The invasion of privacy: Third-party effects in developing-country survey research

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Introduction

The two-actor model—a single interviewer, a single respondent, questions flowing one way and information the other—provides the basic blueprint for survey interviewing. As articulated in older guides to research (e.g., UN 1961; UNECA 1974) and more contemporary interviewer-training materials associated with the Demographic and Health Surveys (DHS)[1]—the primary agent behind large-scale survey research in developing countries since the late 1980s—interviewer trainees are expected to learn "how to tactfully get rid of unwanted listeners" (Macro International 2007: 13). The reason is that the "best atmosphere" for communicating high quality data is one in which there is both a friendly and sympathetic interviewer and a "private area." (ICF Macro 2010: 9; ICF International 2012: 10) In fact, DHS manuals assert that ". . . the major problem in controlling the interview may be one of privacy." (ICF Macro 2010:9; ICF International 2012:10). Without it, the confidentiality assurances that appear in every survey's introductory script and that often precede many sensitive questions throughout the instrument, make no sense. Only the absence of a third party, in other words, protects survey data from the biasing effects of social conformity.

Five sets of empirical questions arise from these claims, the first four of which we address in this paper. First, how far does actual DHS data collection deviate from this two-actor ideal? Second, is the prevalence of a third-party presence changing across time? Third, what factors, if any, appear to explain these differences across countries or across regions within countries, both cross-sectionally and across time? Fourth, and perhaps most important for social researchers, do these deviations from the two-actor model matter analytically? That is, do they actually change observed analytic patterns? Finally—and the only one which we cannot fully answer here—in the types of societies in which DHS fields its studies, is the two-actor model actually superior to its less private alternatives? Or is this invasion of the idea of privacy more of a problem, reflecting a methodological culture that implicitly treats decisions about data collection as orthogonal to cultures of interaction.

We answer the first four questions using two pooled data files. The main one, comprising DHS data from 46 countries in sub-Saharan Africa, Latin America and the Middle East, is used to describe overall trends in third-party presence and to identify cross-sectional covariates at both the individual, regional (i.e., subnational), and national levels. The second data file, comprising 23 countries with two waves of data collected in the same regions (i.e., repeated cross-section in the same subnational area), allows us to look at changes in the prevalence of a third-party presence across time. Finally, to see whether these changes matter analytically, we focus on an illustrative analysis of reported contraceptive use.

Background

Although the underlying association of interviewing with privacy goes back to the early days of structured interviewing—Simmel refers to a good information flow as having the "character of a

[1] By DHS we also include AIDS Indicator Surveys (AIS). The sections of interviewer training manuals salient to the topic of this paper are identical across DHS and AIS models, and their data collection procedures in general are very similar.

confessional"; data collection in the Kinsey sex studies placed heavy emphasis on confidentiality—formal research on the frequency of third party effects on data, or on the magnitude of those effects, has only been conducted in developed country settings. An early paper by Taietz (1962), using data from the Netherlands, set the stage by arguing that the effects of co-presence is mediated by the social identity of the third party. For example, a co-present child will push a parent respondent into a "culture bearer" or "transmitter of culture" role, whereas a co-present spouse will allow the respondent more freedom to deviate from that normative parental role, while also pushing them into convergence along a certain marital dimension (Taietz 1962: 100). Since then, research on co-presence of a *spouse* has emerged as the most common empirical focus within the field. Though Smith (1997) shows that many differences disappear when appropriate controls for family and household structure are introduced, documented effects of spousal co-presence on questions concerning marriage include lower reported likelihood of dissolution and higher reported cohabitation before marriage (Aquilino 1993), greater convergence on a range of reported behaviors and attitudes (Zipp and Toth 2002), and less reporting in general (Boieji 2003). Effects of third parties more generally include lower reported alcohol consumption (Edwards and Slattery 1998). Moreover, these effects are not limited to traditional face-to-face interviews. Rather, they extend to "bystander" effects in self-administered questionnaires (Aquilino, Wright and Supple 2009).

Even with the dearth of formal research on these types of effects in less developed countries (LDCs), there is a lot of relevant secondary material, especially from the early days of survey research. One is the literature on cross-cultural variability in the acceptability and meaning of privacy and confidentiality. The other is the literature on cross-cultural differences in attitudes to ownership of knowledge.

An awareness of variability in attitudes to confidentiality and anonymity emerges strongly in early methodological reflections on survey research in LDCs. Two 1950s surveys in Northern India reported that 27% and 45% of interviews included bystanders (Ralis, Suchman and Goldsen 1958: 147). Wilson (1958), in an informal review of these early years of survey research in these "modernizing areas," writes:

> In some countries, women lead wholly secluded lives, while in others, women are permitted contacts with strangers only under strictly controlled conditions. In these situations it is next to impossible to reach women or to interview them in a setting that is conducive to frank expression. (Wilson 1958:231)

Writing a decade later about early data collection in what was to become the Matlab demographic surveillance sites, Choldin, Kahn and Ara (1967) note very similar phenomena:

> Although the women were easier to find than the men, since they were always at home, privacy in the interview was seldom achieved. The respondent's mother-in-law or sister-in-law often could not be escaped and posed particular problems in the interview, since she presumably enforces traditional attitudes. . . [t]he idea of the private interview does not seem feasible in the context described." (Choldin, Kahn and Ara 1967:250-1)

Nor was this only a problem in South Asia or in majority Muslim areas. In describing their Jamaican fertility survey, Back and Stycos (1959) imply that they aggressively tried to create private interview settings—they describe techniques for ejecting third-party "outsiders" from the interview. However, they also report choosing not to even mention confidentiality in the interviewer's introduction to the respondent during the main survey because:

> "in the exploratory survey ... interviewers nearly lost their lives in a rural area after stressing confidentiality. The people were not as committed to the values of privacy as those in certain other cultures, and their experience with it was so limited that they assumed it must mean witchcraft. They consequently banded together and plotted the demise of the witches."

