



# Interviewer Effects on Responses to Sensitive Questions: Evidence from Demographic and Health Surveys in Six Countries

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**PRELIMINARY**

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# Background

- Sensitive survey questions tend to be disproportionately subject to nonresponse and measurement error (Fenton et al. 2001; Torangeau and Yan 2007)
- Two distinct types of interviewer effects: *role-restricted* (e.g. behavior, demeanor) and *role-independent* (e.g. race, sex, age) (Anglewicz 2009)
- Nationally-representative Demographic and Health Surveys (DHS) typically ask women of reproductive age several such questions, e.g.:
  - Experiences of physical and sexual violence
  - Age at first sex, extramarital sex
  - Time since last intercourse, frequency of intercourse past 4 weeks
- To date, little opportunity to study how DHS interviewers may affect survey error
- The DHS Program has recently begun gathering data about interviewer characteristics that enable such analysis



# Objectives

- To assess the effect of:
  - Individual interviewers
  - Interviewer characteristics
  - Social distance between interviewers and respondentson refusal, inconsistency, and differential reporting of sensitive questions
- To examine these relationships in multiple countries / cultural contexts



# Data and Methods

# DHS Survey Process

- Interviewers recruited through implementing partner
- Intensive training for all candidates, typically 2-3 weeks
- Interviewers tested and only those who perform well are retained
- Typically a stratified two-stage cluster sample
- Extensive training and some survey ‘safeguards’ around sensitive questions

712	CHECK FOR PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.		
713	Now I would like to ask some questions about sexual activity in order to gain a better understanding of some important life issues. Let me assure you again that your answers are completely confidential and will not be told to anyone. If we should come to any question that you don't want to answer, just let me know and we will go to the next question. How old were you when you had sexual intercourse for the very first time?	NEVER HAD SEXUAL INTERCOURSE ..... 00  AGE IN YEARS ..... <input type="text"/> <input type="text"/>	→ 730A

- Supervisors update and review field check tables throughout interview process--for example high refusals, age clustering/heaping, performance benchmarks--to determine additional training or personnel allocation
- All data cleaned, reviewed prior to release

# Datasets Analyzed for Study

Country	Year	<i>Number Married Women age 15-49</i>		Number of Interviewers	<i>Interviews per Interviewer</i>	
		Interviewed	With Valid Interviewer Data		Mean	Range
Armenia	2015-16	3,998	3,998	54	74.0	(1, 123)
Burundi	2016-17	9,559	9,312	75	124.2	(1, 205)
Malawi	2015-16	15,952	15,013	140	107.2	(12, 185)
Nepal	2016	9,904	9,904	57	173.8	(36, 364)
Uganda	2016	11,379	10,927	86	127.1	(9, 223)
Zimbabwe	2015	6,015	5,788	62	93.4	(1, 250)

## Selection of Indicators and Models

- Refusal on sensitive questions tends to be very low ( $<1\%$ ) in most DHS countries with interviewer data
- Are there 'polite refusals': stigmatized behaviors that women are disproportionately more or less likely to reveal with certain interviewers?
- Are contradictory pieces of sensitive information indicative of polite refusals? (At the very least, interviewer carelessness)
- Complications: innumeracy in countries studied; possible endogeneity between interviewers and respondents, as interviewers tend to be assigned regionally

## Indicators Studied

1. **Refused sexual violence** question or refused/no response to question about **physical violence**
2. **Inconsistent age at first sex or time since last sex**
  - For example, reported sex one year after the conception of her first child, reported age at first sex as older than she is now...
  - Reported last sex before last birth but is currently pregnant, time since last sex inconsistent with number of times she'd had sex in the four weeks preceding the survey...
3. **Premarital sex:** age at first sex younger than age at first union



