Endogenous Sample Selection[*]

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This paper examines the role of enumerator incentives in the production of survey data, a crucial input to social science research and policymaking. *In theory,* survey data is generated from a randomly selected, representative sample of the population. We provide causal evidence that *in practice,* enumerators respond to variation in effort cost across survey subjects by excluding high-cost subjects. To this end, we exploit the random assignment of individual questionnaires across households in 181 Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) across 73 countries. In 110 (39) of these surveys at least 5% (10%) of survey subjects eligible for individual questionnaires are missing from the sample. Missing individuals differ systematically from included individuals. As a result, survey samples are not representative of the population, leading to bias in aggregate statistics. For example, fertility – a key survey outcome – is statistically significantly overestimated by more than 10% in 23 surveys. Complementary non-experimental results comparing DHS and MICS to contemporaneous population censuses corroborate this upward bias. Finally, we provide suggestive evidence that endogenous sample selection affects a wide range of surveys, including living standards, labour force and firm surveys.

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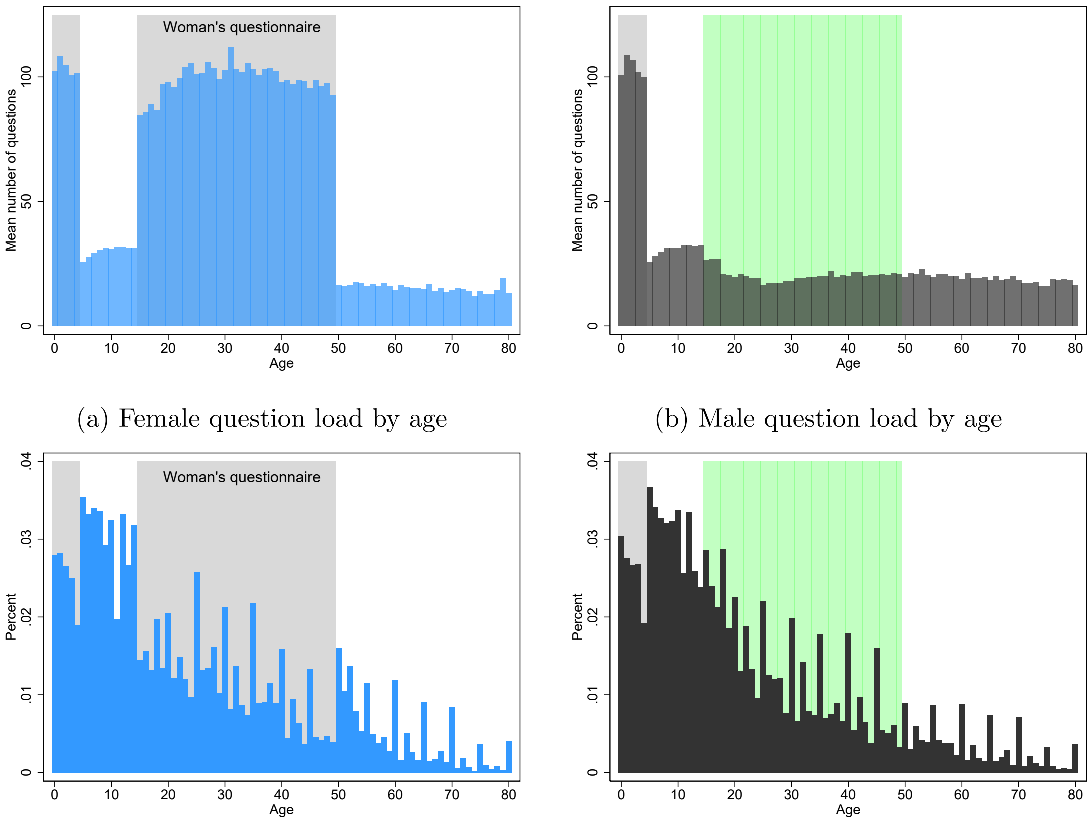
1 Introduction

Survey data is a crucial input to empirical research in the social sciences and policymaking. *In theory,* surveys generate data from randomly selected, representative samples, allowing inference about population parameters. *In practice,* enumerator incentives may not be aligned with random sampling. This begs two questions: do enumerator incentives lead to non-random sample selection? If so, does this selection give rise to bias in aggregate statistics?

This paper provides causal evidence from 181 surveys across 73 countries that enumerator incentives lead to endogenous sample selection. We show that: first, survey design shapes enumerator incentives by introducing ex ante-observable variation in effort cost across survey subjects. Second, enumerators manipulate survey samples in response to these incentives by screening out high-cost subjects. Third, manipulation leads to non-random sample selection and systematic bias in aggregate statistics. Fourth, endogenous sample selection is a widespread phenomenon, observed across many countries and surveys.

This paper starts from the observation that surveys generate variation in the expected enumerator effort cost across surveys subjects by conditioning subjects' eligibility for specific (sets of) questions on their characteristics. The 2006 Multiple Indicator Cluster Survey (MICS), a common survey instrument, in Togo provides an illustrative case. In this survey, women aged 15 to 49 and children under the age of 5 are eligible for the administration of long, individual questionnaires, whereas men are not. The top panels of Figure 1 show that the average number of questions to be asked about these eligible household members is about three times as high as the question load associated with other household members. The variation in question load creates an incentive for enumerators to avoid such high-effort household members, either by omitting them from the roster entirely or by manipulating their age or gender such that they cease



(a) Female question load by age

(b) Male question load by age

(c) Female age distribution

(d) Male age distribution

Figure 1: Question load and age distribution by gender in Togo MICS 2006

to qualify for individual questionnaires. In fact, the bottom panels of Figure 1 show how the associated age distributions lack mass in all age ranges that are eligible for individual questionnaires (grey-shaded areas) and have excess mass on the ineligible side of eligibility thresholds. Reassuringly, the male age distribution shows the same missing mass below the age of 5 as the female age distribution, but does not display missing mass between 15 and 49 (green-shaded area), thereby suggesting a causal link between question load and sample inclusion.

In this paper, we document more broadly how variation in enumerator effort cost across survey subjects leads to endogenous selection of subjects into survey samples, and study implications of endogenous sample selection for aggregate statistics. We proceed by asking first how many survey subjects are missing, second who these missing subjects are, and third how their absence affects aggregate statistics.

Our main empirical approach exploits the random assignment of individual questionnaires for men ("man's questionnaire") across households within 135 Demographic and Health Surveys and 46 Multiple Indicator Cluster Surveys to estimate the causal effect of enumerator effort cost on sample inclusion. In this context, enumerators typically work on temporary contracts for the duration of the survey and receive a fixed daily wage. One of the key performance indicators is the extent to which enumerators keep up with their assigned workloads. Since re-employment between surveys of the implementing agency, usually the National Statistical Office, is common, enumerators face reputational concerns. This creates an incentive to shorten household interviews by reducing the number of household members eligible for individual questionnaires because these questionnaires are particularly time-consuming, with the average man's interview lasting 25 minutes. Indeed, we find that in the majority of surveys, the number of men eligible for the man's questionnaire is significantly smaller in households that have randomly been chosen to receive the man's questionnaire (henceforth also referred to as treatment households). In the median survey, the man's questionnaire leads to a reduction in eligible men by 6.5%. In 25% of surveys, the reduction exceeds 9.3%. Across surveys, these reductions are correlated with survey characteristics as a simple principal-agent model where the implementing agency cannot perfectly observe the actions of enumerators would predict. Reductions are larger in surveys with longer man's questionnaires and in surveys that require the collection of biomarkers, such as blood samples for HIV testing, from eligible men. Reductions are smaller in surveys that implement mandatory randomized re-interviewing.

We pursue a complementary approach to estimate the effect of the individual questionnaire for women ("woman's questionnaire"), which is key for deriving core survey outcomes such as fertility and child mortality. We cannot rely on random assignment of the woman's questionnaire for identification because this is extremely rare. Instead, we adopt a difference-in-difference approach that allows us to bound the number of missing women eligible for the woman's questionnaire through a comparison of the number of women recorded in the DHS and MICS relative to contemporaneous population censuses. To this end, we form 67 survey-census pairs across 35 countries and show that in population censuses, there is hardly any difference in the number of questions to be asked about women of eligible and ineligible age while this difference is large in the DHS and MICS. We further show that the survey-census difference in ineligible women always weakly exceeds the difference in eligible women. Under the assumption that all excess women of ineligible age are due to age displacement of eligible women, the number of missing eligible women must be equal to half of this difference-in-differences, our lower bound. If, on the other hand, excess women of ineligible age are also due to more thorough household enumeration in the DHS and MICS, then the number of missing eligible women could be larger and would have to be partially explained by the omission of eligible women from household rosters.

The results from this approach mirror the above findings for men. We estimate a lower bound of the reduction in eligible women of 6.2% in the median survey. In 25% of surveys, the lower bound exceeds 8.8%.

How do missing household members differ from included ones? By comparing eligible men in treatment and control households, we show that they are often younger, less closely related to the head of their household, less educated and less likely to have ever been married. A comparison of the characteristics of women of eligible age in the DHS/MICS and contemporaneous population censuses yields the same conclusion. This suggests that enumerators screen out exactly the individuals at the margin of their respective households, where household definitions leave room for discretion and the downside risk of roster manipulation is arguably limited. Notably, the degree of selection on observables is positively correlated with the amount of missing eligible household members across surveys, for both men and women.

To assess the quantitative importance of this selection for aggregate statistics, we focus on fertility – a key survey outcome that is of major interest for both policy and research. DHS and MICS fertility estimates are an important ingredient for UN fertility calculations and population projections in many low- and middle-income countries. Moreover, they are commonly used to inform national policy and in the social sciences, they are an important input to research on fertility.[1] A comparison of DHS and MICS to contemporaneous censuses suggests that the screening out of marginal household members leads to an overestimation of national fertility figures in 87% of surveys relative to censuses. In 42% of surveys, DHS and MICS fertility estimates exceed census ones by more than 10%. Standard techniques for re-weighting on observables help reduce the bias in most surveys, but cannot entirely eliminate it in two thirds of cases.

This paper contributes to three streams of literature. First, it adds to an old but sill active literature on selection in surveys (Rubin, 1976; Meyer et al., 2015; Dutz et al., 2021). While this literature is largely focused on non-response bias, i.e., self-selection of respondents, this paper highlights another margin of selection, namely the screening of respondents by enumerators. Second, this paper contributes to a scant body of work on the effects of enumerator incentives on data quality with origins in political science (Crespi, 1945, 1946; Durant, 1946). Despite abundant anecdotal evidence of coverage errors and data fabrication, there is little empirical evidence, however.[2] This paper demonstrates how survey design and implementation protocols shape enumerator incentives and thereby affect the selection of surveys subjects into survey samples. Third, this paper relates to a broad literature on survey design.[3] It is particularly closely linked

[1]Recent research papers on fertility using DHS or MICS data include Vogl (2016), Bongaarts (2017), Casterline and Agyei-Mensah (2017), and Chatterjee and Vogl (2018).

[2]One notable exception is Finn and Ranchhod (2015) who document the quantitative implications of data fabrication in a large South African household survey for statistical inference.

[3]This includes work on respondent effects (Kilic et al., 2021; Dervisevic & Goldstein, 2023; Dillon & Mensah, 2024; Masselus & Fiala, 2024), question design (Bardasi et al., 2011; Beaman & Dillon, 2012; Dillon et al., 2012; Serneels et al., 2017) and reporting errors (Celhay et al., 2024).

to recent work on respondent fatigue (Ambler et al., 2021; Abay et al., 2022; Jeong et al., 2023). In contrast to this stream of work, though, it focuses on the effect of question load on enumerator behavior rather than respondent behavior.

The remainder of the paper is structured as follows. In Section 2, background information on the DHS and the MICS household survey programs is provided. Additionally, the empirical strategies employed to estimate the extent to which men and women who are eligible for individual questionnaires are missing from survey samples and the corresponding results are presented. In Section 3, the selection of missing household members on observables is studied. The implications of endogenous sample selection in the DHS and MICS with regards to aggregate fertility statistics are at the centre of Section 4, and mechanisms are examined in Section 5. The external validity of findings is discussed in Section 6. Finally, Section 7 concludes.

2 Missing individuals

2.1 Background

2.1.1 Demographic and Health Survey (DHS) and Multiple Indicator Cluster Survey (MICS)

In this paper, we study endogenous sample selection in two large international household survey programs, the Demographic and Health Survey (DHS) and the Multiple Indicator Cluster Survey (MICS). The DHS focuses on fertility, family planning, maternal and child health, gender, HIV/AIDS, malaria, and nutrition. It is funded by USAID and implemented by ICF. The MICS focuses on the situation of children and women and is supported by UNICEF. The former program started in 1984 while the latter began in the 1990s. Both programs have a reputation for collecting accurate, comparable, nationally representative data using standardized survey instruments across countries.

We focus on these household survey programs for three reasons. First, they are of great relevance for research and policy. The DHS and MICS are commonly used data sources in empirical social science research. In the policy realm, the two programs are key to monitoring the Sustainable Development Goals (SDGs), providing input data for about 30 SDG indicators. Moreover, aid flows have been explicitly conditioned on DHS-derived indicators (e.g., World Bank Program-for-Results). Second, the global coverage of low- and middle-income countries by both programs alleviates concerns related to external validity. Since program inception, more than 400 DHS and 350 MICS have been conducted across more than 120 countries. Third, the random assignment of the man's questionnaire to households provides us with a source of exogenous variation in the effort cost associated with men of eligible age.

2.1.2 Survey design

USAID/ICF and UNICEF provide questionnaire templates to local agencies at the beginning of each survey wave. The DHS originally consisted of two questionnaires: a household questionnaire (including household roster) and a woman's questionnaire. The MICS was originally composed of three questionnaires: a household questionnaire (including household roster), a woman's questionnaire and an under-five questionnaire. In both survey programs, the household questionnaire is composed of two parts, the household roster and household-level questions. The household roster gathers basic demographic information on all household members and is used to determine the eligibility of household members for individual questionnaires based on gender and age. Household-level questions concern topics such as asset ownership, energy use and sanitation. The woman's questionnaire is administered to all women aged 15 to 49 and focuses on fertility and maternal health. The under-five questionnaire is administered to all children under the age of 5 and focuses on child health and development.

In later survey phases, both survey programs introduced a man's questionnaire. This questionnaire addresses similar topics as the woman's questionnaire – mainly fertility, health and sexual behavior – but is typically much shorter. In most surveys, the eligible age ranges from 15 to 49, but in some cases it also includes older men up to the age of 54, 59 or 64. Importantly, in many surveys this questionnaire is only administered in a random subset of households within each enumeration area.

Individual questionnaires are administered after the household roster has been completed. This implies that at the time of the roster completion, survey respondents do not know how the age and gender of household members recorded in the roster affect the length of the household interview. Enumerators are very much aware of this, however, since they are familiar with the survey structure from their training and their experience with previous households. Moreover, the survey instruments make the eligibility of household members for individual questionnaires very salient, asking enumerators to mark every eligible member as they fill in the roster (see Figure A2 for illustration).

An important difference between the DHS and the MICS lies in the household definition they work with. The MICS operates with a de jure household definition, recording all usual members. Each of these members qualifies for the individual questionnaire if they are in the eligible age range. The DHS instead records all usual household members *and* all guests who stayed in the household last night. However, only de facto members – all those who slept in the household last night – qualify for the individual questionnaire if they are in the eligible age range.

2.1.3 Enumerator incentives[4]

DHS and MICS are funded and supported by USAID and UNICEF, respectively. Both programs provide questionnaire templates that are standardized within survey phases and guidelines for implementation in the form of manuals for enumerators, supervisors, editors as well as enumerator training, household sampling and other topics. However, surveys are ultimately implemented by local agencies, most commonly National Statis-

[4] This sectionis based on conversations with the UNICEF Data Collection Unit and LoPalo (2023).

tical Offices.[5] Hence, enumerators are recruited locally. Nonetheless, hiring practices barely vary across contexts. Temporary contracts for the duration of the survey are standard. Only a few implementing agencies rely on their permanent staff for enumeration in addition to temporary workers.[6] Enumerators generally have to meet the following criteria: They have to (i) be available to work full time for the duration of the survey, (ii) exceed a minimum level of physical fitness, so they can walk long distances, and (iii) speak at least one of the languages used for training. Additionally, there is a preference for local candidates from within a region of a country and candidates with secondary or higher education. As a result, interviewers are more educated than the average respondent in most contexts.

Data are collected by enumeration teams usually comprised of a supervisor, a field editor and several enumerators. Supervisors are in charge of the organization of the fieldwork, including the assignment of households and questionnaires to enumerators and spot check re-interviews. Field editors are responsible for monitoring data quality. To this end, they observe interviews, edit completed questionnaires and may ask enumerators to return to interviewed households to correct problems. Additional data quality issues can be detected through field check tables produced by data processing teams during fieldwork. These are typically provided to supervisors after the completion of an enumeration area and can inform measures to improve data quality going forward. All of this implies that the missing eligible individuals we detect in this paper were either not flagged in any of the data quality checks or, if flagged, they were not addressed successfully.[7]

Enumerators' employment contracts are designed by the implementing agencies.

[5] 82% of the surveys in our main sample were implemented by National Statistical Offices, 15% by other governmental bodies, such as Ministries of Health, and 3% by nongovernmental organizations.

[6] Fieldworker data from recent DHS confirm that most enumerators work under temporary contracts. In the 19 surveys included in our main sample for which fieldworker data is available, on average 13% of enumerators are permanent employees and 87% have temporary contracts.

[7] Neither in the DHS nor the MICS data is it possible to observe which interviews were monitored by a field editor or reconducted by a supervisor.

Thus, they can vary across surveys. In practice, however, enumerators are almost always paid a fixed daily wage plus a per diem for food and accommodation. The daily workload of enumeration teams is typically set in advance by the central office of the implementing agency and adherence to the schedule is heavily emphasized during fieldwork. Supervisors are responsible for assigning households to enumerators at the beginning of each day, but these assignments can be adjusted throughout the day as some interviews take shorter or longer than expected. Enumerator performance is monitored continuously throughout the survey. Supervisors complete a so-called "interviewer progress sheet" after the completion of each survey cluster to track how enumerators are keeping up with the assigned workloads.[8] This means that enumerators benefit from missing eligible household members in at least two ways. First, they will be better able to keep up with the assigned workloads, thereby building a good reputation, minimizing their risk of termination, and increasing their chances of re-employment.[9] Second, they may have shorter working days.

The incorrect completion of household rosters also carries a risk for enumerators. Supervisor guidelines indicate that terminations may be necessary in cases of data falsification. It is unclear how common such terminations are in practice, but the DHS recommends implementing agencies to recruit reserve enumerators who can step in after separations.

2.2 Missing men

2.2.1 Empirical strategy

Relying on the random assignment of the man's questionnaire, we run the following OLS regression:

$$Y_{ic} = \alpha_c + \beta MQ_{ic} + \epsilon_{ic} \tag{1}$$

[8] See LoPalo (2023) Online Appendix Figure 1 for the DHS "interviewer progress sheet".

[9] DHS fieldworker data shows that many enumerators have previous experience with the DHS and other surveys.

where Y_{ic} is an outcome of interest of household i in stratum c, MQ_{ic} is an indicator for the man's questionnaire being administered and α_c is a set of stratum fixed effects. In most surveys, strata correspond to enumeration areas. In a few MICS, the random assignment of the man's questionnaire is additionally stratified by the presence of children below the age of 5, as recorded during the household listing exercise preceding the survey. The regression coefficient β captures the causal effect of the administration of the man's questionnaire on the outcome of interest.

2.2.2 Data

Based on the universe of survey reports published on the DHS and MICS websites,[10] we identify 181 surveys, 135 DHS and 46 MICS, carried out across 73 countries between 1991 and 2022 in which a man's questionnaire was administered to a random subset of households. Table A1 provides a complete list of these and Figure 2 illustrates their geographic coverage, including low- and middle-income countries from all continents. The resulting dataset includes 3.4 million households out of which 1.1 million were randomly assigned a man's questionnaire.[11]

[10] https://dhsprogram.com/ and https://mics.unicef.org/

[11] We identify additional surveys with a man's questionnaire that is randomly assigned across households. We do not include these here because either their design differs in important ways from the one described in Section 2.1 or the available microdata does not lend itself to our analysis. Details are provided in Appendix A.1.1. We also exclude surveys that do not have national coverage.