In summary, the clear impression left by this early methodological literature is that "[t]he anonymity of survey research is generally incomprehensible for peasants in LDCs," (Kroeger 1983:467) and that "[a]lthough essential in much of the western world, emphasis on confidentiality of responses may not be necessary or even desirable." (Hershfield et al 1993:244). These outcomes are not surprising. They can be mapped onto foundational social theory in the same way as attitudes to strangers (Weinreb 2006). That is, classical depictions of *gemeinschaft* societies point to low levels of social differentiation, and high expectation of conformity in behavior and opinion. It is only with the transition to more *gesselschaften* norms can we expect increasing acceptance and valorization of privacy alongside rising levels of individual choice and social differentiation.

This brings us to the second relevant literature: cross-cultural differences in attitudes to ownership of knowledge. The fear and undesirability of anonymity and confidentiality can also be related to deeply politicized ideas about the ownership of knowledge. In part this is related to the salience of boundaries *between* groups or *within* households. Rudolph and Rudolph (1958), for example, report opposition from higher caste members of a sampled community in India to plans to also interview casteless (*harijan*) community members. The members of the higher caste insisted that they themselves were much better sources of knowledge. An example of the salience of boundaries within households is provided in Wilson's (1958) review of the early years of survey research in LDCs. Discussing how the selection of respondents often "clashes with local custom or familial protocol," he writes:

> In some countries, the male head is the exclusive household spokesman, and no explanation of the workings of tables of random numbers will move him to abrogate that right. "If it really is a matter of chance," he will say, "then surely, you will have no objection to speaking with me, since I am the only one here who can answer your questions properly anyway"." (Wilson 1958: 231-2).

Where the ascribed right to voice opinions is associated with general patterns of stratification, survey participation becomes a democratizing ritual. It glosses over highly visible differences, treating all respondents as equal bearers of knowledge. As alienating as this might be to older elites, it is probably appealing to people with relatively low status—such as the casteless in Rudolph and Rudolph (1958), or younger married women living patrilocally in a multigenerational household. Indeed, Mitchell (1965)

argues that people may want to be interviewed with others present because by placing them and their *right* to report in the spotlight, it gives them status.[2]

In short, both in terms of specific field experiences and general theory, there are grounds for questioning the claims that privacy is always preferred, even where it is possible. In any given interview, a researcher's chosen mode and motives may come into conflict with the respondent's, who can use the opportunity of an interview for his/her own reasons. It is this amalgam of situational characteristics and individual histories that come into play during survey interviews, and that affect response patterns over and above any of the actual attitudes and behaviors whose documentation is the primary goal of research. In turn, this raises questions about whether respondents actually prefer the two-actor model or some co-presence, and how this changes with rising educations. We will address the latter question empirically below.

Data

To estimate the prevalence of third-parties in survey interviews, identify correlates of these deviations from the two-actor model, look at changes in prevalence across time, and analytic effects, we use DHS data. These data have four distinct advantages over any other that we know.

First, although data on the presence of a third-party is not collected in all waves of DHS in all countries, those data are collected in at least one wave in most countries. In our cross-sectional analyses, this yields a total sample of 46 countries and 394 (subnational) regions—allowing for reasonable analytic power where our goal is to identify aggregate covariates of third-party presence—in addition to more than 400,000 individual interviews.

A second advantage of these data over any other is that much of the preceding discussion references researchers' reflections on data collection during the 1950s and 1960s. The DHS data used here were collected between 1987 and 2009 and allow us to look at much more recent empirical patterns.

Third, the measure of third-party presence was collected at the same point in time during the interview—around section 5, which deals with questions about contraceptive use. Moreover, they distinguish between four broad types of individuals: a woman's husband; a child less than 10; another adult female; another adult male. In the analyses below, we ignore co-present children, focusing on those above 10. In this, we largely follow Smith (1997), who finds that the presence of children older than 6 reduced reported approval of premarital sex. Since we cannot distinguish ages within the 0-10 range we err on the conservative side.

[2] This mechanism can be interpreted through the type of neo-Durkheimian interaction rituals described in Collins (2004). In a two-actor model, the interviewer and respondent create a temporary ritual community focused on role-playing through a standardized questionnaire. The emotional mood emanating from that interaction can be much greater if the interview is conducted in the physical presence of others because the interaction itself, including the respondent as knowledge bearer, becomes the focus of collective attention.