# Three Models

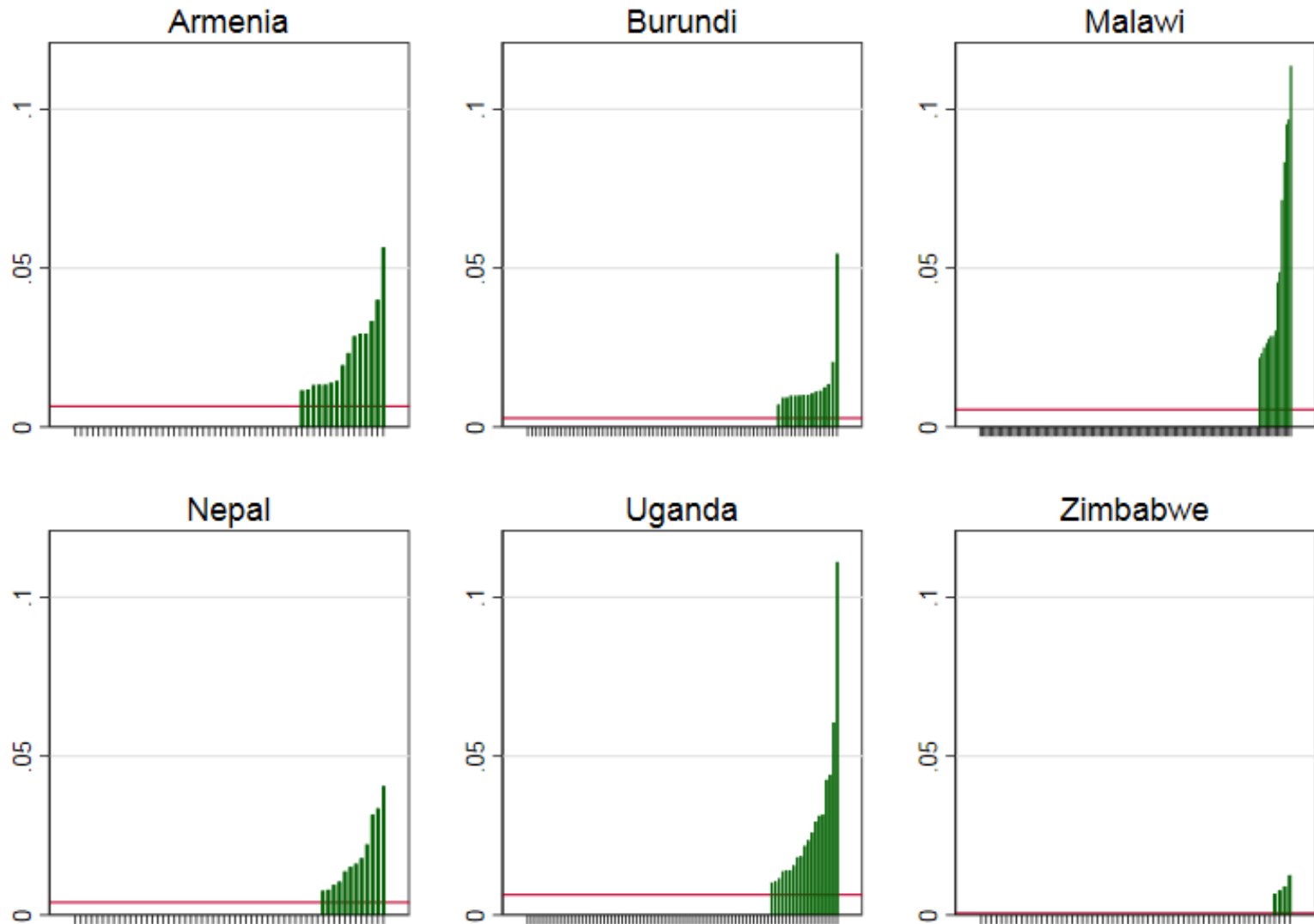
Model 1: Respondent + interviewer characteristics	Model 2: Respondent/interviewer interaction	Model 3: Interviewer random effects + respondent characteristics
<ul style="list-style-type: none"><li>• R.'s age group</li><li>• R.'s education</li><li>• R.'s wealth quintile</li><li>• R. is urban resident</li><li>• R. has 1 or more living children</li><li>• I. is urban resident</li><li>• I.'s marital status</li><li>• I.'s experience (previously worked on a DHS (ref), worked on a survey not DHS, no prior experience)</li><li>• I. has 1 or more living children</li></ul>	<ul style="list-style-type: none"><li>• I.'s marital status</li><li>• I.'s experience</li><li>• I.'s x R.'s urban residence</li><li>• I. x R. has at least one living child</li><li>• I.-R. educational difference</li><li>• I.-R. age difference</li></ul>	<ul style="list-style-type: none"><li>• R.'s age group</li><li>• R.'s education</li><li>• R.'s wealth quintile</li><li>• R is urban resident</li><li>• R. has 1 or more living children</li><li>• Individual interviewer random effects (if has interviewed <math>\geq 10</math> respondents)</li></ul>