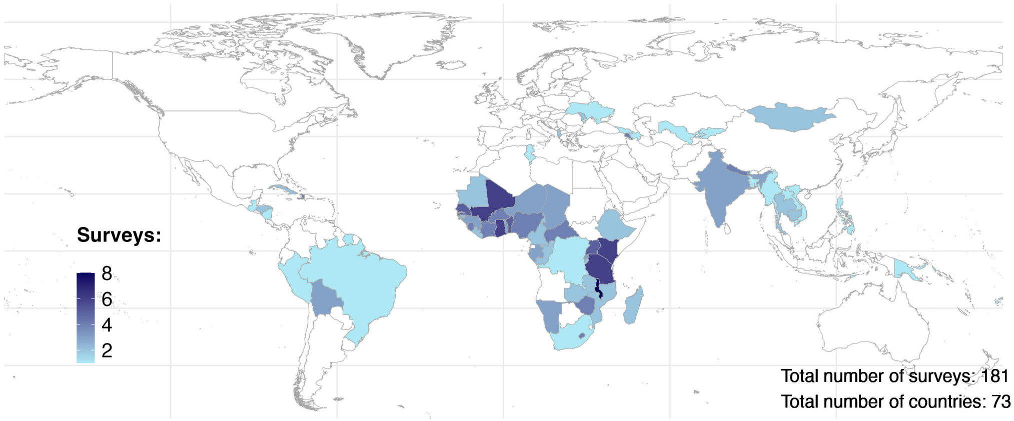


Figure 2: Geographic coverage of surveys with randomly assigned man's questionnaire

The random assignment of the man's questionnaire to households is stratified by enumeration area. The treatment probability varies between 1/12 and 2/3 across surveys, but it is most frequently 1/2 (in 55% of surveys) or 1/3 (in 34% of surveys). The median duration of the man's questionnaire varies between 6 and 50 minutes across surveys, with the average man's questionnaire lasting 25 minutes.

In a subset of surveys (76), men and/or women in treatment households who are eligible for the individual questionnaire as well as children under the age of 5 are also eligible for biomarker collection. This typically amounts to a combination of HIV testing among eligible adults, anaemia testing among eligible women and children, and malaria testing and anthropometry among children. Men's biomarkers are collected in 58 of these surveys. In all of these cases, we estimate the joint impact of the man's questionnaire and biomarker collection.

Microdata for the identified surveys is obtained from the DHS (**dhs˙data**) and MICS (**mics˙data**) online microdata archives. All variables required for the analysis are harmonized across datasets, as detailed in Appendix Section A.1.2.

2.2.3 Results

We find that the assignment of the man's questionnaire leads to the recording of a significantly lower number of eligible men in most surveys. Figure 3 plots the point estimates and 95% confidence intervals of the β coefficient from specification (1) relative to the control mean, sorted by magnitude across surveys. We estimate a statistically significantly negative impact in 130 out of 181 surveys (72%). For the remaining 51 surveys, our point estimates are mostly negative, but insignificant (36 surveys). Only for a single survey, we estimate a statistically significant positive effect. Table 1, Panel A, summarizes key moments of the distribution of the effect across surveys. The median reduction in eligible men amounts to 6.5%. In 25% of surveys the reduction exceeds 9.3%, peaking at 23%.

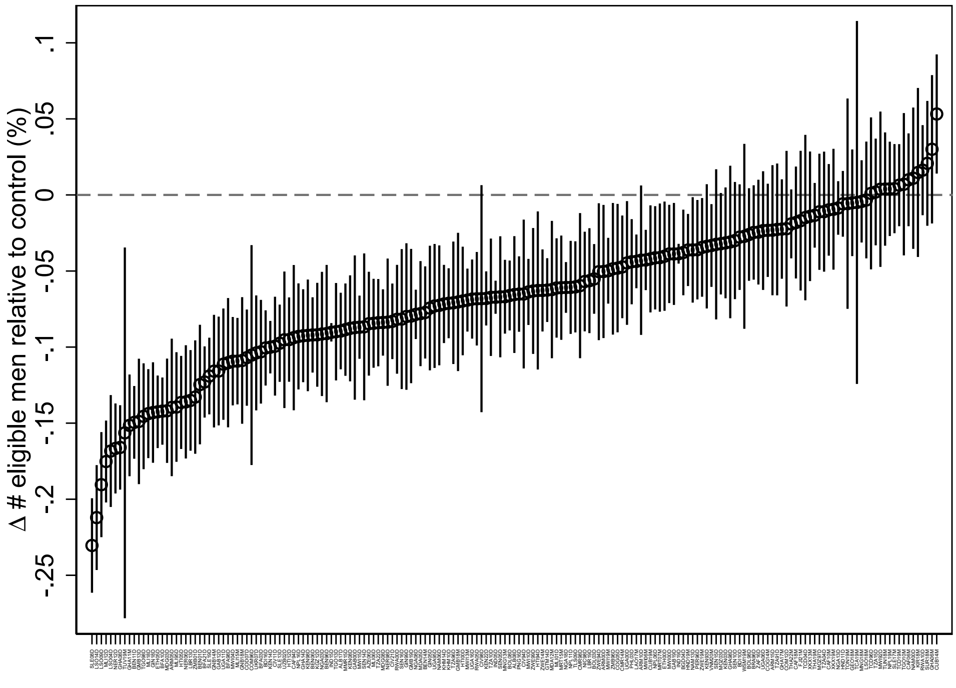


Figure 3: Effect of man's questionnaire on number of eligible men in the household

Estimated effect sizes correlate with survey design and implementation features as

Table 1: Missing individuals - Summary of results

	All	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Panel A. Men					
Min	-0.230	-0.230	-0.092	-0.065	-0.031
	(0.016)	(0.016)	(0.019)	(0.013)	(0.026)
Median	-0.065	-0.133	-0.080	-0.047	-0.009
	(0.020)	(0.019)	(0.023)	(0.017)	(0.020)
Max	0.053	-0.093	-0.065	-0.031	0.053
	(0.020)	(0.016)	(0.020)	(0.019)	(0.020)
Share p<0.05	0.724	1.000	0.978	0.889	0.022
N	181	46	45	45	45
Panel B. Women (lower bound)					
Min	-0.145	-0.145	-0.085	-0.061	-0.029
	(0.008)	(0.008)	(0.007)	(0.006)	(0.006)
Median	-0.062	-0.107	-0.075	-0.054	-0.021
	(0.006)	(0.004)	(0.005)	(0.008)	(0.008)
Max	0.006	-0.088	-0.062	-0.030	0.006
	(0.005)	(0.009)	(0.006)	(0.008)	(0.005)
Share p<0.05	0.910	1.000	1.000	1.000	0.625
N	67	17	17	17	16

Notes: Standard errors are displayed in parentheses.

predicted by a simple principal-agent model in which the implementing agency cannot observe enumerator behavior perfectly. In surveys with a longer man's questionnaire, the man's questionnaire leads to more missing men (see Figure A3). Effects are also larger in surveys where male biomarkers are collected alongside the questionnaire (see Figure A4a). Mandatory re-interviewing of randomly selected households in each enumeration area, on the other hand, is associated with smaller effects (see Figure A4b).

By comparing the number of missing eligible men we detect to the number of additional *ineligible* men recorded, we decompose the loss of eligible members into two components: (i) age displacement - where enumerators manipulate respondents age to render them ineligible for individual questionnaires - and (ii) omission from household

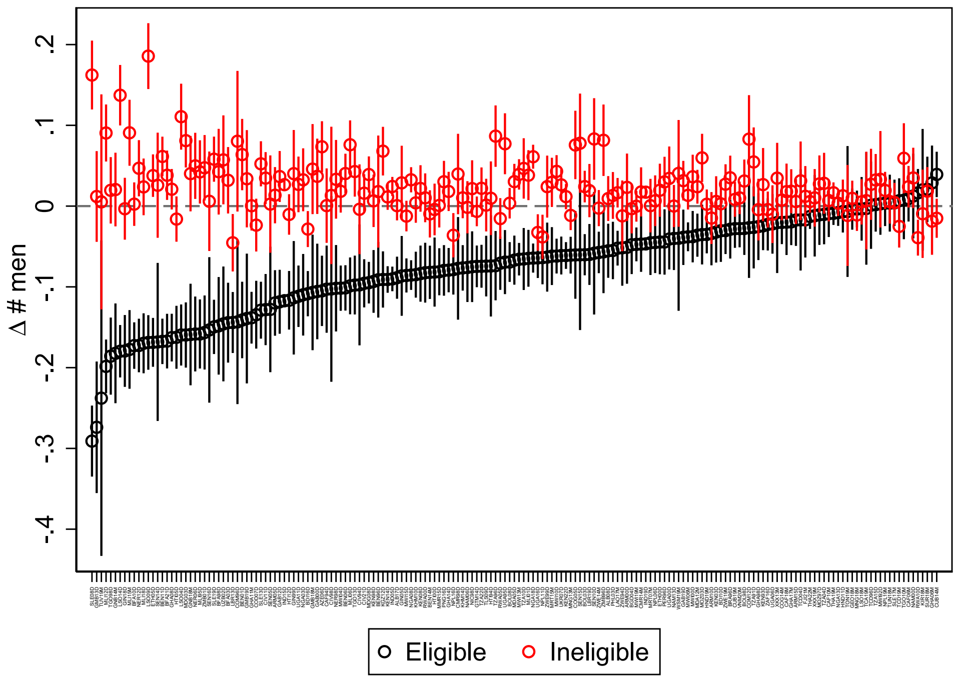


Figure 4: Effect of man's questionnaire on number of eligible and ineligible men in the household

rosters - where enumerators do not record eligible men at all.[12] For the purpose of this decomposition exercise, we disregard household members aged 9 and younger. This is because in some of the surveys in our sample, the difference in the number of children in this age group between treatment and control households may be influenced by differences in the collection of biomarkers from children under the age of 5.

We find evidence of excess ineligible men in treatment households in many survey. Our point estimates are significantly positive for 56 surveys, significantly negative for 6 surveys and statistically insignificant in the remaining 119 surveys (see Figure 4). Reassuringly, the total number of men in households is weakly negatively affected in all surveys (see Figure A6).

[12] In the case of the DHS, there is an additional margin along which enumerators can disqualify eligible men from the man's questionnaire, namely by declaring that they did not sleep in the household last night. Here, we capture this displacement margin jointly with age displacement.

Dividing the absolute value of the absolute reduction in eligible men by the absolute increase in ineligible men, we can determine the share of missing eligible men whose age is displaced. We find that there is a lot of variation across surveys in the share of men with a displaced age. In fact, in some surveys, the loss of eligible men is completely explained by age displacement while in other surveys it is entirely driven by the omission of these men from household rosters (see Figure A5).

2.3 Missing women

2.3.1 Empirical strategy

In the DHS and the MICS, women's responses to the woman's questionnaire are of central interest because they are informative about the main focus area of the two survey programs, namely the situation of women and children. Eligible women face substantially longer individual questionnaires than eligible men. In our sample of surveys, the median duration of the woman's questionnaire exceeds the median duration of the man's questionnaire in every single survey. On average, the woman's questionnaire is 16 minutes (64%) longer than the man's questionnaire. In conjunction with the results presented in the previous section, this raises serious concerns about endogenous selection of eligible women.

To assess the amount of missing women of eligible age, we cannot rely on the same identification strategy as for men because in both the DHS and the MICS, the woman's questionnaire is always administered in all households, not just a random subset of households. We identify three (partial) exceptions to this rule, however. In the Ghanaian 2008 DHS, the woman's questionnaire was only administered in a random subset of households. Additionally, in the 2013 DHS in Namibia and the 2019 DHS in Gabon, a short version of the woman's questionnaire was administered to women aged 50 to 64 in a random subset of households (in addition a standard woman's questionnaire for women aged 15-49 in all households). We leverage the random assignment in these three surveys to test if our results for men also hold among women.

We complement this approach with a comparison of the number of female household members of eligible and ineligible age in DHS/MICS and contemporaneous population censuses. This is motivated by the fact that in the DHS and the MICS the number of questions to be administered to women of eligible age (typically aged between 15 and 49) is much larger than the number of questions to be administered to women outside this age range, but no such difference in question load between women of eligible and ineligible age exists in population censuses. This means that enumerators have a strong incentive to omit women of eligible age or to manipulate their age such that they appear to be ineligible in the DHS and the MICS, but they have no such incentive in censuses. Hence, we can compare the average number of women of eligible and ineligible age in the household in the DHS/MICS and the census to test if survey samples contain fewer women of eligible age and (weakly) more of ineligible age.

Differences in survey design and implementation between DHS/MICS and censuses can lead to level shifts in the number of recorded household members, independent of age- and gender-specific enumerator incentives embodied in questionnaires. We accommodate this by constructing bounds of the number of missing eligible women from the difference-in-differences between women of eligible and ineligible age in the DHS/MICS and the census. First, assuming that missing women of eligible age are entirely due to omission from household rosters, we set the upper bound of missing women to the above-mentioned difference-in-differences. Second, assuming that missing women of eligible age are entirely due to age displacement, we set the lower bound to one half of the above-mentioned difference-in-differences.

We use the following regression specification to estimate the difference-in-differences of interest:

$$Y_{is} = \beta_0 + \beta_1 SVY_i + \beta_2 Eligible_s + \beta_3 (SVY_i \times Eligible_s) + \mu_{is} \tag{2}$$

where Y_{is} is the number of women of eligibility status $s \in \{eligible, ineligible\}$ recorded in household i. Women are considered eligible if they are in the age range that is eligible for the DHS/MICS woman's questionnaire (usually 15 to 49). They are considered ineligible if they are outside this age range and older than 9 years of age. The lower bound of 9 limits the conflation of the impact of the woman's questionnaire with the impact of the high question load for children under 5 in the DHS/MICS on the presence of ineligible women.[13] SVY_i is an indicator that takes the value one if the household roster was recorded by the DHS/MICS and zero if it was recorded by the census. $Eligible_s$ is an indicator that takes value one if the outcome is the number of eligible household members, and zero if it is the number of ineligible household members. We scale survey sampling weights such that the total number of households in surveys and contemporaneous censuses is identical, and cluster standard errors at the household level. β_3 captures the difference-in-differences of interest. Accordingly, the upper bound of missing women is equal to β_3 and the lower bound is equal to $\beta_3/2$.

2.3.2 Data

We form survey-census pairs by matching all DHS and MICS with population censuses conducted within two years of the survey. Since the MICS only records de jure household members, we ensure that censuses matched with MICS record all de jure members. For the DHS, on the contrary, we restrict matches to censuses that record all de facto household members because in the DHS only de facto members are eligible for individual questionnaires. For 67 of the resulting census-survey pairs, we obtain microdata from IPUMS-International (**ipums˙data**) or directly from national statistical offices.[14] See Table A2 for a complete list of the pairs and data sources. They cover 35 countries

[13]This assumes that the high question load for children under 5 may lead to the displacement of their age to values above 5, but rarely above 9.

[14]The authors wish to acknowledge all the statistical offices that provided the underlying data making this research possible. See Table A2 for a complete list of these.

across Africa, Asia and Latin America, as shown in Figure 5.[15]

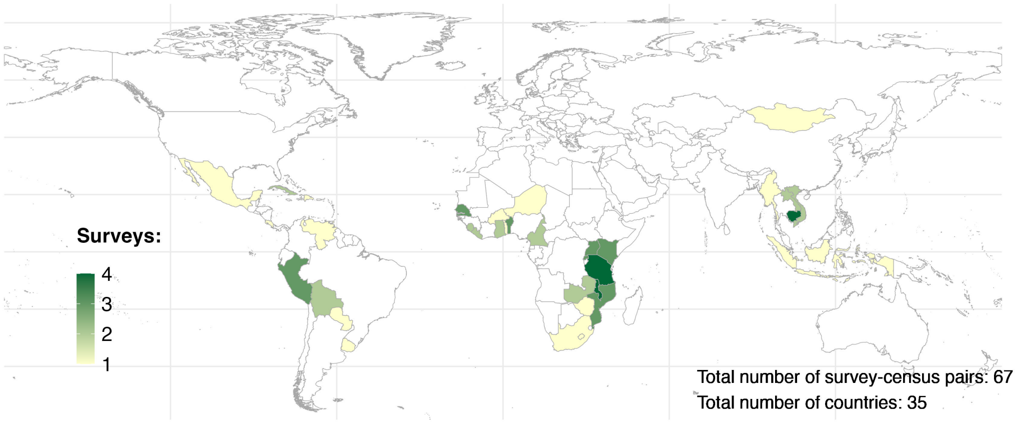


Figure 5: Geographic coverage of DHS/MICS-census pairs

To ensure comparability between census and survey data, we exclude collective dwellings from census data. We confirm that the relative question load of eligible to ineligible women is close to one in all censuses, but much larger in the matched DHS and MICS. As shown in Figure A7, the relative question load varies between 1.0 and 1.5 across the matched censuses while it varies between 1.1 to 29.3 across the matched surveys.

2.3.3 Results

Exploiting the random assignment of the woman's questionnaire to households in three DHS, we find a sizeable effect of the woman's questionnaire on the presence of eligible women in households in 2 out of 3 surveys - in line with our results for men presented in the previous section. Moreover, the effects of the woman's and the man's questionnaire are of the same order of magnitude within the same survey, as shown in Figure 6.

Comparing the number of eligible and ineligible women in the household in the DHS/MICS and contemporaneous population censuses reinforces this concern. Figure

[15]We exclude seven DHS-census pairs where eligibility for the DHS woman's questionnaire is conditional on having ever been married.

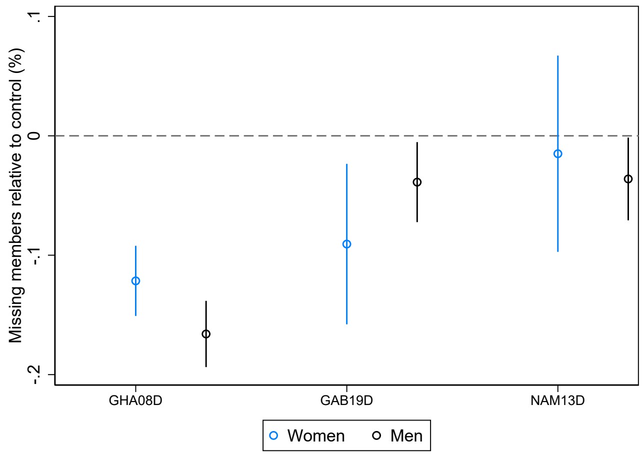


Figure 6: Effect of woman's/man's questionnaire on number of eligible women/men in the household

7 illustrates that households in the DHS/MICS almost always contain fewer women of eligible age and more of ineligible age. In some cases, they contain more or less of both eligible and ineligible women. As argued in the previous section, this may be explained by level shifts due to differences in the definition of households or the implementation of household rosters between the DHS/MICS and the census. Importantly, the difference in ineligible women between census and DHS/MICS is always at least weakly greater than the difference in eligible women. Thus, in relative terms, the DHS/MICS are under-recording eligible women throughout.

Figure 8 displays the bounds for missing women derived following the approach detailed in Section 2.3.1. We estimate a statistically significantly negative lower bound in 61 out of 67 surveys, ranging between 2% and 15%. In 10 of surveys the lower bound exceeds 10%. Table 1, Panel B, summarizes key moments of the distribution of the lower bound. The estimated upper bound is substantially larger (in absolute terms) and surpasses 10% in 43 of the surveys. This suggests that a substantial number of eligible women is screened out by DHS/MICS enumerators and never administered the woman's questionnaire.