The final advantage of DHS data is that, as mentioned above, DHS training procedures identify third party presence as "the major problem in controlling the interview may be one of privacy." (ICF Macro 2010:9; ICF International 2012:10). This is reflected in DHS and AIS interviewer training manuals. The subsection devoted to this topic is the longest of six subsections under a section-heading "Building rapport with the respondent".[3] Since this is such a clear articulation of longstanding attitudes to the presence of a third party, we quote the complete passage. It simultaneously clarifies the standard, points to the appeal of observing an interview, mentions a technique for getting rid of observers (interview them!), but also recognizes that it may be "impossible to get privacy.":

> The presence of a third person during an interview can prevent you from getting frank, honest answers from a respondent. It is, therefore, very important that the individual interview be conducted privately and that all questions be answered by the respondent.
>
> If other people are present, explain to the respondent that some of the questions are private and ask to interview the person in the best place for talking alone. Sometimes asking for privacy will make others more curious, so they will want to listen; you will have to be creative. Establishing privacy from the beginning will allow the respondent to be more attentive to your questions.
>
> If it is impossible to get privacy, you may have to carry out the interview with the other people present. However, in such circumstances, it is important that you remember that:
>
> - If there is more than one eligible respondent in the household, you must not interview one in the presence of the other
> - Extra effort should be made to gain privacy if the other person is of the opposite sex, particularly the husband or wife. One way to ensure privacy in this case is to have the husband and wife interviewed simultaneously in two different areas of the household
>
> In all cases where other individuals are present, try to separate yourself and the respondent from the others as much as possible. (ICF Macro 2010: 6; ICF International 2012: 9)[4]

There are also a few disadvantages associated with these data. First, although this 46 country/394 region sample is geographically and culturally diverse, it is not a representative sample of the countries in which DHS has conducted surveys, let alone all countries in the world. Sub-Saharan Africa and Latin America/Caribbean are well represented—by 31 and 12 countries, respectively. But only two Arab countries (Egypt and Jordan) and one other Middle Eastern country (Turkey) include these data on third party effects. And no central or south Asian societies are presented, unfortunate since these societies

[3] The first five subsection titles are (chronologically): Make a good first impression; Obtain respondents consent to be interviewed; Always have a positive attitude; Assure confidentiality of responses; Answer any questions from the respondent frankly.

[4] Note that prior to asking two discrete series of questions on both DHS and AIS questionnaires—the first on sexual intercourse, the second on HIV testing—the interviewer is reminded to "make sure you have privacy with the respondent before you start asking them." (ICF Macro 2010: 49, 53; ICF International 2012: 88, 99) The message is: at least in these sections, ensure it.

figure prominently in the early discussions reviewed above. The reason for the inclusion in some waves of data collection but not others is unknown to us.

A second less-than-ideal characteristic of the sample is the fact that the number of subnational regions made available by DHS across countries is quite variable: from two regions in Trinidad and Tobago, three in the Comoros Islands, Cote D'Ivoire, Jordan and Malawi, to more than 15 in Chad, Honduras, Morocco, Nigeria, Peru and Tanzania. These differences in subnational identifiers limit our ability to look at within-country differences in some countries more than others.

Finally, a change in response codes associated with the third party presence variables makes it more complicated to look at time trends. All data from 1987-2000 use a dichotomous response option (yes/no) based on the question: "was X present?" (where X is a husband, other adult male, or other adult female). From 2001, all but one country (Senegal 2005) use three response options: not present; present but not listening; present and listening. We combine the latter two—it is often unclear whether someone is in earshot or not, and interviewers have an incentive to minimize reports of copresence—but all models reported below include a control to account for this change in coding.

Prevalence

Figure 1 confirms that there is both considerable deviation from the two-actor model but also enormous variability in that deviation across and within countries. Prevalence of a third party *in the sensitive part of the interview* noted by the DHS instrument ranges from 2.1% of interviews in the Dominican Republic to 43.4% in Mozambique. Across all countries, husbands are co-present in 3.8% of interviews, other adult males in 4.5% of interviews, and other adult females in 11.1%. At the individual level (N=444,510), there is also a high correlation between each of the types: 0.43 between husbands and other males; 0.27 between husband and other females; and 0.44 between other males and other females.

Figure 1 and Table 1 about here

These distributions are summarized in Table 1. In only seven of the 46 countries are third parties present in fewer than 5% of the interviews, the presumed goal of DHS planners. In 13 countries, a third party is present in 10-15% of interviews, in 11 countries, they are present in 15-20% of interview. And in 6 countries, more than a fifth of interviews include a third party in this sensitive section of the questionnaire. Interestingly, there is no sign that these are concentrated in particular culture areas. Rather, they are geographically dispersed: two countries are in sub-Saharan Africa, Congo-Brazzaville (22.5%) and Mozambique (43.4%); two are in the Arab world, Morocco (23.6%) and Jordan (32.4%); and two are in Latin America, Brazil (28.2%) and Guatemala (42.6%).

Figure 1 also highlights the high levels of within-country variation in prevalence of third party presence, ranging from no interviews in some regions to more than 60% of interviews in specific regions of Mozambique, Ethiopia and Chad. Indeed, 29 of the 46 countries have at least one region in which more than 20% of the interviews were conducted in the presence of a third party.

Explaining differences

Since DHS interviewers receive standardized training across different countries, the magnitude of variation in third party effects seems surprising.

Three sets of explanations can account for these differences. The first point to factors associated with the respondent or respondent's households. These include the usual suspects in sociodemographic research, in particular, indicators of women's education and labor force participation. We assume that both are negatively related to third party effects. Given the established literature on third party presence in Muslim majority societies, we also include dummy variables for "urban residence" and "Muslim"—rooted, respectively, in the foundational sociological literature on the effects of urbanization on patterns of interaction, and in the early demographic literature on privacy in interviews in South Asian Muslim areas. In addition, we include indicators of other household characteristics such as overall house size and household composition. In particular, we are interested in whether the respondent is the head of her own household (or spouse or mother of the head), or whether she is a coresident daughter-in-law. These different social positions within the household have implications for how much oversight she requires from some other household member, or how much private space she can lay claim to.