# Results: Prevalence of Each Indicator by Country

		Indicator 1: Refused to answer a sexual or physical violence question		Indicator 2: Inconsistent age at first sex or inconsistent time since last sex		Indicator 3: Premarital sex	
Country	Year	Prevalence (%)	Numerator	Prevalence (%)	Numerator	Prevalence (%)	Numerator
Armenia	2015-16	0.6	19	7.9	316	4.4	176
Burundi	2016-17	0.3	18	8.9	826	27.8	2,586
Malawi	2015-16	0.5	23	17.2	2,578	48.6	7,290
Nepal	2016	0.6	21	9.5	943	7.5	742
Uganda	2016	0.6	34	14.9	1,632	55.8	6,089
Zimbabwe	2015	0.1	4	4.8	277	38.2	2,210
Average (%)		0.4		10.5		30.4	

# Indicator 1: Refused a question about sexual or physical violence

# Distribution of Interviewers' Average Refusal by Country



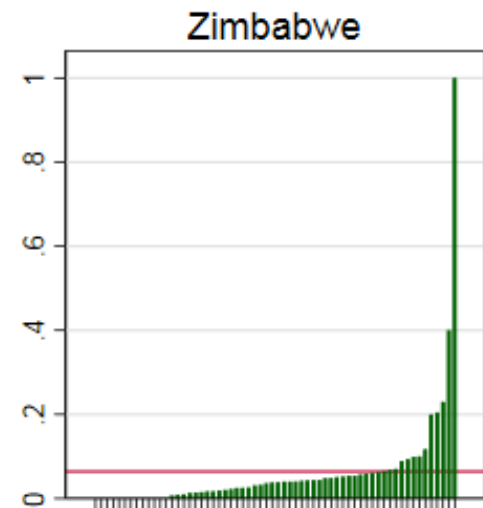
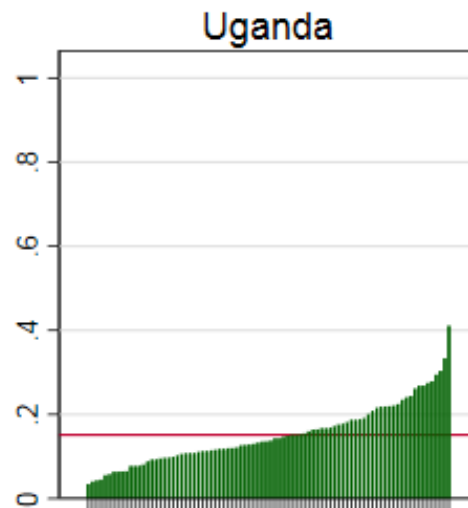
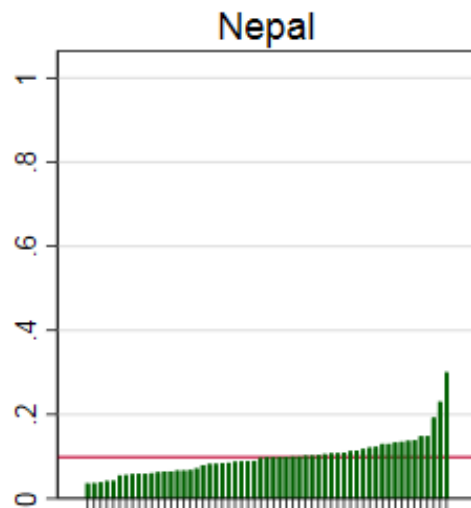
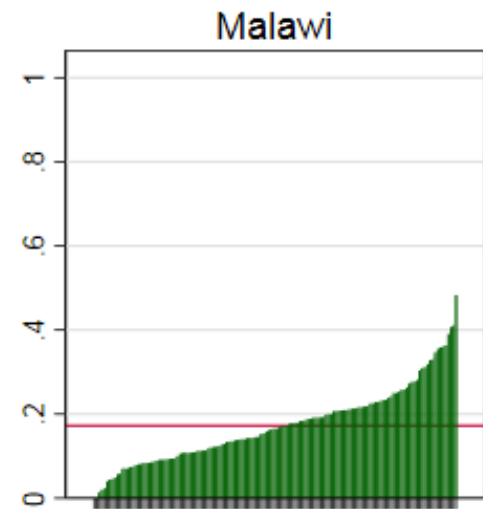
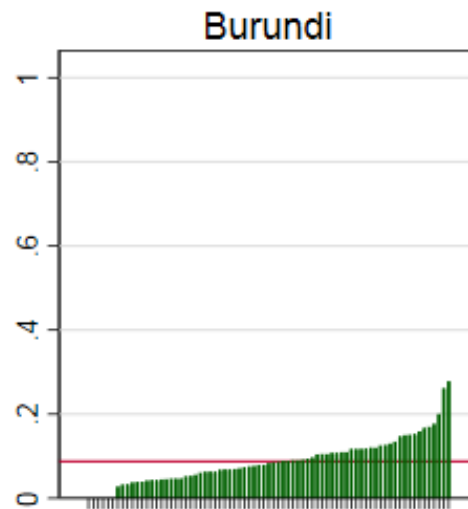
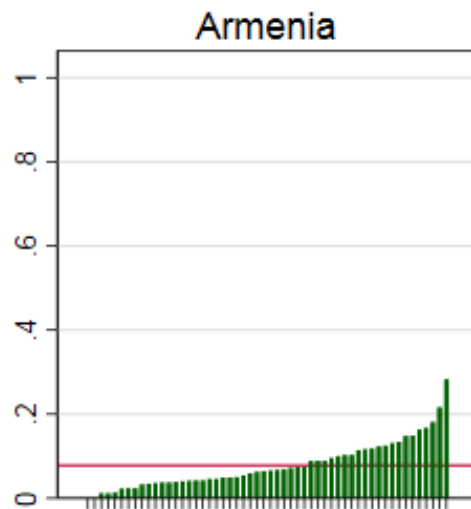