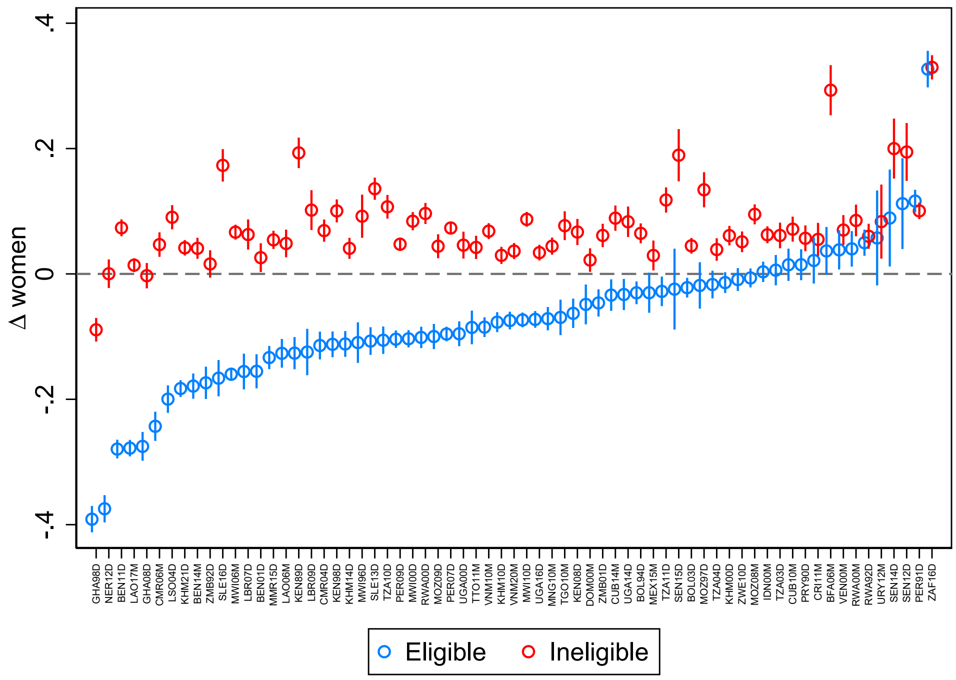


Figure 7: Missing and excess women in DHS/MICS relative to census

To assess the bounds we construct for women, we turn to a subsample of DHS/MICS for which we have both a randomized man's questionnaire and a matched population census. This allows us to compare bounds of missing men for households with a man's questionnaire based on a survey-census comparison with our experimental estimates of the effect of the man's questionnaire. We find that the two approaches yield remarkably similar results (see Figure A8). In 23 out of 31 surveys, the confidence interval of the experimental estimate overlaps with the range of estimates delimited by the bounds. In the remaining cases, the experimental estimate falls short of the lower bound. One potential explanation for this is a violation of the SUTVA assumption, where the assignment of the man's questionnaire does not only lead to missing eligible men in treatment households, but also in control households. This could happen if enumerators do not always pay close attention to the treatment status of households at the outset of the

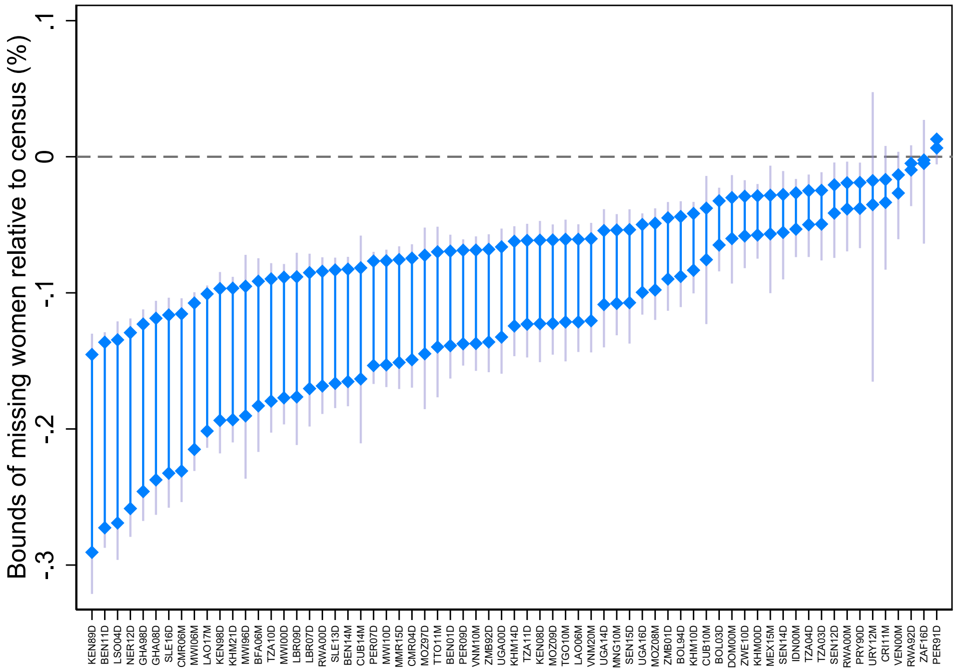


Figure 8: Lower and upper bound of missing women in DHS/MICS relative to census

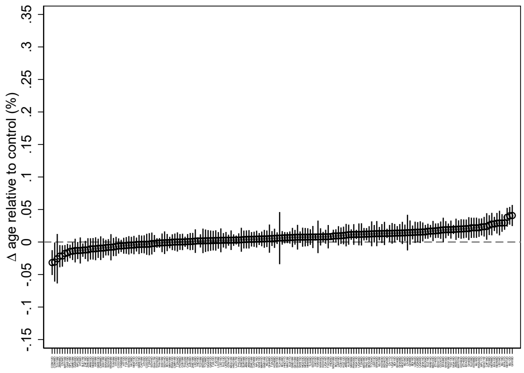
household interview or the expected penalty for omission and/or age displacement is so small that even in the control group these behaviors pay off.

3 Selection

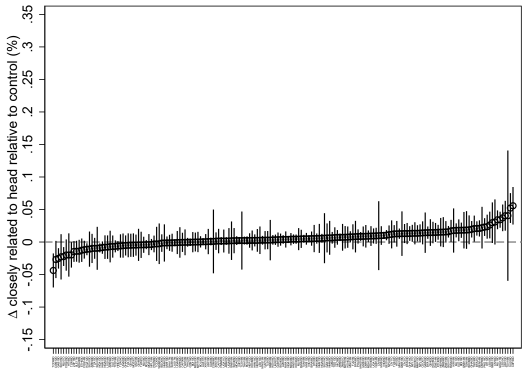
3.1 Selection of men

Who are the household members of eligible age that are screened out of individual questionnaires by enumerators? Answering this question is challenging because the missing household members are not directly observable, neither are their characteristics. But the comparison of recorded men of eligible age in households with and without man's questionnaire is informative about the characteristics of the missing men. Differences in average characteristics between these two groups reflect selection of men out of sample.

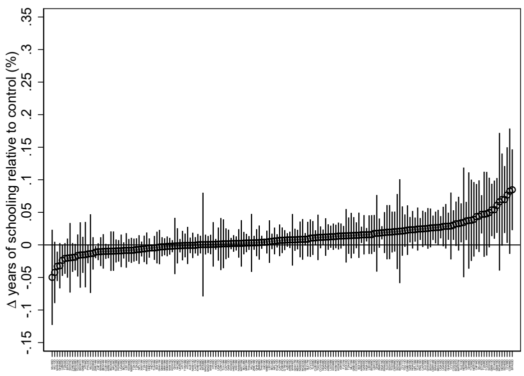
Running specification (1) on individual-level characteristics recorded in the household



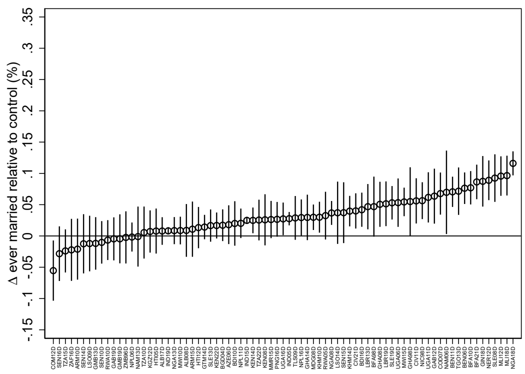
(a) Age



(b) Relationship to household head



(c) Education



(d) Marital status

Figure 9: Effect of man's questionnaire on the characteristics of eligible men

roster (and thus observable for all men, independent of their household's eligibility for the man's questionnaire), we find that missing men differ systematically from included men. In most surveys, men of eligible age recorded in households eligible for the man's questionnaire are older, more educated and more closely related to the household head and more likely to have ever been married (see Figure 9).[16] This implies that missing men tend to be younger, less educated, less closely related to the head of their household, and less likely to have ever been married. In other words, enumerators appear to be screening out eligible men that are at the margin of their respective households. These are precisely

[16]All estimates are reported in Table A7. Marital status is only reported in the roster of more recent DHS. Therefore, the sample of surveys for this analysis is limited. See Section A.1.2 for details.

the household members where enumerators have discretion because household definitions are sufficiently vague, with rosters typically instructing enumerators to list all "usual members" (plus visitors that slept in the household last night in the case of the DHS). Moreover, omission or age manipulation are plausibly less likely to cause opposition from respondents or supervisors in these cases - all of whom also have an incentive to keep surveys short.

While we find that missing men are on average younger than included men, this masks an interesting non-linearity. In fact, eligible men that are within 10 years of age from the lower and upper eligibility cutoff (in most surveys 15-24 and 40-49 years old) are about twice as likely to be screened out of the sample for the man's questionnaire than eligible men who are further in age from these cutoffs (typically 25-39 years old), as shown in Figure A9).[17] At the same time, it is remarkable that even in the intermediate age range, far from the cutoffs, more than 5% of men are missing in some surveys (14).

Selection on observables is stronger in surveys with more missing men. As Figure A10 illustrates, differences in the four observed characteristics tend to be larger in surveys with more missing eligible men.

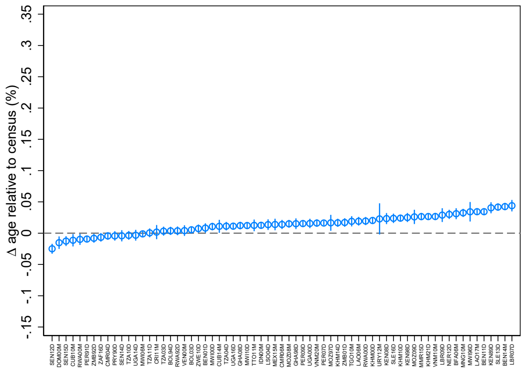
3.2 Selection of women

We test for selection of women along the same dimension as for men in the previous section. To this end, we harmonize information on age, the relationship to the household head, years of schooling and marital status between DHS/MICS and censuses as detailed in Section A.1.2. Comparing average characteristics between the surveys and the matched censuses, we find a remarkably similar selection pattern for women as documented for men in the previous section, albeit somewhat stronger. In most DHS/MICS,

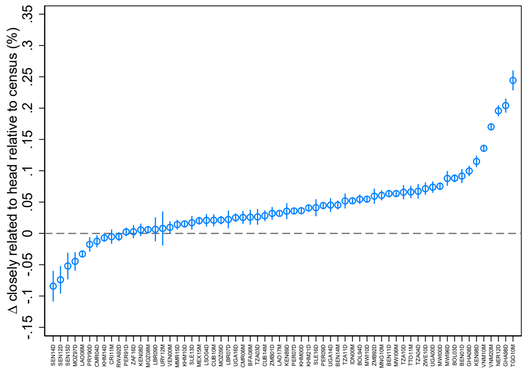
[17] Figure A9 shows the smoothed values from a kernel-weighted local polynomial regression of survey-level regression coefficients of eligible men in the household on the eligibility for the man's questionnaire by age group. The three considered age groups are (i) the ten-year band just above the lower eligibility threshold (typically 15-24), (ii) the 10-year band just below the upper eligibility threshold (typically 40-49) and (iii) the remaining eligible ages in between (typically 25-39).

eligible women are older, more closely related to the household head, more educated and more likely to have ever been married than in the census.

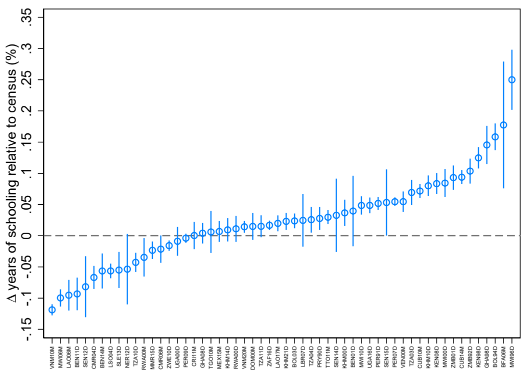
The strength of the selection is positively correlated with the estimated amount of missing women along all examined dimensions apart from years of schooling. Once again, this pattern is reassuringly similar to the one observed for men, where the correlation is also weakest for years of schooling (compare Figures A11 and A10).



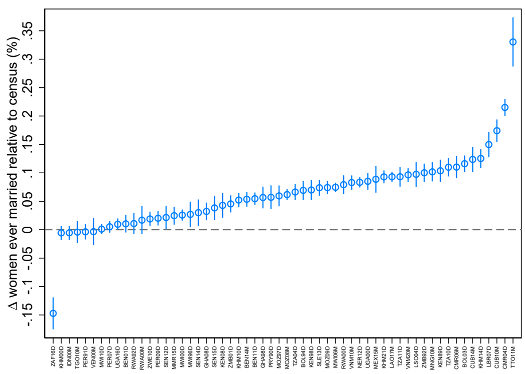
(a) Age



(b) Relationship to household head



(c) Education



(d) Marital status

Figure 10: Characteristics of eligible women in DHS/MICS relative to census

4 Aggregate implications

How does the selective screening out of household members documented in the previous section affect aggregate statistics? The selection on observables documented in the previous section implies that endogenous sample selection will not only lead to a decline in precision of estimates as a result of sample size reductions. It will also lead to bias in aggregate statistics. How important will this bias be? In this section, we address this question focusing one key survey outcome – fertility.

4.1 Men's fertility

Since the fertility of men is only elicited in the man's questionnaire, we do not observe fertility of men in control households. We overcome this limitation by constructing a proxy of fertility of men in both treatment and control households from the parent survival module in the household roster. This module is included in 168 out of the 181 surveys in our sample and links children aged 17 and younger to their biological parents as long as these are alive and live in the same household. Thus, we can compute the number of biological children each eligible man lives with and compare this between households with and without a man's questionnaire. To obtain nationally representative figures, we weight households using their sampling weights.

We find that men's fertility, as proxied by the number of biological children they live with in their household, is overestimated in treatment households in the majority of surveys. As Figure 11 shows, the point estimate is positive for 144 out of 168 surveys, and statistically significantly so in 49.[18] Only in two surveys, it is statistically significantly negative. The magnitude of the estimates is non-trivial. Fertility is overestimated by more than 10% in 41 surveys, with 23 of these point estimates statistically significantly different from zero. Overestimation tends to be more prevalent in surveys where the

[18] All estimates are reported in Table A7, column (6). Note that Figure 11 excludes two very noisily estimated, statistically significant outliers, TCA MICS 2019 and TUV MICS 2019.

man's questionnaire leads to more missing men (see Figure A12).

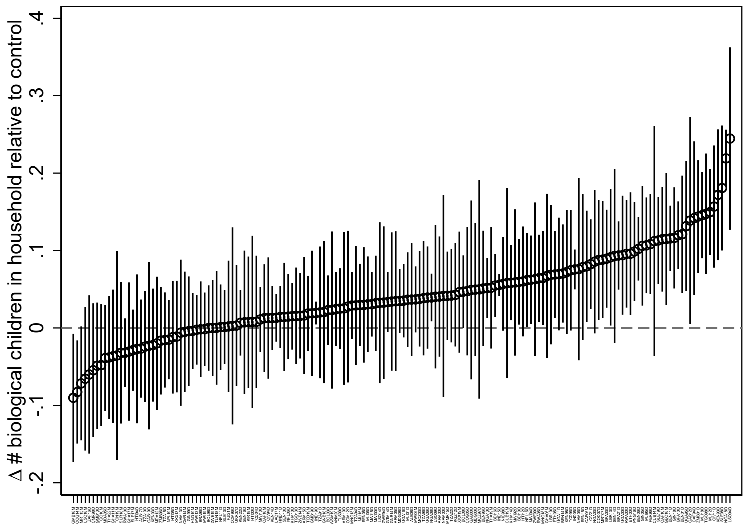


Figure 11: Effect of man's questionnaire on number of children of eligible men in the household

4.2 Women's fertility

Fertility is most commonly measured by asking women about their total number of live births. In 38 out of the 67 survey-census pairs we construct, we observe the total number of children ever born to eligible women in both the survey (from the woman's questionnaire) and the matched population census.[19] Comparing the number of reported live births within pairs, we find evidence of significantly higher fertility in DHS/MICS than in contemporaneous censuses. Figure 12 shows that the average number of children ever born in the surveys exceeds the one in the census in 33 out of 38 cases. In about half of these cases (16), the gap is larger than 10%, and in 10 of them larger than 15%. Only in three cases, we detect a lower reported fertility in DHS/MICS than in the census.[20] Reassuringly, these are surveys where we only find limited evidence of missing women.

[19] Details on the harmonization of this information between surveys and censuses are provided in Section A.1.2.

[20] All estimates are reported in Table A8, column 6.

In fact, the degree of overestimation in surveys is strongly negatively correlated with our estimates of missing women – just like in the case of men (see Figure A13).

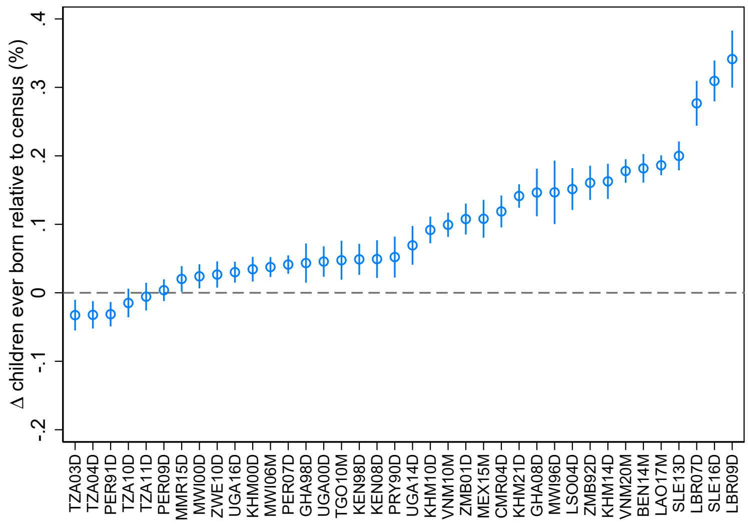


Figure 12: Number of children ever born in DHS/MICS relative to census

4.3 Correcting for bias in fertility

Can survey estimates of fertility be corrected by re-weighting on observables? As we detail below, at least in our sample of surveys, the bias cannot be fully corrected for using standard re-weighting techniques.

Thus, the correction exercise provides us with two novel insights: first, as hypothesised above, selection on observables appears to be a major driver of the estimated bias due to endogenous sample selection in fertility statistics in the surveys we study. Except for one country, all re-weighted estimates of fertility relative to an adjacent census fall below their unweighted counterparts. This provides confirmation of our proposed mechanism: enumerator incentives to avoid high-effort cost individuals shape sample selection based on observable characteristics, which introduces deviations from random sampling and in turn systematically inflates the number of children ever born per woman in most surveys we study.

Second, although correction reduces bias, we also find strong evidence of remaining bias indicating additional enumerator selection on unobservables. In around half of cases suitable for correction, the remaining bias in fertility is still statistically significantly different from zero. Enumerators appear to receive substantially more information on the ground regarding the respective effort cost across individuals than the few variables they have to record for every household member in the listing can reveal.

Our correction methodology is standard and aims to emulate the situation in which end-users of survey data would find themselves in once they suspect endogenous sample selection. Faced with potentially biased estimates of outcome variables due to endogenous sample selection, a natural correction approach would proceed as follows: find marginal distributions of population parameters for variables also collected for every individual in the survey, re-weight observations in the survey to match the population distribution, re-estimate aggregate statistics or regressions using the re-weighted sample.

Commonly called raking, we implement such a standard re-weighting procedure by focusing on the subset of survey samples for which survey-census-pairs can be formed, as in our main result documenting bias in fertility in Figure 12. We obtain marginal distributions of the maximum number of variables asked in most census and survey pairs, i.e. age, relationship to household head, years of schooling and marriage status.[21] We then rake the survey sample weights using iterative post-stratification until the survey's marginal distributions are jointly indistinguishable from the census' distribution of the same variables.[22] Finally, we re-estimate our main fertility results using the re-weighted sample. Figure 13 compares the unweighted with the re-weighted estimates for women's number of children ever born relative to the census.

[21] To account for focal-number bunching of age in censuses and due to the scarcity of the age distribution in some survey samples, we aggregate age into standard five-year bins. Years of schooling is aggregated to four bins: no, primary, secondary or tertiary education.

[22] Results for single-variable raking, when using, for example only individuals' age bin, are qualitatively unchanged, although the bias correction is less effective than multivariate raking in most cases.

Out of the 34 survey-census pairs that have all listing variables available for raking, 27 pairs were statistically significantly positive in un-weighted specifications. After re-weighting, 18 pairs still remain statistically significantly positive. Before correction, mean bias among those with statistically significant positive bias was 0.12 additional children ever born, whereas correction reduces this to 0.06 for the original 27 pairs and 0.09 additional children ever born for the remaining 18 pairs.