A second set of determinants taps into similar factors, but at higher aggregates. In particular, we look at the effects of the regional proportions of women who are urban, Muslim, and currently working, and a measure of relative education: that is, number of standard deviations an individual woman's education is from the regional mean.

A final set of explanations is related to the process of interviewing. In particular, we examine whether DHS use of a translator—a sanctioned deviation from the two-actor model where there a DHS interviewer team encounters respondents who cannot be interviewed in one of the existing languages—invites more attention from other third parties [models not yet run but will be in time for the seminar].

Note that differences in DHS instruments across countries affect our analyses. In particular, data on house size—whether number of rooms or number of bedrooms—are not available from all waves. We therefore specify three analyses: the first uses the whole sample; the second uses the sample with missing data on house size, household size, and relationship to household head; and the third uses the sample with data on house size, household size, and relationship to household head. In addition, since co-present husbands, other adult males, and other adult females index quite different social relationships, we evaluate them separately. This yields a total of nine discrete models presented, respectively, in models 1, 2 and 3 of Tables 2-4. All specify robust standard errors at the regional level.

Tables 2-4 about here

Looking across the three models predicting co-presence of husbands (Table 2), we observe substantial differences in the size and direction of some of these effects. Among the effects which are robust enough to remain significant in both the complete sample (model 1) and the sample with all available

data (model 3), we find higher reports of husband co-presence with the newer response coding, higher reports where the respondent is currently married, and higher reports in more urbanized regions—the latter runs counter to the standard narrative of increasing tolerance for privacy in urban areas. However, we also find marginally lower reports of husband's co-presence where the respondent lives in an urban area. And in model 3 only, we see the expected negative relationship to schooling, and unexpected positive relationship to age and negative to Muslim. Throughout, there is no relationship to house size, household size, or being currently working (other than in model 2).

Patterns are somewhat different in relation to co-presence of other adult males (Table 3). In addition to the positive effect of changes in response coding and living in an urbanized region, and negative effects of education, we see strong positive effects of household size, and stronger age effects—negative, though increasingly moderated by the positive nonlinear effect of the quadratic term. The big difference with co-presence of husbands comes in the regional measures. There are powerful negative effects of proportion Muslim, and number of standard deviations from regional average schooling.

These regional measures are even more important predictors of copresence of other adult females (Table 4). In addition to the positive effects of living in an urbanized region, there are strong negative effects of proportion Muslim, the same negative effect of regional average schooling, and most profoundly, very powerful and significant effect of proportion working—the estimated logit translates into predicted probability of 20 percent adult female co-presence where only 5 percent of women are working to 7.3 percent co-presence where 95 percent of women are working. Likewise, although there is the same positive (and expected) effect of number of people in the household, there is also a positive, *un*expected effect of number of rooms. That is, net of household composition, relationship to household head, and all other variables in this model, more rooms provide fewer opportunities for privacy—or more intriguing, the types of people sampled by DHS who live in homes with more rooms value same-sex privacy less.

Time trends

If deviations from the two-actor model, the basic blueprint for survey interviewing, are undesirable, it is important to know what the trends are in third-party presence. Stretching the results reported in Tables 2-4 across time hints at countervailing effects. Specifically, rising education and work tend to depress third-party presence, while urbanization raises it.

A first glimpse of real temporal trends—that is, moving beyond the temporal flattening found in a cross-section regression—is presented in Figure 2. It graphs the bivariate distribution of the three types of third-party presence across single surveys fielded in 46 countries between 1987-2009. It also marks the point at which DHS changed the response codes on the third-party presence variable with a vertical bar (between 2000 and 2001). Overall, within each response-coding period—1987-2000 and 2001-2009—we see relatively flat lines. The largest fluctuations can be seen in relation to the presence of an adult female. There are signs of a slight reduction in adult female co-presence between the late 1980s and

mid-1990s, but then a slight rise again. In addition, and consistent with the high correlation coefficients between each of these types of co-presence, the lines largely track each other.

Figure 2 about here

To generate a more reliable measure of change in third-party presence, we limited analysis to a smaller group of 23 countries with two waves of data collected in the same identifiable regions. This is the lowest analytic level where we can generate a repeated cross-section. Across the 23 countries, the average duration between the two survey waves is 12.5 years, with minimum and maximum values extending from 5 to 19 years.

Table 5 compares estimates of overall changes in the three types of third-party presence using both the original 46-country single cross-section sample and the 23-country repeated cross-section sample. In the first, we estimate the difference in mean third-party presence, by type, between the two coding periods. We treat this difference (column 1) as a baseline estimate for the amount of change in third-party presence attributable to the shift in coding. Column 2 presents the difference in mean third-party presence across 140 regions where we have two repeated cross-sections. Column 3 then specifies the difference between these two estimates.

Results point to an unambiguous increase in all three forms of third-party presence over the last two decades. Moreover, the excess of column 2 over column 1 suggests that this increase is not merely an artifact of changes in DHS coding. Rather, there is a strong secular trend: third-party presence is increasing; or, expressed in a more direct challenge to survey methodologists, the deviation from the two-actor model is growing.

Table 5 about here

To explain this trend we specified a series of simple OLS regression at the region-level. Three dependent variables are used: changes in husband's presence, adult male's presence, and adult female presence. Since the goal of these models is to identify effects of changes in the key determinants identified in Tables 2-4 on the growth of third-party effects, we focus on a subset of explanatory variables that we can measure across the two repeated cross-sections [NOTE: non-standardized coding of some of these variables, including regions, means that this work is still in progress].