# Refusal to Physical or Sexual Violence Question

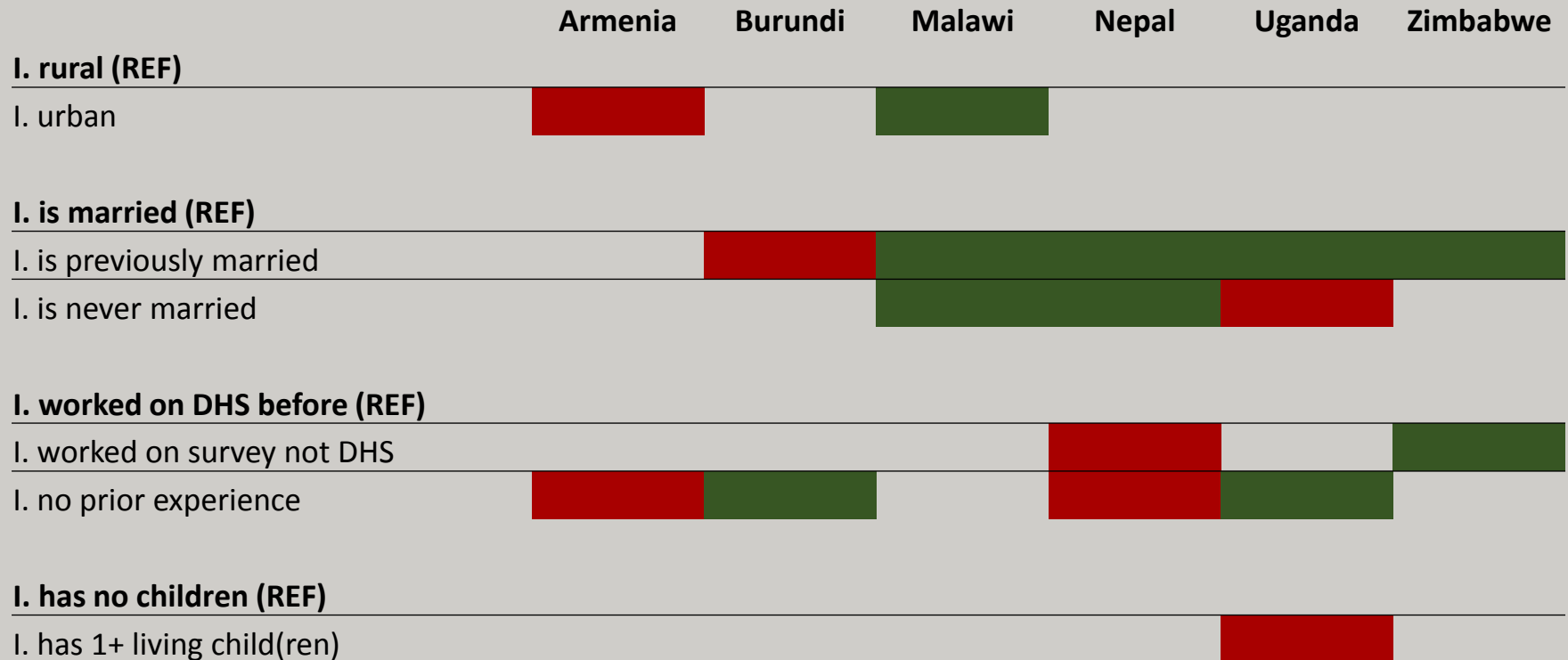
- Small n makes difficult to model
- Even so, descriptive pattern emerges in two countries
  - Malawi: one interviewer had one-fifth of all refusals (5 of 23)
  - Burundi: one interviewer had one-sixth of all refusals (3 of 18)
  - Uganda: three interviewers had one-third of all refusals (11 of 34)