As robustness exercise and proof-of-concept, we also perform re-weighting on the men's fertility sample of surveys with a randomised men's questionnaire, where we use the control group's marginal distributions of listing variables as arguably imperfect proxy of underlying population marginal distributions. Irrespective of potential SUTVA violations, such survey-internal re-weighting may still represent the end-users only hope to correct for bias in the absence of suitable population parameters. Results are very much in line with the above findings for re-weighting based on population marginal distributions: substantial selection on observables appears present, but large biases in fertility estimates remain.

Overall, our correction attempts echo findings reported by Dutz et al. (2021) that selection on unobservables may present serious challenges in surveys that are hard to correct for using standard techniques.

5 Mechanisms

This section explores mechanisms through which the assignment of the man's questionnaire to a household may affect the selection of household members recorded in the roster. First, we show that the man's questionnaire affects the identity of both the enumerator and the respondent, both of which may play into who gets recorded in the roster.[23] Second, we examine heterogeneous effects of the man's questionnaire by survey

[23]A growing literature documents enumerator (Di Maio & Fiala, 2019) and respondent effects (Kilic et al., 2021; Kilic et al., 2022; Dervisevic & Goldstein, 2023; Dillon & Mensah, 2024; Masselus & Fiala,

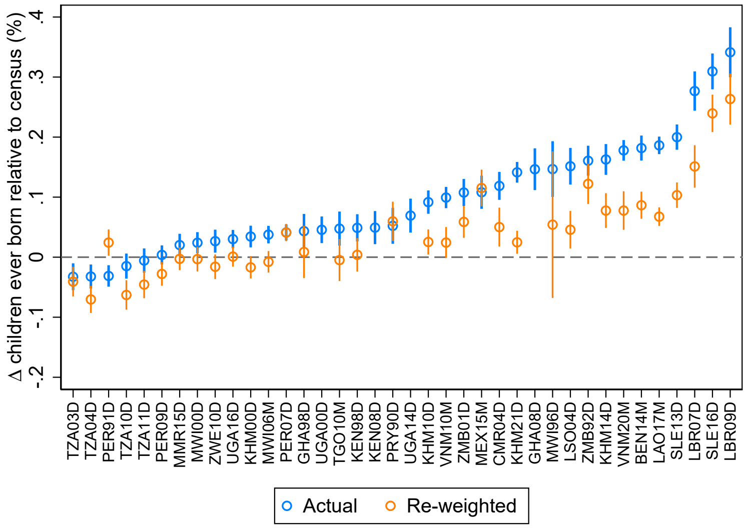


Figure 13: Number of children ever born in DHS/MICS relative to census before and after re-weighting

cluster characteristics, but fail to detect a universal pattern across surveys.

5.1 Enumerator selection

The eligibility of a given household for the man's questionnaire is revealed on the first page of the household questionnaire. In response to this information, supervisors can strategically assign enumerators to households with and without a man's questionnaire. This raises the question how the eligibility of a household for the man's questionnaire affects the identity of the enumerator recording the household roster. Leveraging information on the characteristics of enumerators from the DHS fieldworker questionnaire, available for 19 surveys in our sample, we empirically test how enumerator characteristics differ between households with and without a man's questionnaire.[24] We find that in most surveys, enumerators in charge of the household roster are significantly less likely

2024).

[24]The DHS fieldworker questionnaire was introduced in 2015. Hence, enumerator information is not available for earlier surveys. The MICS does not publish any enumerator characteristics.

to be female in treatment households.[25] The effect of the man's questionnaire on age and education varies across surveys, both in sign and magnitude. Experience with previous DHS is negatively affected in most surveys, but also heavily positively affected in a few surveys. Figure A14 displays all the estimates.

5.2 Respondent selection

In addition to the identity of the enumerator, the assignment to the man's questionnaire may also alter the identity of the respondent to the household roster. In fact, we find that in almost all surveys respondents in households with a man's questionnaire are less likely to be female, more likely be the household head as well as somewhat older and more educated (see Figure A15).

5.3 Contextual factors

5.3.1 Survey cluster characteristics

Are more eligible men missing in certain types of survey clusters? We compare the effect of the man's questionnaire on the number of eligible men in the household in rural and urban areas. As Figure A16 shows, we cannot detect a statistically significant difference in most surveys. But we we find a significant positive difference in some surveys and a significant negative one in others. Hence, the differential impact of the man's questionnaire in rural and urban areas appears to be context dependent.

[25]The tendency to assign male enumerators to households with a man's questionnaire can be attributed to the survey program's objective to conduct same-sex individual interviews, i.e., to have male enumerators administer man's questionnaires and female enumerators administer woman's questionnaires. This implies that a male enumerator is required at households that are eligible for the man's questionnaire, but not at ineligible households.

6 External validity

6.1 Endogenous sample selection across countries and over time

In which types of settings is endogenous sample selection more prevalent? To address this question, we correlate our estimates of missing men with country characteristics. Figure A17 reveals that the man's questionnaire leads to more missing men in countries that are poorer and have less effective governments. Democracy – as measured by the polity IV score – is, if anything, associated with more missing men. The World Bank's Statistical Capacity Indicator, which measures the capacity of a country's statistical system by scoring methodology, data sources, and periodicity and timeliness against 25 criteria, is uncorrelated with our estimates.

Comparing our estimates over time, we do not find a statistically significant trend (see Figure A18). This suggests that improvements in survey design and implementation over the last decades have not reduced the extent of endogenous sample selection in DHS and MICS. In line with this, we do not find a statistically significant difference in effect size between surveys using tablets and paper questionnaires, although tablets can in principle facilitate real-time data quality checks and enumerator monitoring (see Figure A19).

6.2 Endogenous sample selection beyond DHS and MICS

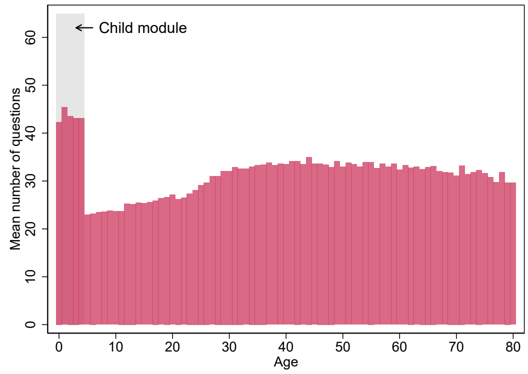
6.2.1 Living standards surveys

Living standards and household budget surveys are the basis for poverty measurement in low- and middle-income countries. National poverty headcounts typically measure the number of individuals living in households with consumption per adult equivalent below the national poverty line. While adult equivalence scales vary across countries, they all put less weight on younger individuals. Manipulation of age information or the omission of household members of specific age groups in response to survey incentives have thus the potential to affect poverty estimates. In practice, the design of poverty measurement surveys varies substantially across countries. A comparison of the Tanzanian Household Budget Survey and the Zambian Living Conditions Monitoring Survey demonstrates this. While the former includes an extensive module on labor and time use for individuals above the age of 4, making individuals aged 5 and older particularly costly for enumerators, the latter requires enumerators to collect more information about children aged 4 and below through a child module including anthropometric measurements (see Figures 14a and 14b). As a result, the age distribution from the Tanzanian survey shows excess mass on the left side of the age threshold of 5 and missing mass to the right of it, and the opposite is true for the Zambian survey (see Figures 14c and 14d). It is unclear if these distortions bias poverty estimates and if so, in which direction and by how much. This is because (i) it is not known to which extent the observed bunching pattern is driven by age displacement or the outright omission of children, and (ii) it is not known if these behaviors are more common in poorer or richer households. We leave these questions for future research.

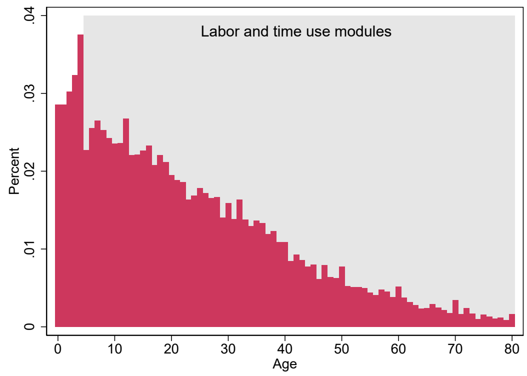
6.2.2 Labor force surveys

Labor force surveys collect information on the employment of individuals above a certain age threshold – typically 5 or 15. This implies an incentive for enumerators to omit individuals above the threshold or to manipulate their age such that it falls below the threshold. The case of the Zambian labor force survey is illustrative. Between the 2017 and the 2019 survey, the eligibility threshold for labor modules was moved down from the age of 15 to the age of 5. Figure 15 shows how bunching of individuals below the threshold of 15 disappeared in response to this change while bunching below the new threshold of 5 emerged. Such age manipulation is likely to be particularly relevant for statistics on child labor and youth employment.

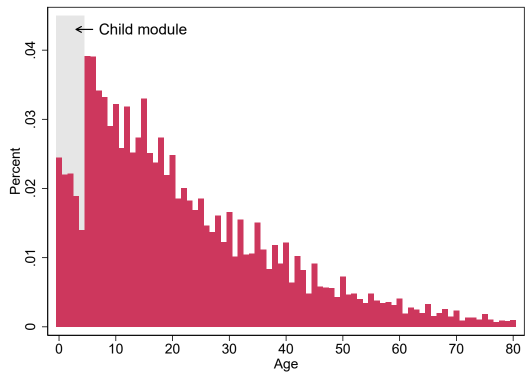
(a) Question load by age: Tanzania HBS 2011



(b) Question load by age: Zambia LCMS 2015



(c) Age distribution: Tanzania HBS 2011

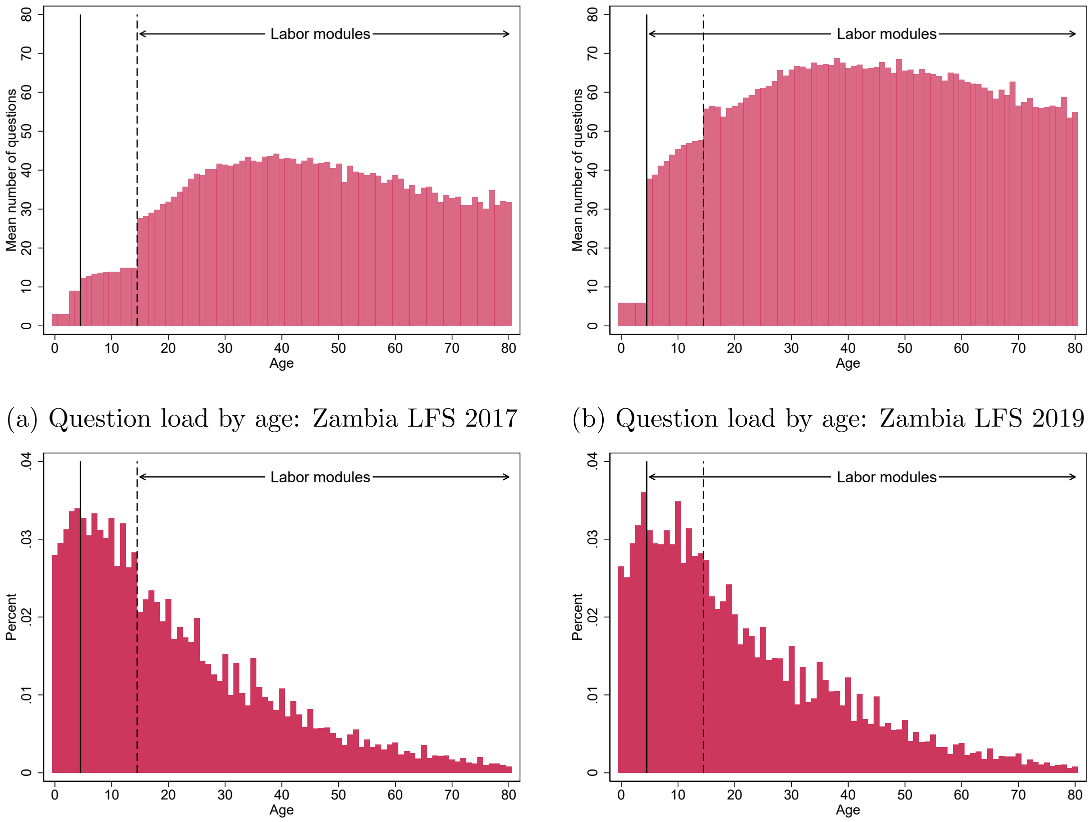


(d) Age distribution: Zambia LCMS 2015

Figure 14: Question load and age distribution in living standards surveys

6.2.3 Firm censuses

In firm censuses, the amount of information collected about firms often varies with firm size. This creates incentives for enumerators to manipulate firm size or omit firms that require additional data collection entirely in order to lower effort costs. The Indian Economic Census is a case in hand. It aims to record all formal and informal non-farm businesses in the country. To this end, enumerators visit all buildings in the entire country, recording the firms found therein and their basic characteristics, including the total number of employees. Thereafter, additional information is collected for firms above a given size threshold. In the 2005 Economic Census, an address slip (see Figure A20)



(a) Question load by age: Zambia LFS 2017

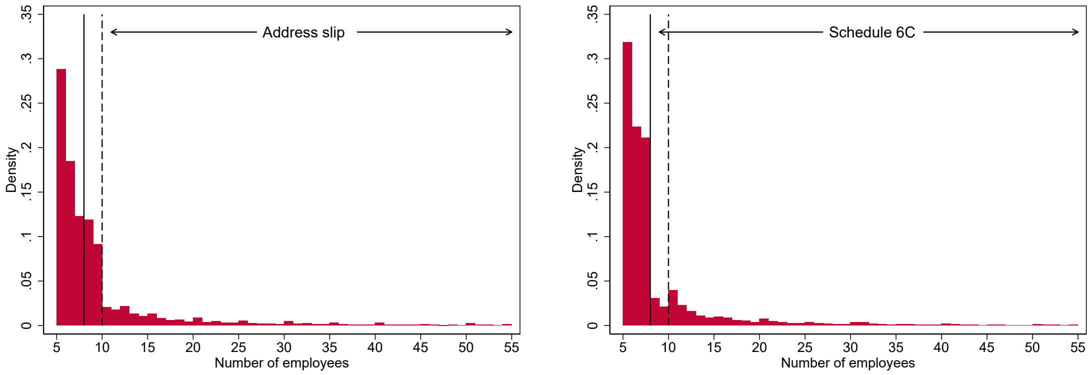
(b) Question load by age: Zambia LFS 2019

(c) Age distribution: Zambia LFS 2017

(d) Age distribution: Zambia LFS 2019

Figure 15: Question load and age distribution in the Zambian Labor Force Survey

had to be completed for all firms employing 10 or more workers (Ministry of Statistics and Programme Implementation, 2005). In 2013, for each identified firm with 8 or more workers, a form referred to as the "Directory of Establishment Schedule" had to be completed (see Figure A21). This included the name of the establishment, its address, a description of its major activity and its source of registration (Ministry of Statistics and Programme Implementation, 2005). Figure 16 illustrates bunching of firms below the respective eligibility thresholds of 10 and 8 in 2005 and 2013. The simultaneous absence of bunching below the firm size threshold from the respective other census year strongly suggests that enumerators manipulate firm size such that firms fall below the eligibility threshold. As a result, the recorded firm size distributions are distorted, with implications for research on the determinants of firm size, such as Amirapu and Gechter (2020).



(a) Indian Economic Census 2005

(b) Indian Economic Census 2013

Figure 16: Firm size distribution in the Indian Economic Census

7 Conclusion

Descriptive statistical analysis and causal inference lie at the heart of empirical research in social science. While causal inference was revolutionized by the introduction of experimental methods in the early 2000s and identification has been the subject of much methodological research since, data-generating processes have received considerably less attention. However, good data is paramount for both causal inference and descriptive analysis (Dillon et al., 2020).

This paper examines the production of household survey data, arguably one of the most important data sources in the social sciences. We show that enumerators systematically screen out household members that require disproportionate effort based on ex ante-observable characteristics (age and gender), either by omitting such household members from household rosters or by manipulating their eligibility criteria. This enumerator behavior induces selection of household members out of sample and, as a result, biases aggregate statistics.

Leveraging two complementary empirical strategies, one exploiting random assignment of individual questionnaires across households in DHS and MICS and the other comparing survey and census household rosters, we estimate that approximately 6% of eligible household members are missing from the median survey. In 25% of surveys, the number of missing eligible household members exceeds 9%. Missing members are different from included ones along observable dimensions: they tend to be younger, less closely related to the household head, less educated and less likely to have ever been married. This leads to bias in important aggregate statistics, such as fertility. We find that the total number of children ever born reported by women in the DHS and MICS exceeds the one reported in contemporaneous population censuses in 87% of cases, often significantly so. In 42% of the examined surveys, the difference is bigger than 10%.

Complementary evidence from other selected surveys suggests that endogenous sample selection is a widespread phenomenon. This calls for further systematic research on enumerator incentives, sample selection and their impact on statistical inference. For example, how do enumerator incentives affect sample selection and inference in household panel surveys? Do enumerators over-report out-migration of household members to make their workloads more manageable? Other open questions concern cost-effective survey designs and implementation protocols that can help limit endogenous sample selection – such as optimally targeted audits – as well as econometric methods that can help correct for selection ex-post. To enable research on this front, more transparency about enumerator incentives will be essential. For example, the publication of information on enumerators' employment contracts and pay structure is currently not standard in survey reports, but would be desirable.

References

Abay, K. A., Berhane, G., Hoddinott, J., & Tafere, K. (2022). Respondent Fatigue Reduces Dietary Diversity Scores Reported from Mobile Phone Surveys in Ethiopia during the COVID-19 Pandemic. *J Nutr.*, *152*(10), 2269–2276. https://doi.org/10.1093/jn/nxac153

Ambler, K., Herskowitz, S., & Maredia, M. K. (2021). Are we done yet? Response fatigue and rural livelihoods. *Journal of Development Economics*, *153*, 102736.

Amirapu, A., & Gechter, M. (2020). Labor Regulations and the Cost of Corruption: Evidence from the Indian Firm Size Distribution. *The Review of Economics and Statistics*, *102*(1), 34–48. https://doi.org/10.1162/rest_a_00837

Bardasi, E., Beegle, K., Dillon, A., & Serneels, P. (2011). Do Labor Statistics Depend on How and to Whom the Questions Are Asked? *World Bank Economic Review*, *25*(3), 418–447. https://doi.org/https://doi.org/10.1093/wber/lhr022

Beaman, L., & Dillon, A. (2012). Do household definitions matter in survey design? Results from a randomized survey experiment in Mali [Symposium on Measurement and Survey Design]. *Journal of Development Economics*, *98*(1), 124–135. https://doi.org/https://doi.org/10.1016/j.jdeveco.2011.06.005

Bongaarts, J. (2017). The effect of contraception on fertility: Is sub-Saharan Africa different? *Demographic Research*, *37*, 129–146. Retrieved June 14, 2024, from http://www.jstor.org/stable/26332193

Casterline, J. B., & Agyei-Mensah, S. (2017). Fertility Desires and the Course of Fertility Decline in sub-Saharan Africa. *Population and Development Review*, *43*, 84–111. Retrieved June 14, 2024, from http://www.jstor.org/stable/26622875

Celhay, P., Meyer, B. D., & Mittag, N. (2024). What leads to measurement errors? Evidence from reports of program participation in three surveys. *Journal of Econo-*

metrics, *238*(2), 105581. https://doi.org/https://doi.org/10.1016/j.jeconom.2023.105581

Chatterjee, S., & Vogl, T. (2018). Escaping Malthus: Economic Growth and Fertility Change in the Developing World. *American Economic Review*, *108*(6), 1440–67. https://doi.org/10.1257/aer.20170748

Crespi, L. P. (1945). The Cheater Problem in Polling. *Public Opinion Quarterly*, *9*(4), 431–445. https://doi.org/10.1086/265760

Crespi, L. P. (1946). Further Observations on the "Cheater" Problem. *The Public Opinion Quarterly*, *10*(4), 646–649. http://www.jstor.org/stable/2745713

Dervisevic, E., & Goldstein, M. (2023). He said, she said: The impact of gender and marriage perceptions on self and proxy reporting of labor. *Journal of Development Economics*, *161*, 103028. https://doi.org/https://doi.org/10.1016/j.jdeveco.2022.103028

Di Maio, M., & Fiala, N. (2019). Be Wary of Those Who Ask: A Randomized Experiment on the Size and Determinants of the Enumerator Effect. *The World Bank Economic Review*, *34*(3), 654–669. https://doi.org/10.1093/wber/lhy024

Dillon, A., Bardasi, E., Beegle, K., & Serneels, P. (2012). Explaining variation in child labor statistics [Symposium on Measurement and Survey Design]. *Journal of Development Economics*, *98*(1), 136–147.