Results are presented in Table 6. Although low R^2 points to limited explanatory power of these models, there are strong positive effects of regional urbanization on all three types of co-presence: that of husbands, other males, and other females. There is also a positive and borderline significant effect of proportions widowed and divorced, which alongside proportions never married, increased marginally over the period. Together, these appear to offset the negative effect on all types of third-party of increases in years of schooling across the period.

Table 6 about here

Analytic effects

Having established that these deviations from the two-actor model occur frequently, and that they may even be occurring more frequently than in the past, we now ask whether they matter analytically. For illustrative purposes we focus on a simple analysis of contraceptive use, using both the 46-country single cross-section and 23-country repeated cross-section samples.

In the 46-country sample, we estimate logit models of reported contraceptive use (any method) on age, education, currently working, and two marital status variables: being currently married and divorced or widowed. We also include two controls: year of survey—tapping into temporal change—and change in coding of third-party presence. Parallel models are run on data with and without the presence of a third party, yielding six discrete models, two for each type of third party. Results are presented in Table 7.

Table 7 about here

Overall results are mixed. On one hand, observed effects of women's schooling do not vary substantively with and without the presence of a third-party, irrespective of type (husband, other male, other female). The same is true of age, with the borderline exception of models (5) and (6). The estimate age effect in the "adult female not present" (0.0979+/- 2*(.0091)) falls short of the estimated age effect in model 6.

More substantively important differences appear in the remaining variables, which makes sense given the differential effects of currently working and marital status on different types of third-party presence, as observed in Table 2-4. For example, in interviews where a husband or other adult male are present (models 2 and 4), there is *no* relationship between currently working and current contraceptive use. Where they are not present, there is a *strong* negative relationship. Likewise, although being currently married is positively associated with contraceptive use in all models, the relationship is much weaker where a husband or other male are present. A similar difference in estimates can be seen in relation to being currently divorced or widowed.

A somewhat different take on the analytic effects of a third-party on (reported) contraceptive use can be seen in the 23-country sample. Across the 133 regions in this sample, contraceptive use increased by 7.4 percent between the two waves, with a range extending from a 26 percent reduction in one region to a 40 percent increase in another. Building on the approach taken in Table 6, we regress this *change in regional mean contraceptive use* on changes in standard sociodemographic determinants, including third-party effects. Three models are presented in Table 8, each specific to a type of third-party.

Table 8 about here

Results point to the unexpected positive effects of third-party presence on the change in contraceptive use. Net of positive changes in other long-established determinants of contraceptive use—in mean women's schooling and in the proportion urban, working, and currently married—change in the co-presence of husbands is associated with a sharp increase in contraceptive use. Specifically, predicted marginal changes in contraceptive use are 4.5 percent where there is a 5 percent reduction in husband's

co-presence (5th percentile for regional change in husband's presence), but 12 percent when there is a 25 percent increase in husband's co-presence (95th percentile for regional change in husband's presence). Somewhat smaller but equally significant effects are associated with changes in the co-presence of other adult men and women.

Discussion [DRAFT]

In this paper we describe a first attempt to summarize and review a range of issues related to third-party effects in LDC settings. Since it is difficult to imagine randomizing respondents to an interview in which there is a familiar third-party presence—a husband, brother, mother-in-law, friend—formal experimental research on the effects of a third-party presence on survey reports is unlikely. This, at least, is true in the types of home settings in which most survey data are collected. Methodological debate about this topic is likely to be based primarily on these types of data.

We have documented here that third-party presence remains relatively frequent in survey interviews, in particular for adult women, that it is much more prevalent in some countries than others, and that, if anything, prevalence has increased. We have also shown that these may lead to some differences in analysis, that is, the identification of relationships between outcome and explanatory variables.

More intriguing, our comparative data suggest that to the extent that urbanization is a corollary of "modernization," it does not automatically cleanse the interview setting of all third-parties. On the contrary, greater urbanization appears to increase the prevalence of third-parties in interview settings, though beyond the broad differences available in DHS data, we cannot identify whether it changes the characteristics of who is co-present.

This in turn raises the possibility that irrespective of interviewers' professional preferences and official survey protocols, "modern" individuals in non-Western settings may assert their rights vis-à-vis the interviewer no less than their western counterparts. But since they are not inured to norms of privacy and ideas about rights to others' information, they may equally insist on co-presence for *certain types of people*. The surest sign of this in our data is in the relatively small differences in empirical results between models where other adult females are present and not present (models 5 and 6 in Table 7). Another sign is the positive effect of house size (number of rooms) on co-presence of an adult female, net of number of household members.

None of this provides an easy answer to the narrowly focused methodological question of whether to more actively promote a two-actor model. But it is related to a more interesting theoretical question of how, if at all, sources of mismeasurement in survey data change alongside larger structural shifts. In this case, by documenting whether changes in sociocultural and material conditions such as women's education, the house's physical size, or changes in family structure (e.g., lower fertility, increasingly neo-local residential patterns) affect the presence of a third-party, we can point to emerging problems in survey research in developing countries.

Fuller discussion re. meaning of these results for privacy here.

