 0.12)			
Outsider interviewer	<i>Reference group</i>			
Number of surviving children	0.115*** (0.06 - 0.17)	0.076* (0.00 - 0.15)	0.131*** (0.07 - 0.20)	0.159* (0.01 - 0.31)
Household income (log)	0.065* (0.00 - 0.13)	0.011 (-0.07 - 0.10)	0.121** (0.03 - 0.21)	0.030 (-0.07 - 0.13)
Ownership of other property	-0.024 (-0.36 - 0.32)	0.274 (-0.31 - 0.86)	-0.286 (-0.82 - 0.25)	-0.063 (-0.59 - 0.47)
Observations	434	181	132	119
Pseudo R^2	0.114	0.044	0.149	0.193

Notes: Standard errors control for clustering on interviewer; Significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$

Conclusion

Our findings so far suggest that familiarity strongly affects how contraceptive use data are reported by respondents. Our subsequent analysis will both replicate these types of models on abortion data and will then aim to clarify whether greater familiarity breeds higher quality data or whether people are more likely to be honest on sensitive topics when reporting to outsiders they don't know. By modeling fertility as a function of its proximate determinants, we hope to gain further leverage on which types of interviewers obtain more accurate responses.

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