Dillon, A., Karlan, D., Udry, C., & Zinman, J. (2020). Good identification, meet good data. *World Development*, *127*, 104796.

Dillon, A., & Mensah, E. (2024). Respondent biases in agricultural household surveys. *Journal of Development Economics*, *166*, 103198. https://doi.org/https://doi.org/10.1016/j.jdeveco.2023.103198

Durant, H. (1946). The "Cheater" Problem. *The Public Opinion Quarterly*, *10*(2), 288–291. Retrieved May 27, 2024, from http://www.jstor.org/stable/2745618

Dutz, D., Huitfeldt, I., Lacouture, S., Mogstad, M., Torgovitsky, A., & van Dijk, W. (2021). *Selection in Surveys: Using Randomized Incentives to Detect and Account for Nonresponse Bias* (Working Paper No. 29549). National Bureau of Economic Research. https://doi.org/10.3386/w29549

Finn, A., & Ranchhod, V. (2015). Genuine Fakes: The Prevalence and Implications of Data Fabrication in a Large South African Survey. *The World Bank Economic Review*, *31*(1), 129–157.

Jeong, D., Aggarwal, S., Robinson, J., Kumar, N., Spearot, A., & Park, D. S. (2023). Exhaustive or exhausting? Evidence on respondent fatigue in long surveys. *Journal of Development Economics*, *161*, 102992. https://doi.org/https://doi.org/10.1016/j.jdeveco.2022.102992

Kilic, T., Moylan, H., & Koolwal, G. (2021). Getting the (Gender-Disaggregated) lay of the land: Impact of survey respondent selection on measuring land ownership and rights. *World Development*, *146*(100). https://doi.org/10.1016/j.worlddev.2021.1

Kilic, T., Van den Broeck, G., Koolwal, G., & Moylan, H. (2022). Are You Being Asked? Impacts of Respondent Selection on Measuring Employment in Malawi. *Journal of African Economies*, *32*(5), 495–522. https://doi.org/10.1093/jae/ejac025

LoPalo, M. (2023). Temperature, Worker Productivity, and Adaptation: Evidence from Survey Data Production. *American Economic Journal: Applied Economics*, *15*(1), 192–229. https://doi.org/10.1257/app.20200547

Masselus, L., & Fiala, N. (2024). Whom to ask? Testing respondent effects in household surveys. *Journal of Development Economics*, *168*, 103265. https://doi.org/https://doi.org/10.1016/j.jdeveco.2024.103265

Meyer, B. D., Mok, W. K. C., & Sullivan, J. X. (2015). Household Surveys in Crisis. *Journal of Economic Perspectives*, *29*(4), 199–226. https://doi.org/10.1257/jep.29.4.199

Ministry of Statistics and Programme Implementation. (2005). *Instruction Manual Fifth Economic Census (2005)*. Ministry of Statistics and Programme Implementation.

Rubin, D. B. (1976). Inference and Missing Data. *Biometrika*, *63*(3), 581–592. Retrieved June 14, 2024, from http://www.jstor.org/stable/2335739

Serneels, P., Beegle, K., & Dillon, A. (2017). Do returns to education depend on how and whom you ask? *Economics of Education Review*, *60*, 5–19. https://doi.org/https://doi.org/10.1016/j.econedurev.2017.07.010

Vogl, T. S. (2016). Differential Fertility, Human Capital, and Development. *The Review of Economic Studies*, *83*(1), 365–401. https://EconPapers.repec.org/RePEc:oup:restud:v:83:y:2016:i:1:p:365-401.

A.1 Data

A.1.1 Selection of surveys

The main criterion for the inclusion of a survey into our main sample is the administration of a man's questionnaire in a randomly selected subset of households. Additionally, we restrict our sample to nationally representative surveys. This enables us to examine implications of endogenous sample selection for national statistics. Among all 235 surveys that satisfy these two criteria, we exclude 54 because they do not lend themselves to our analysis due to differences in survey design or data issues. All excluded surveys and the respective reasons for exclusion are listed in Table A9. First, we exclude 28 surveys that administered additional survey features, such as biomarker collection among children, in control households (without a man's questionnaire) that were not implemented treatment households. In these cases, differences in outcomes between treatment and control households cannot be attributed solely to the man's questionnaire. Second, we exclude 13 surveys in which eligibility for the man's questionnaire is conditional on marital status. Selection into individual questionnaires in these surveys is not comparable to selection in included surveys and thus results would not be directly comparable. Moreover, the resulting samples are not nationally representative. Third, we exclude 9 MICS due to data issues. For 6 MICS in which sampling is stratified by enumeration area and the presence of children in the household, we do not observe the latter stratification variable in the microdata. Thus we cannot control for stratum fixed effects. For 3 MICS, we are not able to merge the individual- and household-level microdata source files because identifiers do not match across files. Fourth, 3 DHS are excluded because their man's questionnaire does not have an upper age limit, thereby not allowing us to define a comparable group of ineligible men in these surveys. Finally, 1 DHS is excluded because treatment was randomized across enumeration areas rather than across households within enumeration areas, making comparisons with other surveys difficult.

A.1.2 Data harmonization and construction of variables

Ever married. We define having ever been married in a broad sense. In line with most surveys in our sample, we count all individuals that are married, living with a partner, separated, divorced or widowed as ever married. Information on the marital status is collected through different questionnaires in the surveys we work with. In the MICS, marital status is asked in the individual questionnaire, not in the household roster. The DHS initially operated in the same way, but gradually moved to systematically including a question about marital status in the household roster. While the roster only features a question on marital status in a some of the DHS conducted prior to 2012, it includes such a question for all surveys in our sample conducted thereafter. So, we observe the marital status of men in control households in all DHS conducted post 2012 and a subset of DHS conducted earlier.

Close relationship to household head. Nearly all censuses and surveys in our samples elicit information on the relationship of household members to the household head. The set of answer options varies greatly across surveys and censuses, however. To harmonize the information, we create an indicator variable that equals to 1 if a household member is closely related to the head of the household and zero otherwise. We define children, spouse(s), parents, parents-in-law and grandchildren as closely related to the head, and other relatives (e.g., uncles) and unrelated household members (e.g., domestic workers) as distantly related.

Years of schooling. Information on years of schooling is readily available in harmonized form in DHS and IPUMS-International census data. In the MICS and non-IPUMS censuses, we harmonize this information ourselves, combining information on the highest level and grade of education completed with the structure of the education system at the time of the survey. Note that we only consider formal education when doing so.

Number of biological children in the household. Most surveys in our sample include a module on the survival of parents in the household roster. For all children aged 17 and below, this module asks whether the biological mother and father are alive, and if so whether they live in the household. If the answer to both of these questions is affirmative, their line number is recorded. We measure the number of biological children each household member lives with by counting the number of children in the household for which they are indicated as the parent.

Children ever born. The number of children ever born alive to women is top-coded in some population censuses. To ensure comparability with matched surveys, we apply the same top-coding to the matched surveys.

A.2 Appendix Figures

MICS	HOUSEHOLD QUESTIONNAIRE GHANA 2011			
HOUSEHOLD INFORMATION PANEL	HH			
HH1. Locality Name Cluster No.: ___ ___ ___	HH2. Household Number: ___ ___			
HH3. Interviewer name and number: ___ ___ ___	HH4. Supervisor name and number: ___ ___ ___			
HH5. Date of interview: (DD/ MM / YYYY) ___ ___ / ___ ___ /2011	HH5A: Is the household selected for the male survey? Yes 1 No 2			
HH6. Area: Urban 1 Rural 2	HH7.Region ___ ___	HH7A.District ___ ___	HH7B. Dist-type ___	HH7C. Sub-dist ___ ___
HH7D. Structure Address:	HH7E: Contact No of HH:			

WE ARE FROM THE GHANA STATISTICAL SERVICE. WE ARE CONDUCTING A SURVEY THAT IS CONCERNED WITH FAMILY HEALTH AND EDUCATION. I WOULD LIKE TO ASK YOU A FEW QUESTIONS ON THESE AREAS. THE INTERVIEW WILL TAKE ABOUT 45 MINUTES. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL NEVER BE SHARED WITH ANYONE.

MAY I START NOW?

☐ Yes, permission is given Go to HH10 to get signature, then HH18 to record time, then begin interview.

☐ No, permission is not given Complete HH9. Discuss this result with your supervisor.

Figure A1: MICS, Ghana 2011: First page of household questionnaire

HH18. Record the time. Hour __ __ Minutes __ __

HOUSEHOLD LISTING FORM HL

FIRST, PLEASE TELL ME THE NAME OF EACH PERSON IN YOUR HOUSEHOLD WHO USUALLY LIVES HERE, STARTING WITH THE HEAD OF THE HOUSEHOLD.
List the head of the household in line 01. List all household members (HL2), their relationship to the household head (HL3), and their sex (HL4)
Then ask: ARE THERE ANY OTHERS WHO LIVE HERE, EVEN IF THEY ARE NOT AT HOME NOW? (THESE MAY INCLUDE CHILDREN CURRENTLY IN SCHOOL OR AT WORK).
If yes, complete listing for questions HL2-HL4. Then, ask questions starting with HL5 for each person at a time.
Use an additional questionnaire if all rows in the household listing form have been used.

						For women age 15-49	For men age 15-59	For children age 5-14	For children under 5	For all household members	For children age 0-17 years			
HL1. Line number	HL2. Name	HL3. WHAT IS THE RELATION-SHIP OF (name) TO THE HEAD OF HOUSE-HOLD?	HL4. IS (name) MALE OR FEMALE? 1 Male 2 Female	HL5. WHAT IS (name)'S DATE OF BIRTH? 98 DK 9998 DK	HL6. HOW OLD IS (name)? Record in completed years. If age is 95 or above, record '95'	HL7. Circle line number if woman is age 15-49	HL7A. Check if HH5A=1 Circle line number if man is age 15-59	HL8. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? Record line number of mother/ caretaker	HL9. WHO IS THE MOTHER/ PRIMARY CARETAKER OF THIS CHILD? Record line number of mother/ caretaker	HL10. DID (name) STAY HERE LAST NIGHT? 1 Yes 2 No	HL11. IS (name)'S NATURAL MOTHER ALIVE? 1 Yes 2 No HL13 8 DK HL13	HL12. DOES (name)'S NATURAL MOTHER LIVE IN THIS HOUSEHOLD? Record line number of mother or 00 for "No"	HL13. IS (name)'S NATURAL FATHER ALIVE? 1 Yes 2 No Next Line 8 DK Next Line	HL14. DOES (name)'S NATURAL FATHER LIVE IN THIS HOUSEHOLD? Record line number of father or 00 for "No"
Line	Name	Relation*	M F	Month Year	Age	15-49	15-59	Mother	Mother	Y N	Y N DK	Mother	Y N DK	Father
01		01	1 2			01	01			1 2	1 2 8		1 2 8	
02			1 2			02	02			1 2	1 2 8		1 2 8	
03			1 2			03	03			1 2	1 2 8		1 2 8	
04			1 2			04	04			1 2	1 2 8		1 2 8	

Figure A2: MICS, Ghana 2011: Household roster

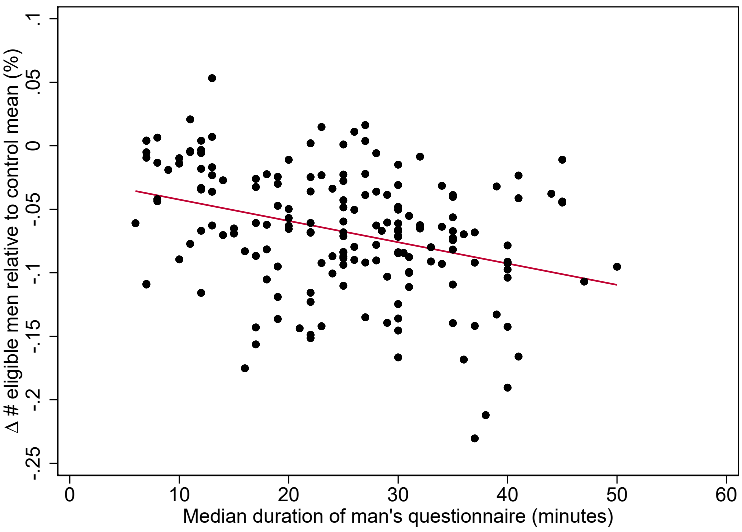
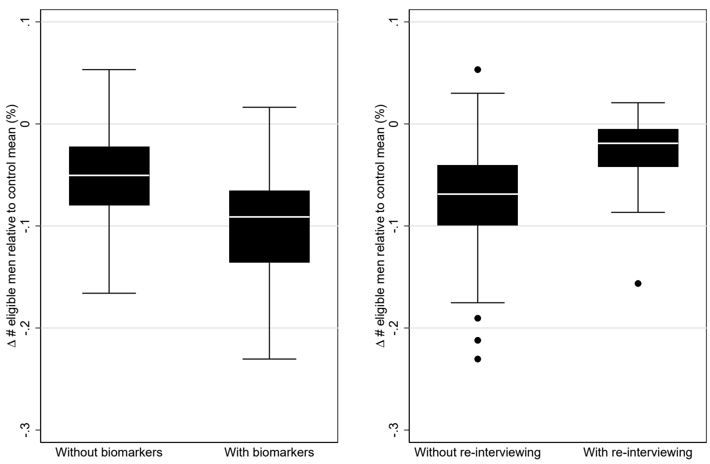


Figure A3: Missing men vs. length of man's questionnaire



(a) Biomarker collection (b) Mandatory re-interviewing

Figure A4: Correlation of missing men with survey characteristics

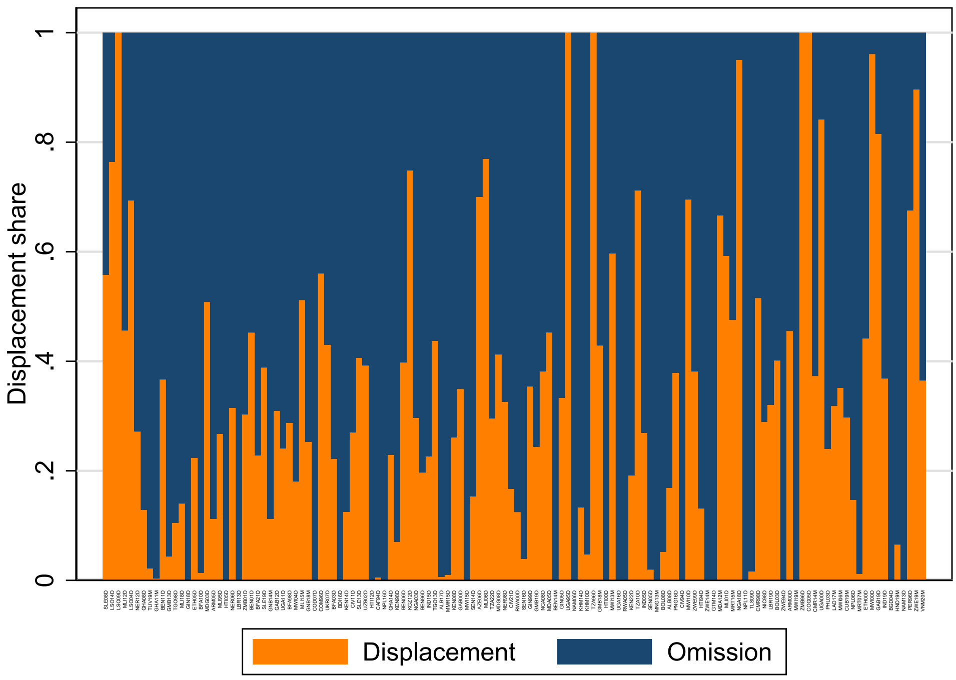


Figure A5: Share of eligible men who are omitted vs. whose age is displaced

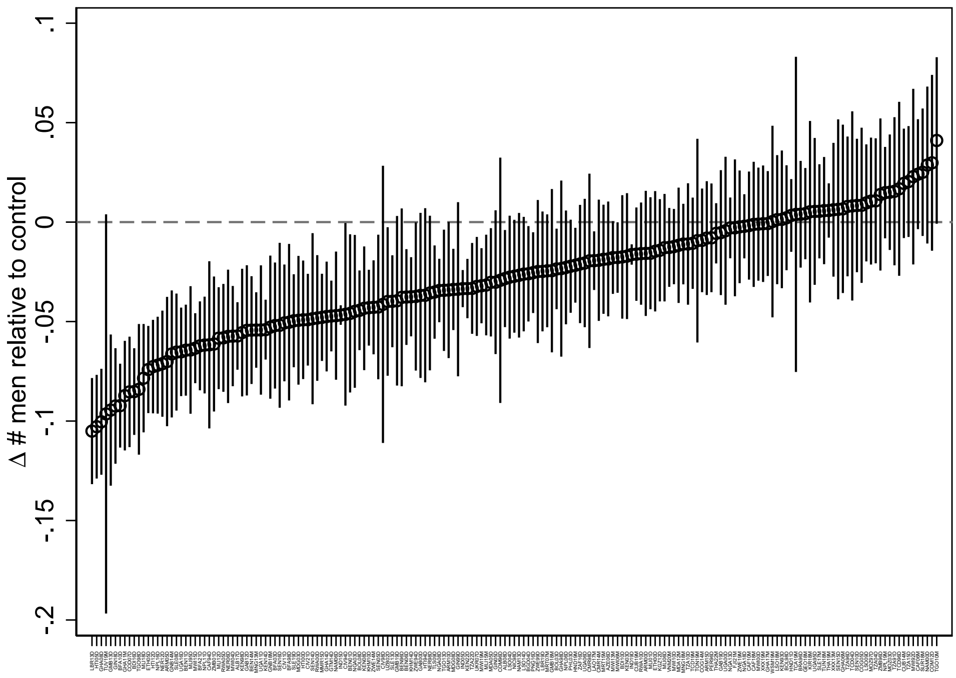


Figure A6: Effect of man's questionnaire on total number of men

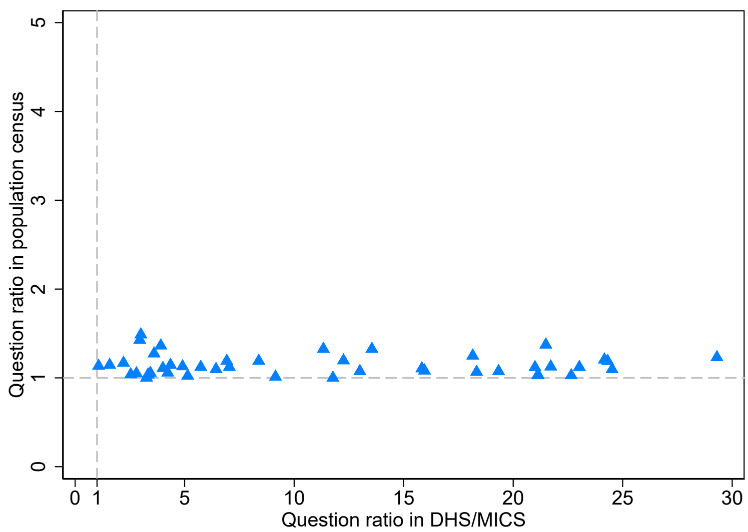


Figure A7: Question load of eligible women relative to ineligible women in MICS/DHS vs. census