# Indicator 2: Inconsistent Age at First Sex or Time Since Last Sex

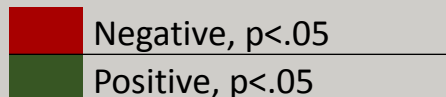
# Distribution of Interviewers' Inconsistency in AOFS /TSLs



# Model with Respondent + Interviewer Characteristics: Inconsistency in AOFS/TSLs



## LEGEND



# Model with Interviewer/Respondent Interactions

	Armenia	Burundi	Malawi	Nepal	Uganda	Zimbabwe
<b>I. is married (REF)</b>						
I. is previously married						
I. is never married						
<b>I. worked on DHS before (REF)</b>						
I. worked on survey not DHS						
I. no prior experience						
<b>R. urban, I. rural (REF)</b>						
R. urban, I. urban						
R. rural, I. rural						
R. rural, I. urban						
<b>R. and I. have no children (REF)</b>						
R. no children, I. yes						
R. has children, I. no						
R. and I. have children						
<b>R. and I. have the same education (REF)</b>						
I. has more education						
R. has more education						
<b>R. and I. within 4 years of age (REF)</b>						
I. 15+ years younger than R.						
I. 5-14 years younger than R.						
I. 5-14 years older than R.						
I. 15+ years older than R.						