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Tables

Table 1. Average country prevalence of adult (>age 10) third-party presence

% of interviews with third party (range)	Number of countries
0-4.9	7
5-9.9	9
10-14.9	13
15-19.9	11
20+	6
Total	46

Table 2. Logit estimates of copresence of husband

VARIABLES	(1)	(2)	(3)
Change in question coding	0.779***	0.669***	0.951***
	(0.161)	(0.196)	(0.226)
Number of rooms			0.0260
			(0.0308)
Number of people in household			-0.0186
			(0.0127)
INDIVIDUAL			
Relationship to HH head[1]			
- Wife, daughter, granddaughter			0.613***
			(0.0999)
- Daughter-in-law			0.560***
			(0.148)
Urban	-0.0891**	-0.0447	-0.0976*
	(0.0435)	(0.0816)	(0.0509)
Age	0.00283	-0.00609	0.0209*
	(0.00938)	(0.0168)	(0.0122)
Age x Age	-1.75e-05	1.95e-05	-0.000195
	(0.000135)	(0.000241)	(0.000174)
Currently married[2]	1.613***	1.618***	1.513***
	(0.125)	(0.165)	(0.161)
Divorced/widowed	-0.0339	-0.00414	0.109
	(0.0964)	(0.161)	(0.128)
Muslim	-0.0743	0.0862	-0.139*
	(0.0675)	(0.101)	(0.0845)
Years of schooling	-0.0176	0.0549	-0.0715**
	(0.0242)	(0.0358)	(0.0323)
Currently working	0.0198	0.201***	-0.0421
	(0.0340)	(0.0716)	(0.0407)
REGIONAL			
Proportion urban	0.416*	-0.178	0.527*
	(0.251)	(0.478)	(0.308)
Proportion Muslim	-0.285	-0.338	-0.397
	(0.189)	(0.334)	(0.255)
Number SDs from regional	0.0308	0.281**	-0.166
average schooling	(0.0900)	(0.135)	(0.118)
Proportion working	-0.0429	-0.112	-0.0321
	(0.293)	(0.469)	(0.427)
Constant	-5.916***	-5.900***	-6.600***
	(0.393)	(0.527)	(0.580)
Observations	414,454	156,521	239,014

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: [1] Relative to respondent is head, or mother/mother-in-law of the head; [2] Relative to never married/lived with someone

Table 3. Logit estimates of copresence of other adult male

VARIABLES	(1)	(2)	(3)
Change in question coding	0.996***	0.666***	1.267***
	(0.180)	(0.219)	(0.276)
Number of rooms			0.0227
			(0.0257)
Number of people in household			0.0345***
			(0.00896)
INDIVIDUAL			
Relationship to HH head[1]			
- Wife, daughter, granddaughter			0.0785*
			(0.0464)
- Daughter-in-law			0.490***
			(0.138)
Urban	-0.0336	0.0524	-0.0651
	(0.0423)	(0.0654)	(0.0545)
Age	-0.0358***	-0.0391***	-0.0158
	(0.0102)	(0.0150)	(0.0118)
Age x Age	0.000525***	0.000472**	0.000332*
	(0.000144)	(0.000210)	(0.000170)
Currently married[2]	0.0707	0.220***	-0.137*
	(0.0556)	(0.0713)	(0.0794)
Divorced/widowed	0.129*	0.186*	-0.00102
	(0.0679)	(0.107)	(0.0794)
Muslim	-0.0293	-0.0374	-0.0386
	(0.0582)	(0.131)	(0.0617)
Years of schooling	-0.0475*	0.0121	-0.105***
	(0.0278)	(0.0355)	(0.0386)
Currently working	0.0175	0.198**	-0.0197
	(0.0307)	(0.0837)	(0.0340)
REGIONAL			
Proportion urban	0.411	-0.537	0.749**
	(0.312)	(0.528)	(0.377)
Proportion Muslim	-0.308	0.0611	-0.727***
	(0.200)	(0.319)	(0.280)
Number SDs from regional	-0.113	0.117	-0.335**
average schooling	(0.100)	(0.123)	(0.135)
Proportion working	-0.319	-0.219	-0.769
	(0.332)	(0.428)	(0.482)
Constant	-4.029***	-3.772***	-4.558***
	(0.480)	(0.593)	(0.725)
Observations	414,454	156,521	239,014

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: [1] Relative to respondent is head, or mother/mother-in-law of the head; [2] Relative to never married/lived with someone

Table 4. Logit estimates of copresence of other adult female

VARIABLES	(1)	(2)	(3)
Change in question coding	0.335**	0.376	0.262
	(0.148)	(0.233)	(0.183)
Number of rooms			0.0522**
			(0.0230)
Number of people in household			0.0290***
			(0.00973)
INDIVIDUAL			
Relationship to HH head[1]			
- Wife, daughter, granddaughter			0.113***
			(0.0364)
- Daughter-in-law			0.331***
			(0.110)
Urban	0.0382	0.0787	0.0205
	(0.0350)	(0.0546)	(0.0455)
Age	-0.0362***	-0.0202*	-0.0337***
	(0.00793)	(0.0122)	(0.00858)
Age x Age	0.000537***	0.000248	0.000552***
	(0.000115)	(0.000162)	(0.000130)
Currently married[2]	-0.0855	-0.178**	-0.106
	(0.0688)	(0.0704)	(0.0813)
Divorced/widowed	-0.0248	-0.236*	0.105
	(0.0686)	(0.123)	(0.0687)
Muslim	0.0159	-0.0890	0.0574
	(0.0596)	(0.111)	(0.0646)
Years of schooling	-0.113***	-0.149***	-0.0799***
	(0.0215)	(0.0301)	(0.0299)
Currently working	-0.0303	-0.0255	-0.0278
	(0.0230)	(0.0514)	(0.0259)
REGIONAL			
Proportion urban	0.525**	-0.136	0.701**
	(0.219)	(0.308)	(0.281)
Proportion Muslim	-0.408***	-0.0208	-0.732***
	(0.157)	(0.235)	(0.219)
Number SDs from regional	-0.299***	-0.344***	-0.212*
average schooling	(0.0716)	(0.0903)	(0.108)
Proportion working	-1.354***	-1.384***	-1.457***
	(0.297)	(0.376)	(0.431)
Constant	-0.968***	-0.877	-1.485***
	(0.357)	(0.614)	(0.436)
Observations	414,454	156,521	239,014