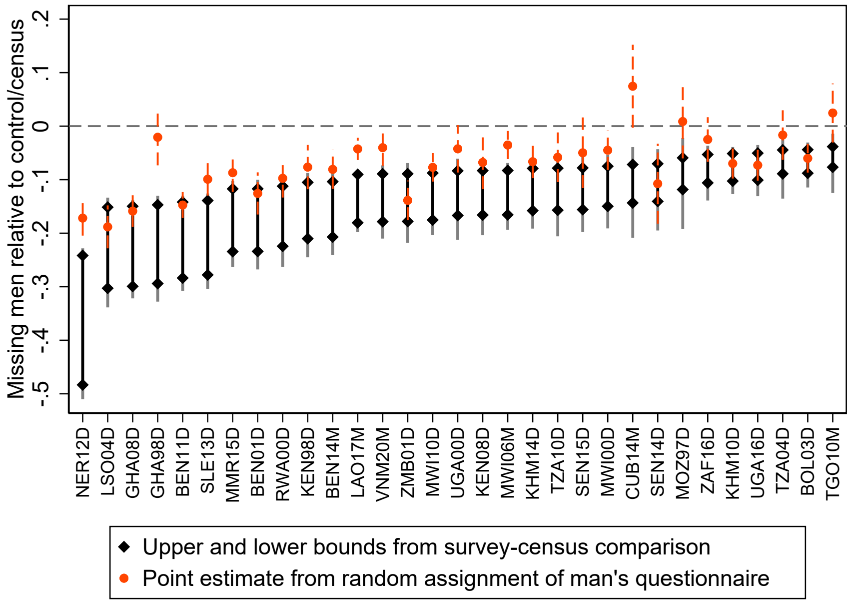


Figure A8: Missing men in DHS/MICS households with a man's questionnaire

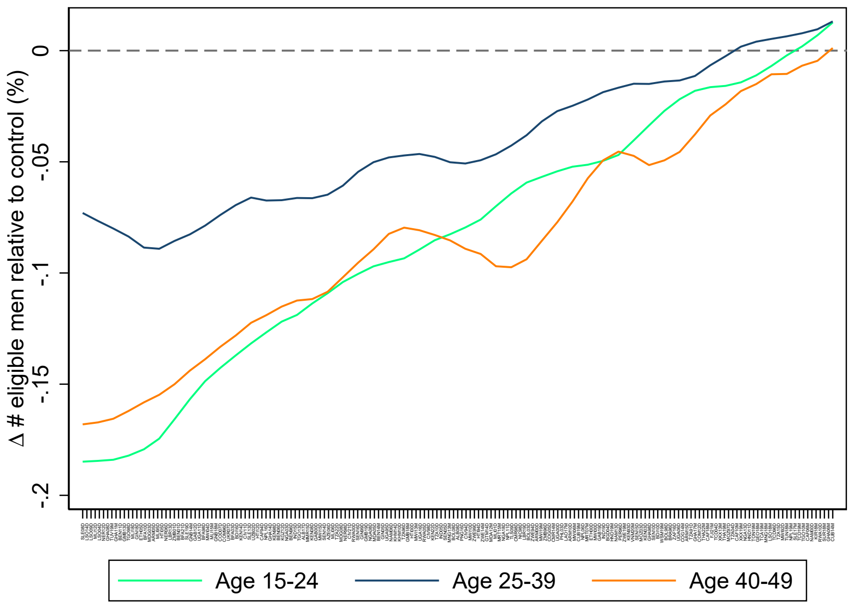
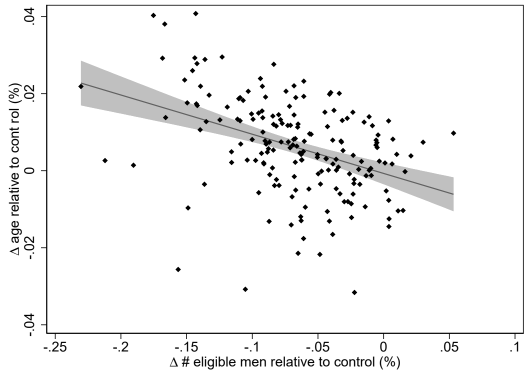
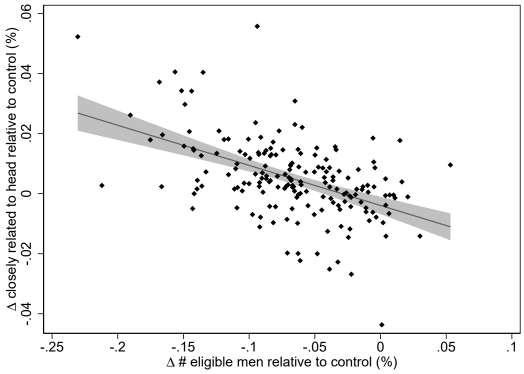


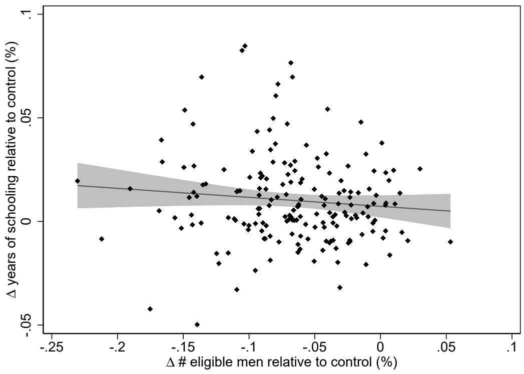
Figure A9: Effect of man's questionnaire on number of eligible men in the household by age group



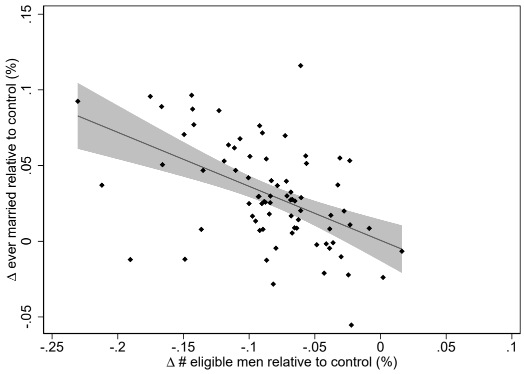
(a) Age



(b) Relationship to household head

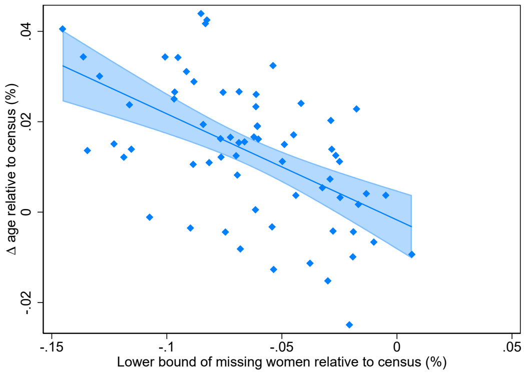


(c) Education

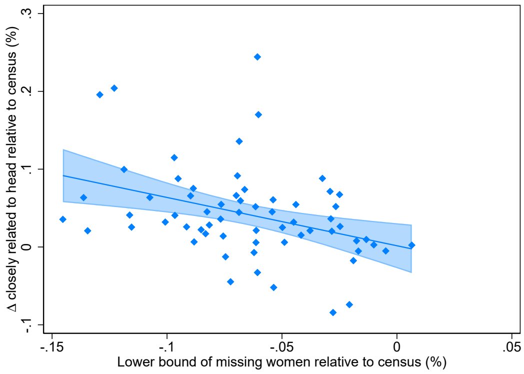


(d) Marital status

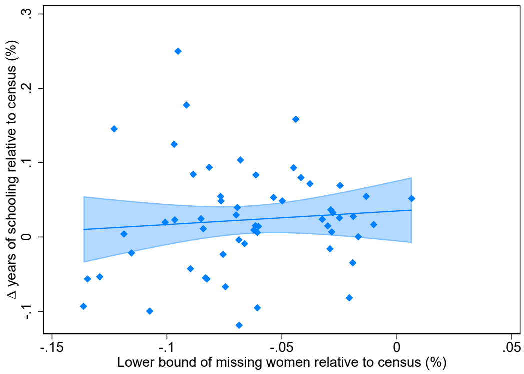
Figure A10: Effect of man's questionnaire on the characteristics of eligible men against missing men



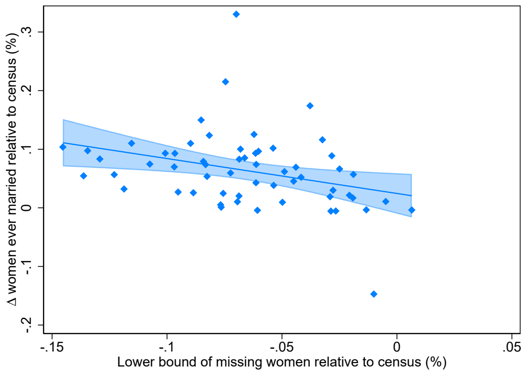
(a) Age



(b) Relationship to household head



(c) Education



(d) Marital status

Figure A11: Characteristics of eligible women in DHS/MICS relative to census vs. missing women

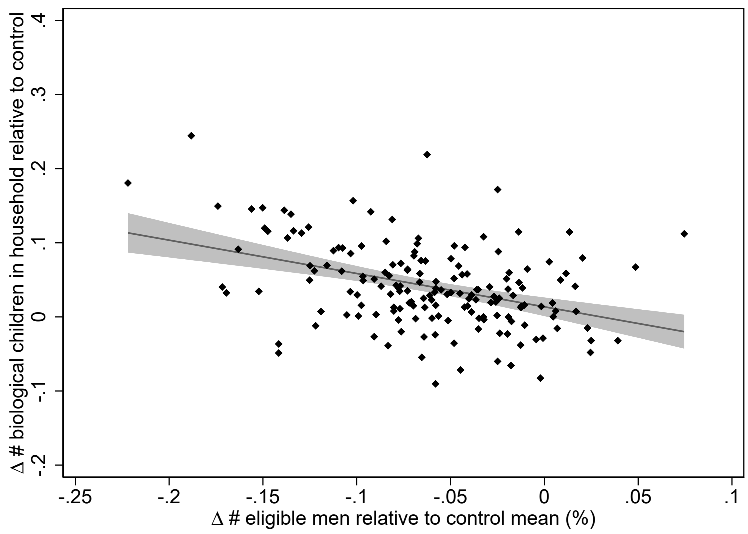


Figure A12: Effect on number of children of eligible men in the household against missing men

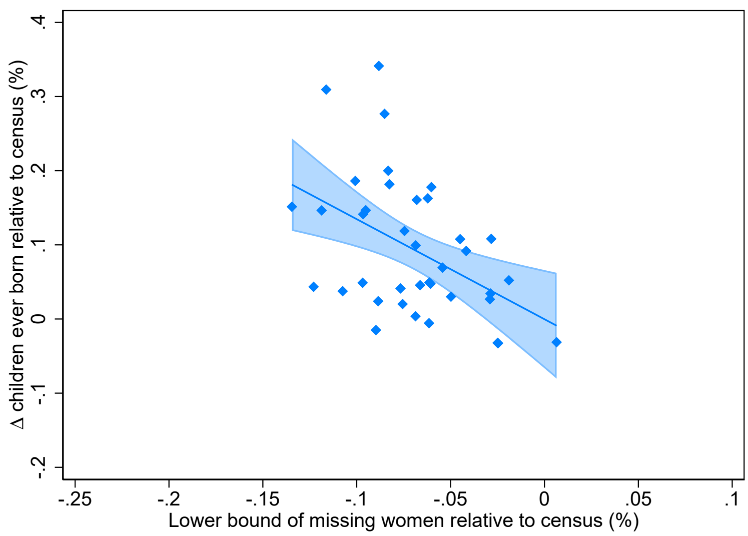
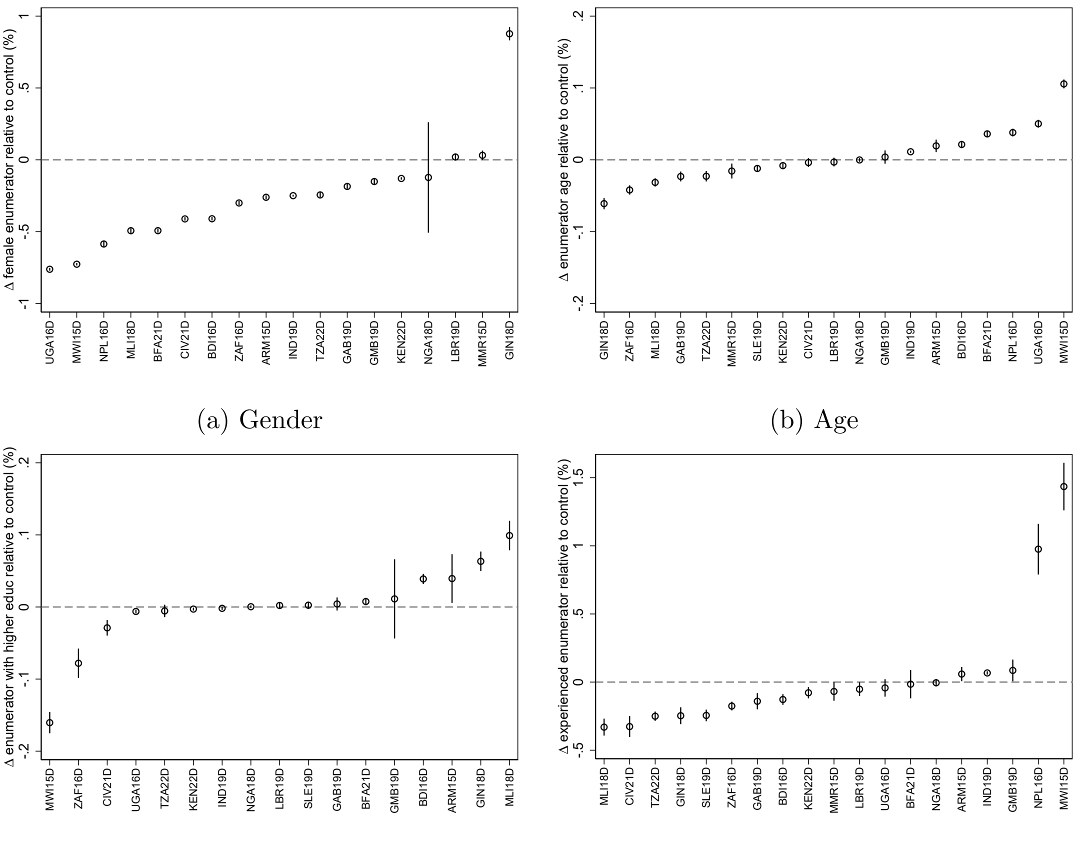


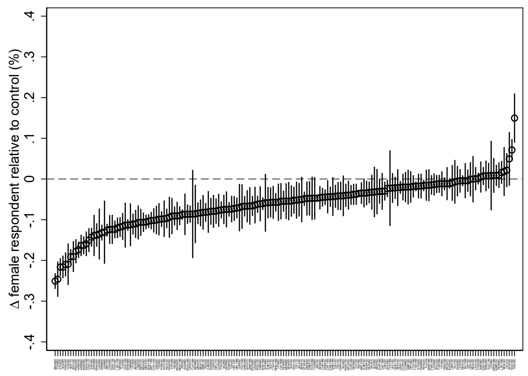
Figure A13: Number of children ever born to eligible women in DHS/MICS relative to census against missing women



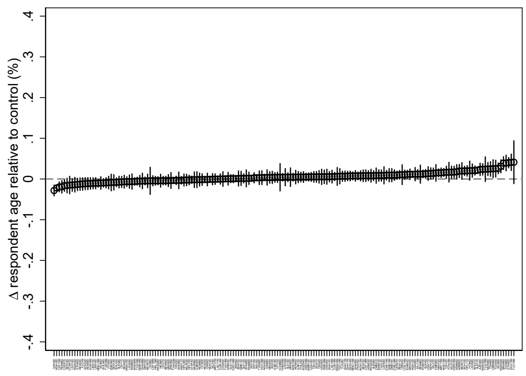
(a) Gender (b) Age

(c) Higher (post-secondary) education (d) Previous experience with DHS

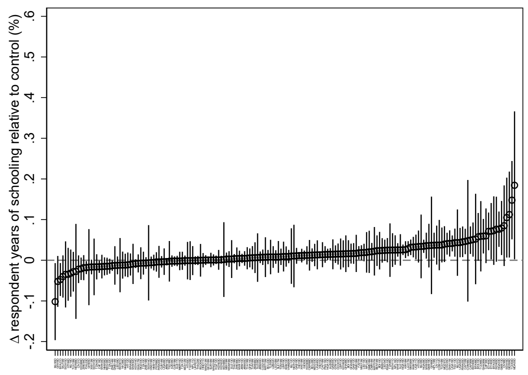
Figure A14: Effect of man's questionnaire on enumerator characteristics



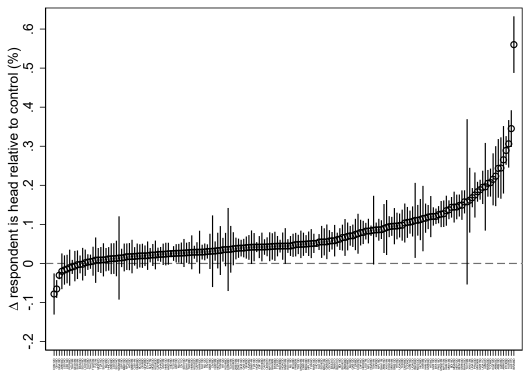
(a) Gender



(b) Age



(c) Education



(d) Household head

Figure A15: Effect of man's questionnaire on respondent characteristics

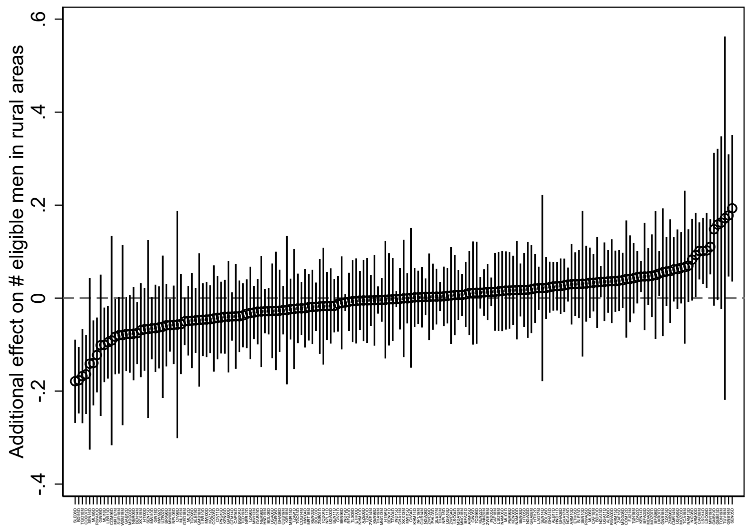
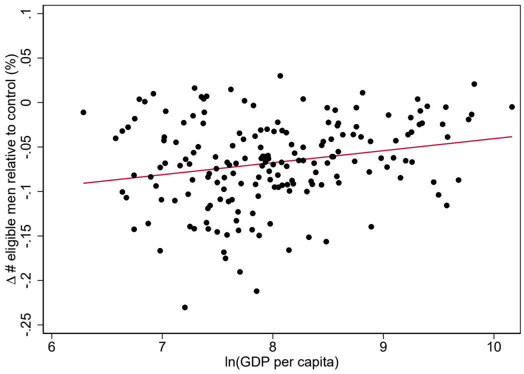
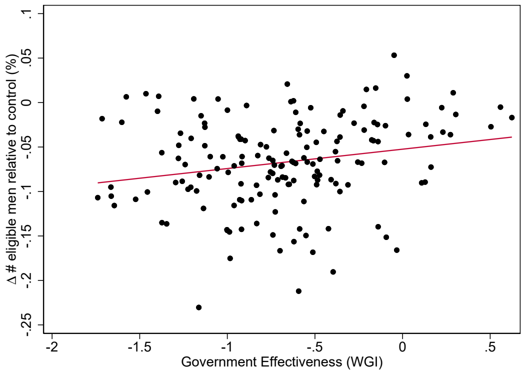


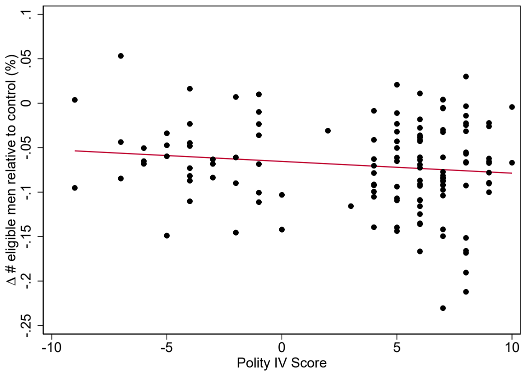
Figure A16: Heterogeneous effect of man's questionnaire on number of eligible men in the household by urban/rural



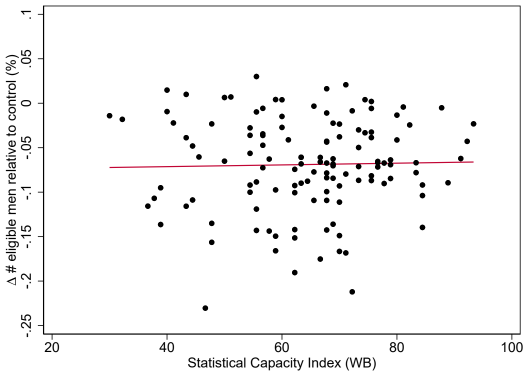
(a) GDP per capita



(b) Government Effectiveness



(c) Polity IV



(d) Statistical Capacity Index

Figure A17: Correlation of missing men with country characteristics

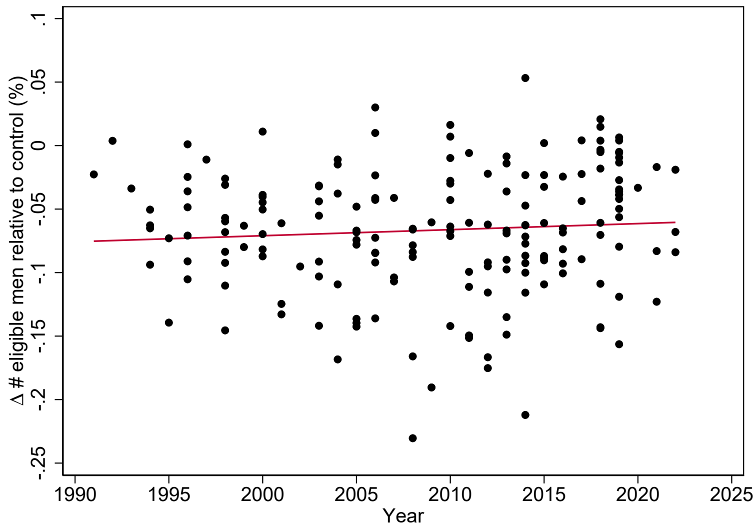


Figure A18: Effect of man's questionnaire on number of eligible men in the household over time

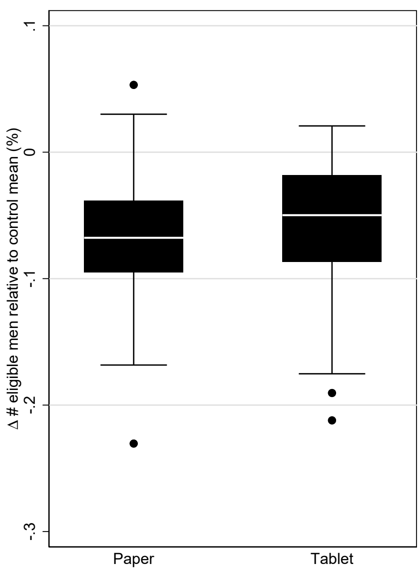


Figure A19: Effect of man's questionnaire on number of eligible men in surveys with tablet vs. paper questionnaire

5th ECONOMIC CENSUS - ADDRESS SLIP

(To be filled up when worker size is 10 or more)

Schedule No. 5 7

I. Enterprise Schedule No. 5

II. Identification Particulars:

FOR RURAL SECTOR ONLY

State/UT Name ______ Code

District Name ______ Code

Tehsil/Taluk/PS/Dev.Block/ Circle/Panchayat etc.Name ______ Code

Village Name ______ Code 0

Enumeration Block No.