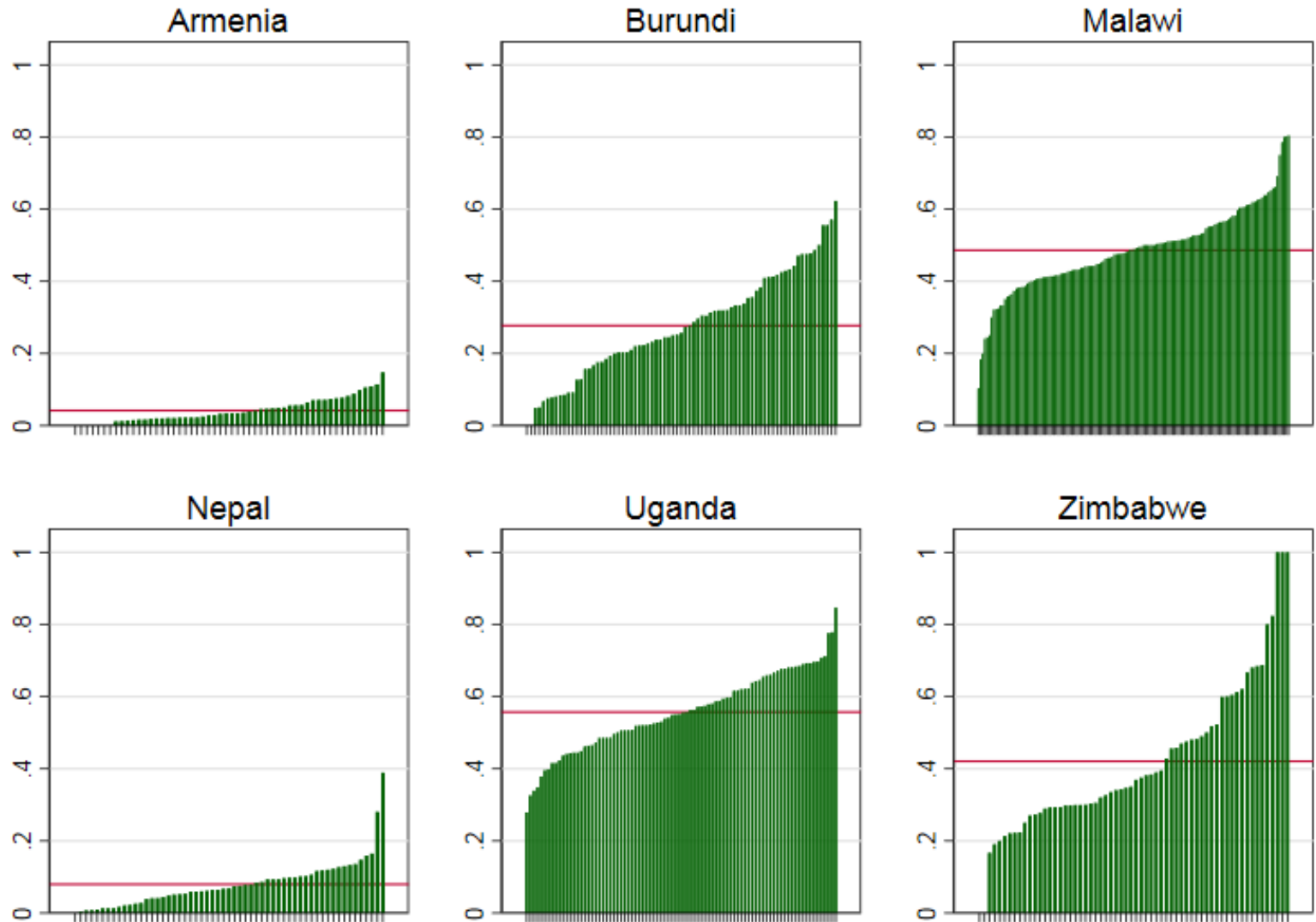


# Interviewer Random Effects Model: Inconsistent AOFS/TSLs

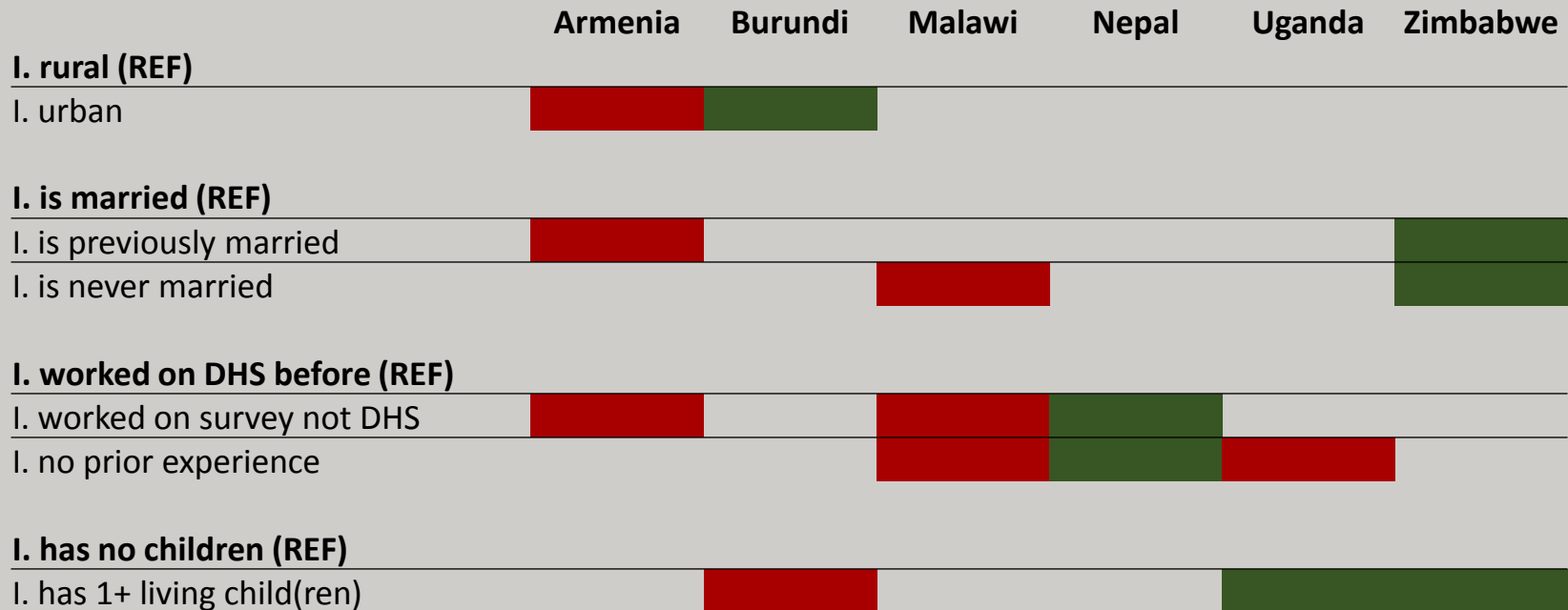
Country	Interviewer RE		
	Negative, $p < .05$	Positive, $p < .05$	Total
Armenia	19	1	51
Burundi	15	2	68
Malawi	2	61	139
Nepal	0	10	56
Uganda	0	48	84
Zimbabwe	0	46	50