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: [1] Relative to respondent is head, or mother/mother-in-law of the head; [2] Relative to never married/lived with someone

Table 5. Absolute change in percentage of interviews with third-party presence

	Single cross-section	Repeated cross-section	Net change (%)
	(1)	(2)	(3)
Husband	2.54	6.39	3.85 (60.2%)
Other adult male	3.16	7.52	4.36 (58.0%)
Other adult female	0.21	9.79	9.58 (97.8%)
n(regions)	394	140	

Notes: (1) Mean difference between surveys fielded 2001-2009 and 1987-2000; (2) Difference between matched regions; (3) Column (2)-(1)

Table 6. OLS estimates (SE) predicting region-specific changes in prevalence of third-party, by type of third-party

VARIABLES	(1) Husband	(2) Other male	(3) Other female
Change in region:			
- Proportion urban	0.114**	0.203***	0.201**
	(0.0464)	(0.0647)	(0.0976)
- Mean years of schooling	-0.0243**	-0.0357**	-0.0461**
	(0.00979)	(0.0137)	(0.0206)
- Proportion (women) working	-6.29e-05	-0.00448	-0.0128
	(0.0424)	(0.0592)	(0.0893)
- Proportion widowed/divorced	0.501*	0.551	0.631
	(0.296)	(0.413)	(0.624)
- Proportion never married	0.138	0.243	0.481
	(0.156)	(0.218)	(0.329)
Constant	0.0798***	0.102***	0.134***
	(0.0120)	(0.0167)	(0.0252)
Observations	133	133	133
R-squared	0.063	0.083	0.050

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TO ADD: EFFECTS OF CHANGES IN AGE, HOUSEHOLD SIZE, HOUSE SIZE

Table 7. Estimated odds ratios of current contraceptive use on selected covariates

VARIABLES	No 3rd party presence (1)	Husband (2)	Other male (4)	Other female (6)
Year of survey (grouped)	0.295***	0.132	0.0338	0.135
	(0.0638)	(0.0961)	(0.108)	(0.0938)
Change in question coding	-0.789***	-0.829***	0.0104	-0.197
	(0.148)	(0.278)	(0.308)	(0.288)
Age	0.101***	0.0844***	0.105***	0.121***
	(0.00861)	(0.0202)	(0.0189)	(0.0133)
Years of schooling	0.138***	0.142***	0.145***	0.137***
	(0.00720)	(0.0106)	(0.0100)	(0.0105)
Currently working	-0.152***	-0.0598	-0.0689	-0.151***
	(0.0382)	(0.0795)	(0.0643)	(0.0533)
Currently married	1.744***	0.819***	0.992***	1.458***
	(0.0998)	(0.210)	(0.152)	(0.163)
Currently divorced or widowed	0.698***	0.417**	0.302**	0.588***
	(0.0905)	(0.199)	(0.123)	(0.150)
Constant	-3.021***	-1.420***	-2.896***	-3.329***
	(0.194)	(0.368)	(0.298)	(0.278)
Observations	412,100	16,691	19,636	48,635

Robust standard errors at regional level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. Effects of changes in third-party presence and selected regional characteristics on changes in reported contraceptive use

	(1)	(2)	(3)
Change in regional:			
- Proportion husband co-present	0.249***		
	(0.0604)		
- Proportion adult male co-present		0.144***	
		(0.0445)	
- Proportion adult female co-present			0.0968***
			(0.0295)
- Proportion urban	0.0646**	0.0625*	0.0713**
	(0.0318)	(0.0330)	(0.0324)
- Mean years of schooling	0.0556***	0.0549***	0.0544***
	(0.00674)	(0.00692)	(0.00688)
- Proportion (women) working	0.0468	0.0480	0.0490*
	(0.0289)	(0.0296)	(0.0296)
- Proportion currently married	0.509***	0.504***	0.512***
	(0.105)	(0.107)	(0.108)
Constant	0.0113	0.0165*	0.0181*
	(0.00950)	(0.00953)	(0.00926)
Observations	133	133	133
R-squared	0.551	0.530	0.531