FOR URBAN SECTOR ONLY

State/UT Name ______ Code

District Name ______ Code

Town Name ______ Code

Frame Code

Ward No.

Investigator unit (IV) No.

UFS Block within IV unit

III. Page Number of the ES

IV. Running serial no.of enterprise within a page.

V. Total Number of persons working

VI. Number of Non - hired persons working

VII. Year of start of operatioon

VIII. Description of the major economic activity of the enterprise

IX. NIC CODE (To be filled up at District lavel)

X. Name of the Enterprise with full address :

A. Address in Local language/English : *

B. Address in English language in block capital with one letter in each box

Name of the Enterprise/Head of the Household

Address

Pin Code

Telephone No.

Fax No.

E-mail address @

Signature of enumerator

Name of enumerator

Date D D M M Y Y

Checked and found correct

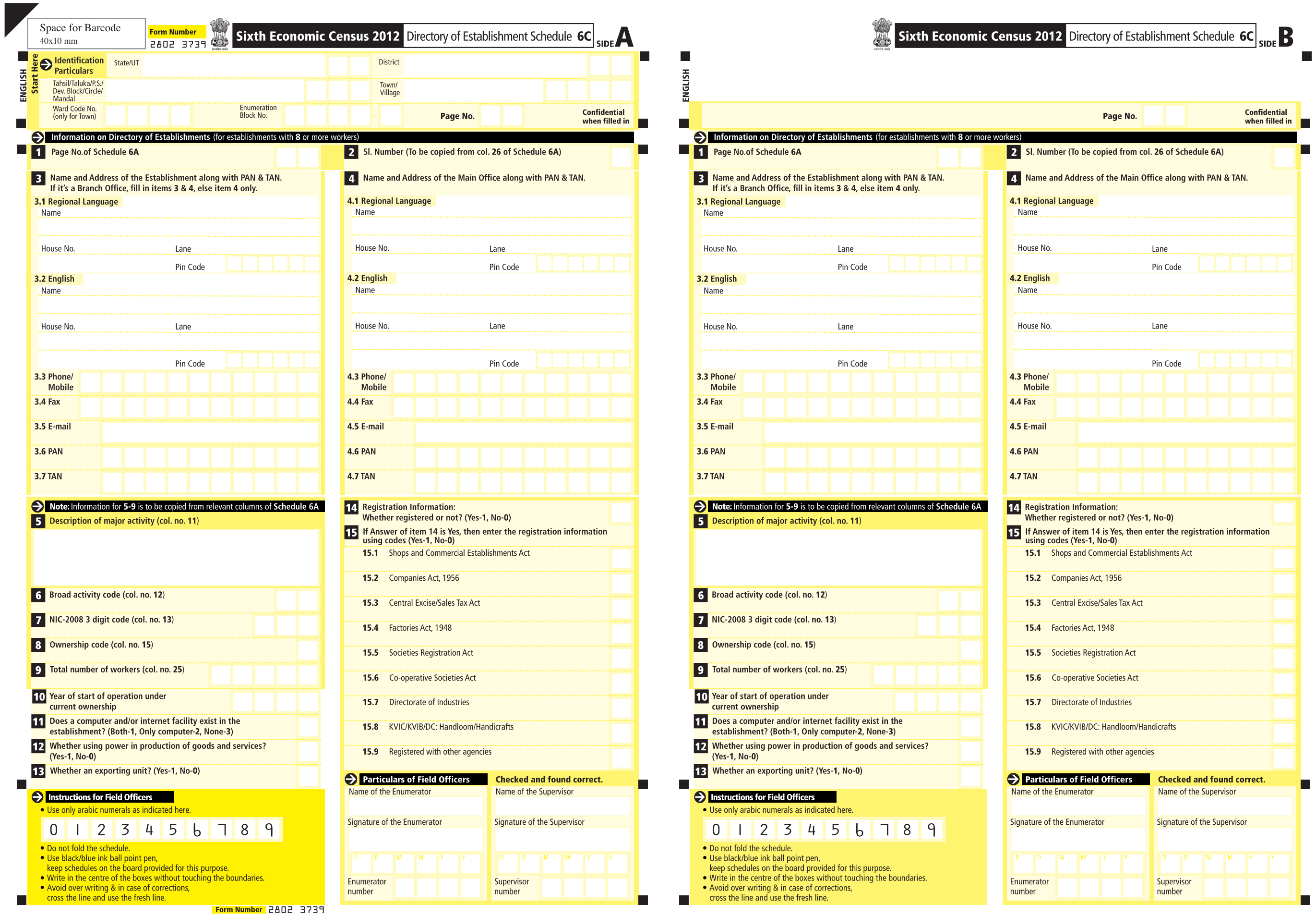
Signature of Supervisor

Name of Supervisor

Date D D M M Y Y

* In case name of the enterprise does not exist, then name of the owner/ head should be recorded.

Figure A20: Indian Economic Census 2005: Address slip


Space for Barcode 40x10 mm

Form Number 2802 3739

Sixth Economic Census 2012 | Directory of Establishment Schedule 6C | SIDE A

ENGLISH | Start Here | Identification Particulars | State/UT | District | Tahsil/Taluka/P.S./Dev. Block/Circle/Mandal | Town/Village | Ward Code No. (only for Town) | Enumeration Block No. | Page No. | Confidential when filled in

Information on Directory of Establishments (for establishments with 8 or more workers)

1 Page No.of Schedule 6A

2 Sl. Number (To be copied from col. 26 of Schedule 6A)

3 Name and Address of the Establishment along with PAN & TAN. If it's a Branch Office, fill in items 3 & 4, else item 4 only.

3.1 Regional Language: Name, House No., Lane, Pin Code

3.2 English: Name, House No., Lane, Pin Code

3.3 Phone/Mobile

3.4 Fax

3.5 E-mail

3.6 PAN

3.7 TAN

4 Name and Address of the Main Office along with PAN & TAN.

4.1 Regional Language: Name, House No., Lane, Pin Code

4.2 English: Name, House No., Lane, Pin Code

4.3 Phone/Mobile

4.4 Fax

4.5 E-mail

4.6 PAN

4.7 TAN

Note: Information for 5-9 is to be copied from relevant columns of Schedule 6A

5 Description of major activity (col. no. 11)

6 Broad activity code (col. no. 12)

7 NIC-2008 3 digit code (col. no. 13)

8 Ownership code (col. no. 15)

9 Total number of workers (col. no. 25)

10 Year of start of operation under current ownership

11 Does a computer and/or internet facility exist in the establishment? (Both-1, Only computer-2, None-3)

12 Whether using power in production of goods and services? (Yes-1, No-0)

13 Whether an exporting unit? (Yes-1, No-0)

14 Registration Information: Whether registered or not? (Yes-1, No-0)

15 If Answer of item 14 is Yes, then enter the registration information using codes (Yes-1, No-0)

15.1 Shops and Commercial Establishments Act

15.2 Companies Act, 1956

15.3 Central Excise/Sales Tax Act

15.4 Factories Act, 1948

15.5 Societies Registration Act

15.6 Co-operative Societies Act

15.7 Directorate of Industries

15.8 KVIC/KVIB/DC: Handloom/Handicrafts

15.9 Registered with other agencies

Instructions for Field Officers

- Use only arabic numerals as indicated here. 0 1 2 3 4 5 6 7 8 9
- Do not fold the schedule.
- Use black/blue ink ball point pen, keep schedules on the board provided for this purpose.
- Write in the centre of the boxes without touching the boundaries.
- Avoid over writing & in case of corrections, cross the line and use the fresh line.

Particulars of Field Officers: Name of the Enumerator | Signature of the Enumerator | D D M M Y Y | Enumerator number

Checked and found correct.: Name of the Supervisor | Signature of the Supervisor | D D M M Y Y | Supervisor number

Form Number 2802 3739

Sixth Economic Census 2012 | Directory of Establishment Schedule 6C | SIDE B

Figure A21: Indian Economic Census 2013: Directory of Establishment Schedule (Schedule 6C)

A.3 Appendix Tables

Table A1: DHS and MICS with randomly assigned man's questionnaire

Country code	Country name	DHS	MICS
ALB	Albania	2008, 2017	NA
ARM	Armenia	2000, 2005, 2010, 2015	NA
AZE	Azerbaijan	2006	NA
BDI	Burundi	2010, 2016	NA
BEN	Benin	1996, 2001, 2006, 2011	2014
BFA	Burkina Faso	1998, 2003, 2010, 2021	NA
BGD	Bangladesh	2004	NA
BOL	Bolivia	1998, 2003, 2008	NA
BRA	Brazil	1996	NA
CAF	Central African Republic	1994	2006, 2010, 2018
CIV	Côte d'Ivoire	1994, 1998, 2011, 2021	NA
CMR	Cameroon	1998	2014
COD	Congo - Kinshasa	2007	NA
COG	Congo - Brazzaville	2005	2014
COM	Comoros	1996, 2012	NA
CUB	Cuba	NA	2014, 2019
ETH	Ethiopia	2000, 2005	NA
FJI	Fiji	NA	2021
GAB	Gabon	2000, 2012, 2019	NA
GEO	Georgia	NA	2018
GHA	Ghana	1998, 2008, 2014	2006, 2011, 2017
GIN	Guinea	1999, 2005, 2018	NA
GMB	Gambia	2013, 2019	2018
GNB	Guinea-Bissau	NA	2014, 2018
GTM	Guatemala	2014	NA
HND	Honduras	2011	2019
HTI	Haiti	1994, 2000, 2005, 2012	NA
IND	India	2005, 2015, 2019	NA
KEN	Kenya	1993, 1998, 2003, 2008, 2014, 2022	NA
KGZ	Kyrgyzstan	2012	NA
KHM	Cambodia	2010, 2014	NA
KIR	Kiribati	NA	2018
LAO	Laos	NA	2017
LBR	Liberia	2013, 2019	NA
LSO	Lesotho	2004, 2009, 2014	2018
MDA	Moldova	2005	2012
MDG	Madagascar	2003, 2008	NA
MLI	Mali	1995, 2001, 2006, 2012, 2018	2015
MMR	Myanmar (Burma)	2015	NA
MNG	Mongolia	NA	2013, 2018
MOZ	Mozambique	1997, 2003	NA
MRT	Mauritania	NA	2007, 2015
MWI	Malawi	1992, 2000, 2004, 2010, 2015	2006, 2013, 2019
NAM	Namibia	2000, 2006, 2013	NA
NER	Niger	1998, 2006, 2012	NA
NGA	Nigeria	2003, 2008, 2013, 2018	NA
NIC	Nicaragua	1998	NA
NPL	Nepal	2006, 2011, 2016	2019
PER	Peru	1996	NA
PHL	Philippines	2003	NA
PNG	Papua New Guinea	2016	NA
RWA	Rwanda	2000, 2005, 2010	NA
SEN	Senegal	2005, 2010, 2014, 2015, 2016	NA
SLE	Sierra Leone	2008, 2013, 2019	2017
SUR	Suriname	NA	2018
TCA	Turks and Caicos Islands	NA	2019
TCD	Chad	1996, 2004	2019
TGO	Togo	1998, 2013	2010
THA	Thailand	NA	2019, 2022
TLS	Timor-Leste	2009	NA
TON	Tonga	NA	2019
TUN	Tunisia	NA	2018
TUV	Tuvalu	NA	2019
TZA	Tanzania	1991, 1996, 2004, 2010, 2015, 2022	NA
UGA	Uganda	1995, 2000, 2006, 2011, 2016	NA
UKR	Ukraine	2007	NA
UZB	Uzbekistan	2002	NA
VNM	Vietnam	NA	2020
WSM	Samoa	NA	2019
XKX	Republic of Kosovo	NA	2013, 2019
ZAF	South Africa	2016	NA
ZMB	Zambia	1996, 2001	NA
ZWE	Zimbabwe	1994, 1999	2014, 2019

Table A2: MICS/DHS-Population Census pairs

Country	Survey	Survey Year	PHC Year	Source	Statistical Office
BEN	DHS	2001	2002	IPUMS	National Institute of Statistics and Economic Analysis
BEN	DHS	2011	2013	IPUMS	National Institute of Statistics and Economic Analysis
BEN	MICS	2014	2013	IPUMS	National Institute of Statistics and Economic Analysis
BFA	MICS	2006	2006	IPUMS	National Institute of Statistics and Demography
BOL	DHS	1994	1992	IPUMS	National Institute of Statistics
BOL	DHS	2003	2001	IPUMS	National Institute of Statistics
CMR	DHS	2004	2005	IPUMS	Central Bureau of Census and Population Studies
CMR	MICS	2006	2005	IPUMS	Central Bureau of Census and Population Studies
CRI	MICS	2011	2011	IPUMS	National Institute of Statistics and Censuses
CUB	MICS	2010	2012	IPUMS	Office of National Statistics
CUB	MICS	2014	2012	IPUMS	Office of National Statistics
DOM	MICS	2000	2002	IPUMS	National Statistics Office
GHA	DHS	1998	2000	IPUMS	Ghana Statistical Services
GHA	DHS	2008	2010	IPUMS	Ghana Statistical Services
IDN	MICS	2000	2000	IPUMS	Statistics Indonesia
KEN	DHS	1989	1989	IPUMS	National Bureau of Statistics
KEN	DHS	1998	1999	IPUMS	National Bureau of Statistics
KEN	DHS	2008	2009	IPUMS	National Bureau of Statistics
KHM	DHS	2000	1998	IPUMS	National Institute of Statistics
KHM	DHS	2010	2008	IPUMS	National Institute of Statistics
KHM	DHS	2014	2013	IPUMS	National Institute of Statistics
KHM	DHS	2021	2019	IPUMS	National Institute of Statistics
LAO	MICS	2006	2005	IPUMS	Statistics Bureau
LAO	MICS	2017	2015	IPUMS	Statistics Bureau
LBR	DHS	2007	2008	IPUMS	Institute of Statistics and Geo-Information Systems
LBR	DHS	2009	2008	IPUMS	Institute of Statistics and Geo-Information Systems
LSO	DHS	2004	2006	IPUMS	Bureau of Statistics
MEX	MICS	2015	2015	IPUMS	National Institute of Statistics, Geography, and Informatics
MMR	DHS	2015	2014	IPUMS	Central Statistical Organization
MNG	MICS	2010	2010	NSO	National Statistical Office
MOZ	DHS	1997	1997	IPUMS	National Institute of Statistics
MOZ	MICS	2008	2007	IPUMS	National Institute of Statistics
MOZ	DHS	2009	2007	IPUMS	National Institute of Statistics
MWI	DHS	1996	1998	IPUMS	National Statistical Office
MWI	DHS	2000	1998	IPUMS	National Statistical Office
MWI	MICS	2006	2008	IPUMS	National Statistical Office
MWI	DHS	2010	2008	IPUMS	National Statistical Office
NER	DHS	2012	2012	NSO	National Institute of Statistics
PER	DHS	1991	1993	IPUMS	National Institute of Statistics and Informatics
PER	DHS	2007	2007	IPUMS	National Institute of Statistics and Informatics
PER	DHS	2009	2007	IPUMS	National Institute of Statistics and Informatics
PRY	DHS	1990	1992	IPUMS	General Directorate of Statistics, Surveys, and Censuses
RWA	DHS	1992	1991	IPUMS	National Institute of Statistics
RWA	DHS	2000	2002	IPUMS	National Institute of Statistics
RWA	MICS	2000	2002	IPUMS	National Institute of Statistics
SEN	DHS	2012	2013	IPUMS	National Agency of Statistics and Demography
SEN	DHS	2014	2013	IPUMS	National Agency of Statistics and Demography
SEN	DHS	2015	2013	IPUMS	National Agency of Statistics and Demography
SLE	DHS	2013	2015	IPUMS	Statistics Sierra Leone
SLE	DHS	2016	2015	IPUMS	Statistics Sierra Leone
TGO	MICS	2010	2010	IPUMS	National Institute of Statistics (INSEED)
TTO	MICS	2011	2011	IPUMS	Central Statistical Office
TZA	DHS	2003	2002	IPUMS	National Bureau of Statistics
TZA	DHS	2004	2002	IPUMS	National Bureau of Statistics
TZA	DHS	2010	2012	IPUMS	National Bureau of Statistics
TZA	DHS	2011	2012	IPUMS	National Bureau of Statistics
UGA	DHS	2000	2002	IPUMS	Bureau of Statistics
UGA	DHS	2014	2014	IPUMS	Bureau of Statistics
UGA	DHS	2016	2014	IPUMS	Bureau of Statistics
URY	MICS	2012	2011	IPUMS	National Institute of Statistics
VEN	MICS	2000	2001	IPUMS	National Institute of Statistics
VNM	MICS	2010	2009	IPUMS	General Statistics Office
VNM	MICS	2020	2019	IPUMS	General Statistics Office
ZAF	DHS	2016	2016	IPUMS	Statistics South Africa
ZMB	DHS	1992	1990	IPUMS	Central Statistical Office
ZMB	DHS	2001	2000	IPUMS	Central Statistical Office
ZWE	DHS	2010	2012	IPUMS	Central Statistical Office