# Results for Indicator 3: Premarital Sex

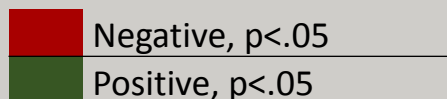
# Distribution of Interviewers' Average Reports of Premarital Sex



# Model with Respondent + Interviewer Characteristics: Premarital Sex



## LEGEND



# Model with Interviewer/Respondent Interactions

	Armenia	Burundi	Malawi	Nepal	Uganda	Zimbabwe
<b>I. is married (REF)</b>						
I. is previously married						
I. is never married						
<b>I. worked on DHS before (REF)</b>						
I. worked on survey not DHS						
I. no prior experience						
<b>R. urban, I. rural (REF)</b>						
R. urban, I. urban						
R. rural, I. rural						
R. rural, I. urban						
<b>R. and I. have no children (REF)</b>						
R. no children, I. yes						
R. has children, I. no						
R. and I. have children						
<b>R. and I. have the same education (REF)</b>						
I. has more education						
R. has more education						
<b>R. and I. within 4 years of age (REF)</b>						
I. 15+ years younger than R.						
I. 5-14 years younger than R.						
I. 5-14 years older than R.						
I. 15+ years older than R.						



## Interviewer Random Effects Model: Premarital Sex

<b>Country</b>	<b>Interviewer RE</b>		
	<i>Negative, <math>p &lt; .05</math></i>	<i>Positive, <math>p &lt; .05</math></i>	<i>Total</i>
Armenia	20	0	51
Burundi	34	8	68
Malawi	21	15	139
Nepal	16	4	56
Uganda	1	34	84
Zimbabwe	34	0	50

# Summary and Preliminary Conclusions

## Summary, I

- Low refusal rates make it difficult to detect significant patterns, but descriptive data show some interviewers have unusually high refusal – rapport or shortening?
- Inconsistent AOFS/TSLs may indicate polite refusal, innumeracy, or carelessness
  - Less experienced interviewers have higher inconsistencies
  - Having had children introduces inconsistencies above and beyond what was captured by respondent variable
  - Clear age effect: less likely with younger interviewers, more likely with older interviewers (numeracy?)

## Summary, II

- ‘Polite refusal’ can mean providing a normative response – first had sex at marriage
  - Married women sig. less likely to report premarital sex to unmarried interviewers in Armenia and Malawi, opposite in Zimbabwe
  - Having worked on a non-DHS survey significantly associated with lower reporting, except in Nepal
  - Respondents with more education than the interviewer sig. less likely to report premarital sex in two countries
  - Greater tendency to report premarital sex to younger interviewers, less likely to report to older interviewers
- Clear evidence of *role-restricted* or other unobservable effects across all three indicators

# Preliminary Discussion

- Using some indicators to identify poor-performing interviewers early on obviously helps data collection
  - Refusal or inconsistencies easier to correct than differential reporting
- Contradictory effects across countries may reflect cultural norms or survey idiosyncrasies
- To the extent that role-independent effects, e.g. differential age or marital status exists, how to correct?
  - Must maintain equal opportunity hiring!
  - Team diversification?
- Additional metrics/ modeled being considered for final paper



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