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

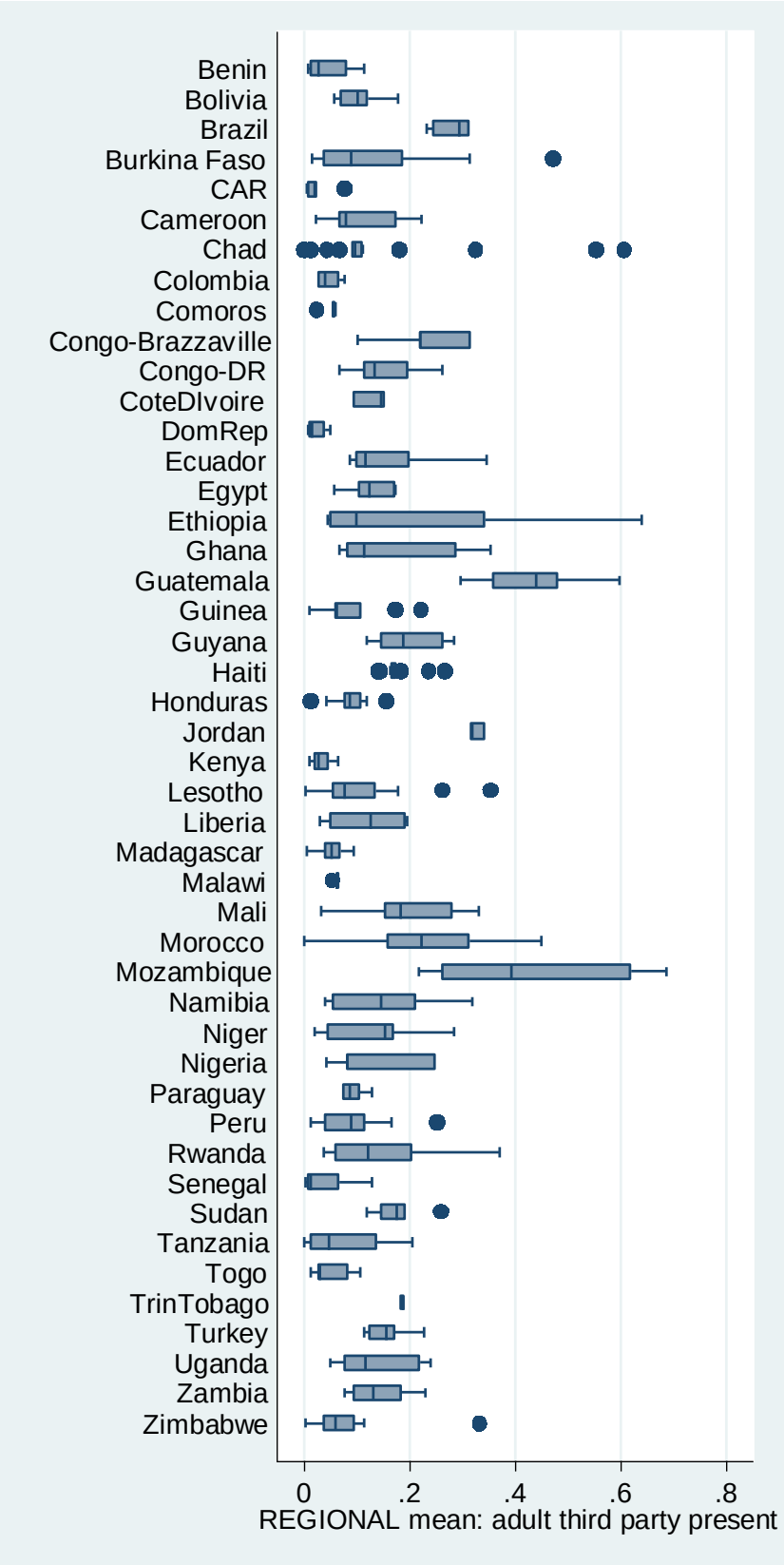

Figure 1. Magnitude of overall third-party effects, and interregional dispersion, by country

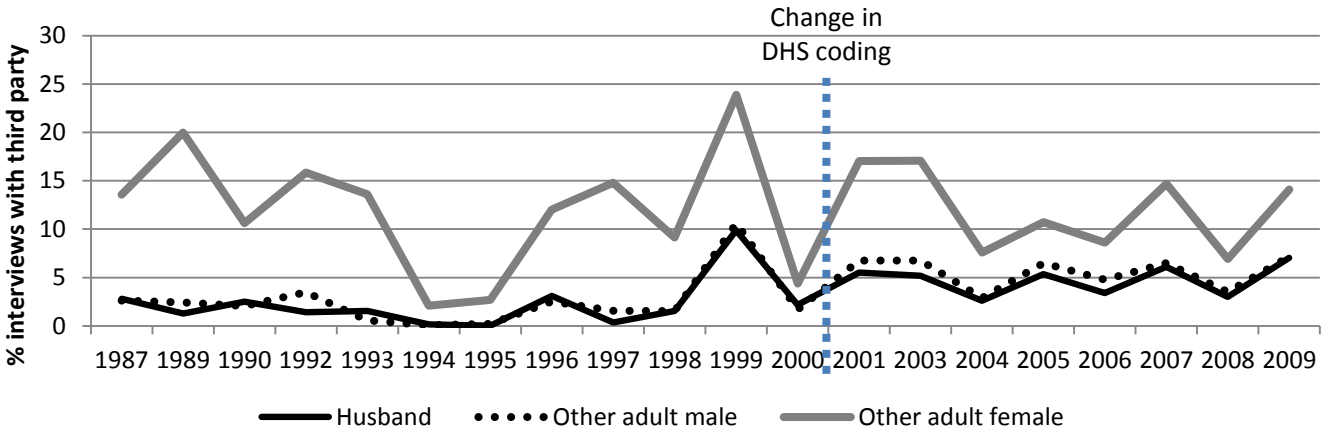

Figure 2. Trends in third-party presence in 46 countries, 1987-2007, by type of adult