Table A3: Effect of man's questionnaire on number of men in the household

Survey	Eligible men Absolute	Eligible men Relative	Ineligible men Absolute	Ineligible men Relative	Total men Absolute	N
ALB DHS 2008	-0.055 (0.017)	-0.065 (0.020)	0.009 (0.014)	0.012 (0.018)	-0.046 (0.020)	7,999
ALB DHS 2017	-0.089 (0.013)	-0.089 (0.013)	0.001 (0.009)	0.001 (0.017)	-0.088 (0.014)	15,823
ARM DHS 2000	-0.051 (0.023)	-0.050 (0.022)	0.023 (0.021)	0.031 (0.029)	-0.028 (0.029)	5,980
ARM DHS 2005	-0.120 (0.021)	-0.140 (0.023)	0.014 (0.018)	0.020 (0.027)	-0.106 (0.026)	6,705
ARM DHS 2010	-0.034 (0.020)	-0.043 (0.025)	-0.015 (0.016)	-0.023 (0.026)	-0.049 (0.025)	6,700
ARM DHS 2015	-0.017 (0.016)	-0.023 (0.022)	0.006 (0.014)	0.008 (0.020)	-0.012 (0.021)	7,893
AZE DHS 2006	-0.105 (0.022)	-0.085 (0.017)	0.073 (0.016)	0.160 (0.037)	-0.031 (0.025)	7,171
BDI DHS 2010	-0.030 (0.020)	-0.028 (0.018)	0.003 (0.015)	0.006 (0.032)	-0.028 (0.025)	8,593
BDI DHS 2016	-0.108 (0.014)	-0.101 (0.013)	-0.028 (0.011)	-0.054 (0.021)	-0.137 (0.019)	15,977
BEN DHS 1996	-0.091 (0.024)	-0.091 (0.023)	0.018 (0.035)	0.019 (0.038)	-0.073 (0.045)	4,498
BEN DHS 2001	-0.141 (0.024)	-0.125 (0.020)	0.064 (0.023)	0.116 (0.043)	-0.077 (0.035)	5,768
BEN DHS 2006	-0.101 (0.014)	-0.092 (0.013)	0.040 (0.013)	0.078 (0.025)	-0.061 (0.020)	17,489
BEN DHS 2011	-0.167 (0.014)	-0.150 (0.012)	0.061 (0.013)	0.117 (0.025)	-0.106 (0.020)	17,422
BEN DHS 2014	-0.082 (0.017)	-0.077 (0.015)	-0.010 (0.015)	-0.015 (0.024)	-0.092 (0.024)	14,073
BFA DHS 1998	-0.148 (0.031)	-0.110 (0.022)	0.043 (0.027)	0.056 (0.037)	-0.106 (0.043)	4,812
BFA DHS 2003	-0.144 (0.025)	-0.103 (0.017)	0.032 (0.021)	0.042 (0.028)	-0.112 (0.036)	9,093
BFA DHS 2010	-0.173 (0.015)	-0.142 (0.011)	0.002 (0.014)	0.004 (0.022)	-0.170 (0.021)	14,423
BFA DHS 2021	-0.167 (0.017)	-0.123 (0.012)	0.038 (0.016)	0.054 (0.022)	-0.129 (0.024)	13,251
BGD DHS 2004	-0.048 (0.019)	-0.038 (0.014)	-0.003 (0.016)	-0.005 (0.022)	-0.051 (0.024)	10,500
BOL DHS 1998	-0.028 (0.017)	-0.026 (0.016)	0.031 (0.014)	0.065 (0.029)	0.003 (0.021)	12,106
BOL DHS 2003	-0.060 (0.013)	-0.055 (0.012)	0.024 (0.010)	0.055 (0.023)	-0.036 (0.016)	19,204
BOL DHS 2008	-0.069 (0.013)	-0.066 (0.012)	0.004 (0.010)	0.008 (0.022)	-0.066 (0.015)	19,561
BRA DHS 1996	-0.029 (0.018)	-0.025 (0.016)	0.035 (0.014)	0.074 (0.030)	0.006 (0.022)	13,274
CAF DHS 1994	-0.103 (0.028)	-0.094 (0.024)	0.001 (0.024)	0.001 (0.042)	-0.102 (0.036)	5,551
CAF DHS 2006	0.009 (0.014)	0.010 (0.016)	0.024 (0.013)	0.054 (0.030)	0.033 (0.019)	11,721
CAF DHS 2010	-0.009 (0.015)	-0.010 (0.015)	0.007 (0.013)	0.015 (0.029)	-0.002 (0.020)	11,755
CAF DHS 2018	-0.020 (0.021)	-0.018 (0.019)	0.018 (0.018)	0.030 (0.030)	-0.002 (0.027)	8,133
CIV DHS 1994	-0.098 (0.038)	-0.065 (0.025)	-0.004 (0.028)	-0.006 (0.041)	-0.101 (0.052)	5,935
CIV DHS 1998	-0.103 (0.059)	-0.068 (0.038)	0.013 (0.043)	0.020 (0.066)	-0.089 (0.078)	2,122
CIV DHS 2011	-0.128 (0.022)	-0.099 (0.017)	0.035 (0.016)	0.062 (0.031)	-0.093 (0.028)	9,682
CIV DHS 2021	-0.096 (0.015)	-0.083 (0.013)	0.016 (0.012)	0.034 (0.026)	-0.080 (0.020)	14,766
CMR DHS 1998	-0.077 (0.032)	-0.060 (0.024)	0.040 (0.025)	0.063 (0.042)	-0.037 (0.043)	4,693
CMR DHS 2014	-0.047 (0.018)	-0.047 (0.017)	0.018 (0.016)	0.032 (0.029)	-0.029 (0.024)	10,212
COD DHS 2007	-0.134 (0.021)	-0.107 (0.016)	-0.024 (0.017)	-0.040 (0.028)	-0.158 (0.027)	8,885
COG DHS 2005	-0.060 (0.028)	-0.048 (0.022)	0.076 (0.022)	0.137 (0.042)	0.015 (0.036)	5,879
COG DHS 2014	-0.020 (0.014)	-0.023 (0.016)	0.007 (0.013)	0.014 (0.025)	-0.013 (0.018)	12,811
COM DHS 1996	-0.143 (0.052)	-0.105 (0.037)	0.080 (0.044)	0.101 (0.058)	-0.063 (0.068)	2,252
COM DHS 2012	-0.027 (0.032)	-0.022 (0.026)	0.083 (0.028)	0.121 (0.043)	0.056 (0.042)	4,481
CUB DHS 2014	0.039 (0.014)	0.053 (0.020)	-0.015 (0.012)	-0.030 (0.024)	0.024 (0.017)	9,494
CUB DHS 2019	-0.028 (0.012)	-0.042 (0.018)	0.008 (0.011)	0.015 (0.020)	-0.020 (0.015)	11,966
ETH DHS 2000	-0.044 (0.020)	-0.040 (0.018)	0.020 (0.017)	0.033 (0.029)	-0.025 (0.026)	14,071
ETH DHS 2005	-0.169 (0.015)	-0.143 (0.012)	0.038 (0.013)	0.065 (0.024)	-0.131 (0.020)	13,705
FJI DHS 2021	-0.017 (0.024)	-0.017 (0.023)	0.012 (0.019)	0.018 (0.028)	-0.005 (0.030)	5,467
GAB DHS 2000	-0.106 (0.030)	-0.087 (0.024)	0.037 (0.024)	0.056 (0.037)	-0.069 (0.040)	6,203
GAB DHS 2012	-0.118 (0.020)	-0.116 (0.018)	0.037 (0.016)	0.076 (0.035)	-0.082 (0.026)	9,750
GAB DHS 2019	-0.039 (0.017)	-0.039 (0.017)	0.032 (0.012)	0.089 (0.037)	-0.007 (0.022)	11,781
GEO DHS 2018	-0.004 (0.013)	-0.005 (0.018)	0.010 (0.011)	0.015 (0.017)	0.006 (0.016)	12,270
GHA DHS 1998	-0.025 (0.021)	-0.031 (0.026)	-0.004 (0.019)	-0.010 (0.043)	-0.030 (0.029)	6,003
GHA DHS 2006	0.029 (0.024)	0.030 (0.025)	-0.019 (0.021)	-0.033 (0.037)	0.010 (0.033)	5,932
GHA DHS 2008	-0.163 (0.015)	-0.166 (0.014)	0.021 (0.013)	0.048 (0.030)	-0.142 (0.020)	11,778
GHA DHS 2011	-0.138 (0.016)	-0.151 (0.017)	0.000 (0.016)	0.001 (0.023)	-0.138 (0.023)	11,924
GHA DHS 2014	-0.079 (0.014)	-0.093 (0.016)	0.018 (0.012)	0.042 (0.029)	-0.061 (0.019)	11,834
GHA DHS 2017	-0.020 (0.015)	-0.022 (0.017)	0.018 (0.014)	0.029 (0.022)	-0.001 (0.020)	12,886
GIN DHS 1999	-0.114 (0.036)	-0.080 (0.025)	0.040 (0.028)	0.053 (0.037)	-0.073 (0.049)	5,089
GIN DHS 2005	-0.086 (0.025)	-0.074 (0.021)	0.029 (0.023)	0.039 (0.032)	-0.058 (0.036)	6,280
GIN DHS 2018	-0.179 (0.023)	-0.143 (0.017)	-0.003 (0.020)	-0.005 (0.027)	-0.183 (0.031)	7,912
GMB DHS 2013	-0.274 (0.042)	-0.149 (0.021)	0.012 (0.029)	0.013 (0.031)	-0.262 (0.056)	6,215
GMB DHS 2018	-0.107 (0.036)	-0.070 (0.023)	0.046 (0.028)	0.047 (0.030)	-0.061 (0.053)	7,405
GMB DHS 2019	-0.139 (0.041)	-0.080 (0.023)	0.034 (0.031)	0.037 (0.034)	-0.105 (0.059)	6,549
GNB DHS 2014	-0.182 (0.031)	-0.116 (0.019)	0.021 (0.023)	0.024 (0.027)	-0.162 (0.041)	6,601
GNB DHS 2018	-0.159 (0.032)	-0.109 (0.021)	0.040 (0.024)	0.051 (0.031)	-0.119 (0.042)	7,378
GTM DHS 2014	-0.075 (0.013)	-0.063 (0.011)	-0.007 (0.009)	-0.012 (0.018)	-0.081 (0.016)	21,383
HND DHS 2011	-0.007 (0.013)	-0.006 (0.011)	0.013 (0.010)	0.023 (0.018)	0.006 (0.016)	21,361
HND DHS 2019	-0.035 (0.012)	-0.036 (0.012)	0.002 (0.009)	0.004 (0.017)	-0.033 (0.015)	20,668
HTI DHS 1994	-0.074 (0.032)	-0.063 (0.027)	0.010 (0.023)	0.017 (0.041)	-0.064 (0.040)	4,818
HTI DHS 2000	-0.082 (0.022)	-0.070 (0.018)	-0.004 (0.016)	-0.007 (0.028)	-0.086 (0.027)	9,588
HTI DHS 2005	-0.162 (0.020)	-0.136 (0.016)	-0.016 (0.014)	-0.029 (0.026)	-0.178 (0.024)	9,990
HTI DHS 2012	-0.117 (0.019)	-0.095 (0.014)	-0.010 (0.013)	-0.020 (0.024)	-0.127 (0.022)	13,176
IND DHS 2005	-0.090 (0.008)	-0.067 (0.006)	0.024 (0.006)	0.039 (0.010)	-0.066 (0.010)	109,032
IND DHS 2015	-0.117 (0.004)	-0.090 (0.003)	0.027 (0.003)	0.041 (0.005)	-0.091 (0.005)	601,507
IND DHS 2019	-0.047 (0.004)	-0.039 (0.003)	0.017 (0.003)	0.029 (0.005)	-0.030 (0.005)	636,696
KEN DHS 1993	-0.024 (0.015)	-0.034 (0.021)	0.027 (0.023)	0.031 (0.028)	0.002 (0.028)	7,948
KEN DHS 1998	-0.093 (0.020)	-0.092 (0.019)	0.007 (0.017)	0.012 (0.030)	-0.087 (0.026)	8,379
KEN DHS 2003	-0.032 (0.019)	-0.031 (0.019)	0.006 (0.016)	0.011 (0.031)	-0.026 (0.025)	8,559
KEN DHS 2008	-0.084 (0.018)	-0.088 (0.018)	0.022 (0.015)	0.046 (0.032)	-0.062 (0.023)	9,056
KEN DHS 2014	-0.091 (0.008)	-0.100 (0.009)	0.011 (0.008)	0.020 (0.015)	-0.079 (0.012)	36,418
KEN DHS 2022	-0.061 (0.008)	-0.068 (0.009)	0.012 (0.008)	0.020 (0.014)	-0.049 (0.011)	37,911
KGZ DHS 2012	-0.091 (0.018)	-0.092 (0.017)	0.068 (0.015)	0.109 (0.026)	-0.023 (0.021)	8,039

Table A3: Effect of man's questionnaire on number of men in the household

Survey	Eligible men Absolute	Eligible men Relative	Ineligible men Absolute	Ineligible men Relative	Total men Absolute	N
KHM DHS 2010	-0.085 (0.014)	-0.071 (0.012)	0.004 (0.013)	0.006 (0.018)	-0.081 (0.019)	15,667
KHM DHS 2014	-0.076 (0.014)	-0.072 (0.013)	0.010 (0.013)	0.015 (0.019)	-0.066 (0.018)	15,825
KIR DHS 2018	0.020 (0.038)	0.015 (0.028)	-0.009 (0.028)	-0.014 (0.040)	0.011 (0.048)	3,071
LAO DHS 2017	-0.052 (0.011)	-0.044 (0.009)	0.017 (0.009)	0.026 (0.015)	-0.036 (0.014)	22,287
LBR DHS 2013	-0.144 (0.019)	-0.135 (0.017)	-0.045 (0.018)	-0.062 (0.024)	-0.190 (0.026)	9,332
LBR DHS 2019	-0.060 (0.019)	-0.056 (0.018)	0.019 (0.017)	0.033 (0.030)	-0.041 (0.026)	9,068
LSO DHS 2004	-0.160 (0.019)	-0.168 (0.019)	0.111 (0.021)	0.135 (0.027)	-0.049 (0.028)	8,586
LSO DHS 2009	-0.169 (0.017)	-0.190 (0.018)	0.186 (0.021)	0.215 (0.027)	0.017 (0.026)	9,391
LSO DHS 2014	-0.180 (0.017)	-0.212 (0.018)	0.137 (0.019)	0.177 (0.027)	-0.042 (0.024)	9,402
LSO DHS 2018	-0.003 (0.020)	-0.003 (0.020)	0.005 (0.014)	0.011 (0.029)	0.002 (0.025)	8,847
MDA DHS 2005	-0.067 (0.015)	-0.078 (0.018)	0.030 (0.011)	0.086 (0.033)	-0.037 (0.017)	11,076
MDA DHS 2012	-0.036 (0.014)	-0.062 (0.023)	0.024 (0.011)	0.053 (0.024)	-0.012 (0.015)	11,353
MDG DHS 2003	-0.160 (0.021)	-0.142 (0.017)	0.081 (0.017)	0.174 (0.039)	-0.078 (0.027)	8,406
MDG DHS 2008	-0.095 (0.013)	-0.084 (0.011)	0.039 (0.011)	0.076 (0.023)	-0.056 (0.017)	17,847
MLI DHS 1995	-0.158 (0.022)	-0.139 (0.018)	0.042 (0.020)	0.063 (0.031)	-0.116 (0.030)	8,716
MLI DHS 2001	-0.065 (0.018)	-0.061 (0.017)	0.038 (0.016)	0.061 (0.026)	-0.026 (0.024)	12,320
MLI DHS 2006	-0.099 (0.018)	-0.084 (0.015)	0.076 (0.015)	0.126 (0.027)	-0.023 (0.025)	12,959
MLI DHS 2012	-0.198 (0.017)	-0.175 (0.014)	0.091 (0.018)	0.126 (0.027)	-0.108 (0.025)	10,105
MLI DHS 2015	-0.177 (0.025)	-0.109 (0.014)	0.091 (0.021)	0.081 (0.019)	-0.087 (0.036)	11,830
MLI DHS 2018	-0.170 (0.019)	-0.144 (0.015)	0.024 (0.018)	0.035 (0.027)	-0.146 (0.027)	9,510
MMR DHS 2015	-0.081 (0.015)	-0.089 (0.015)	0.001 (0.014)	0.001 (0.018)	-0.080 (0.019)	12,500
MNG DHS 2013	-0.061 (0.012)	-0.067 (0.012)	-0.012 (0.009)	-0.027 (0.022)	-0.072 (0.013)	14,805
MNG DHS 2018	-0.004 (0.012)	-0.004 (0.014)	-0.011 (0.010)	-0.023 (0.021)	-0.015 (0.014)	13,798
MOZ DHS 1997	-0.011 (0.019)	-0.011 (0.019)	0.027 (0.018)	0.045 (0.030)	0.017 (0.026)	9,279
MOZ DHS 2003	-0.035 (0.019)	-0.032 (0.017)	0.060 (0.015)	0.113 (0.030)	0.024 (0.024)	12,309
MRT DHS 2007	-0.045 (0.020)	-0.041 (0.018)	0.001 (0.017)	0.001 (0.023)	-0.045 (0.027)	10,359
MRT DHS 2015	-0.062 (0.018)	-0.061 (0.017)	0.029 (0.016)	0.041 (0.022)	-0.032 (0.025)	11,764
MWI DHS 1992	0.003 (0.020)	0.004 (0.026)	0.033 (0.030)	0.040 (0.037)	0.036 (0.035)	5,323
MWI DHS 2000	-0.038 (0.016)	-0.039 (0.016)	0.036 (0.014)	0.075 (0.029)	-0.001 (0.021)	14,210
MWI DHS 2004	-0.102 (0.014)	-0.109 (0.015)	0.018 (0.013)	0.035 (0.026)	-0.083 (0.019)	13,656
MWI DHS 2006	-0.038 (0.009)	-0.043 (0.010)	0.013 (0.009)	0.027 (0.018)	-0.025 (0.013)	30,542
MWI DHS 2010	-0.062 (0.011)	-0.064 (0.011)	0.043 (0.010)	0.077 (0.019)	-0.019 (0.015)	24,819
MWI DHS 2013	-0.066 (0.010)	-0.069 (0.011)	0.039 (0.010)	0.073 (0.018)	-0.026 (0.014)	26,713
MWI DHS 2015	-0.086 (0.011)	-0.087 (0.011)	-0.012 (0.010)	-0.022 (0.017)	-0.098 (0.014)	26,361
MWI DHS 2019	-0.047 (0.011)	-0.050 (0.011)	-0.000 (0.010)	-0.000 (0.018)	-0.048 (0.014)	25,419
NAM DHS 2000	0.012 (0.027)	0.011 (0.024)	0.035 (0.019)	0.067 (0.038)	0.047 (0.033)	6,380
NAM DHS 2006	-0.076 (0.022)	-0.073 (0.020)	-0.001 (0.016)	-0.002 (0.027)	-0.077 (0.028)	9,187
NAM DHS 2013	-0.040 (0.020)	-0.036 (0.018)	0.000 (0.013)	0.000 (0.034)	-0.040 (0.024)	9,842
NER DHS 1998	-0.102 (0.027)	-0.084 (0.021)	0.033 (0.025)	0.047 (0.036)	-0.069 (0.039)	5,927
NER DHS 2006	-0.158 (0.024)	-0.136 (0.019)	0.050 (0.021)	0.069 (0.030)	-0.108 (0.033)	7,654
NER DHS 2012	-0.173 (0.017)	-0.167 (0.015)	0.047 (0.018)	0.064 (0.025)	-0.126 (0.025)	10,747
NGA DHS 2003	-0.110 (0.026)	-0.091 (0.021)	0.033 (0.020)	0.063 (0.039)	-0.077 (0.034)	7,212
NGA DHS 2008	-0.085 (0.009)	-0.078 (0.008)	0.033 (0.008)	0.073 (0.018)	-0.053 (0.013)	34,023
NGA DHS 2013	-0.008 (0.008)	-0.009 (0.009)	0.004 (0.008)	0.006 (0.014)	-0.004 (0.012)	38,508
NGA DHS 2018	-0.064 (0.009)	-0.061 (0.009)	0.061 (0.008)	0.134 (0.017)	-0.003 (0.012)	40,427
NIC DHS 1998	-0.075 (0.022)	-0.057 (0.017)	0.022 (0.018)	0.034 (0.028)	-0.053 (0.029)	11,523
NPL DHS 2006	-0.045 (0.019)	-0.041 (0.017)	0.007 (0.016)	0.011 (0.027)	-0.038 (0.025)	8,707
NPL DHS 2011	-0.064 (0.017)	-0.061 (0.016)	-0.038 (0.014)	-0.064 (0.023)	-0.102 (0.021)	10,826
NPL DHS 2016	-0.079 (0.016)	-0.093 (0.018)	-0.036 (0.014)	-0.048 (0.018)	-0.115 (0.021)	11,040
NPL DHS 2019	0.004 (0.014)	0.004 (0.016)	0.019 (0.012)	0.030 (0.019)	0.023 (0.018)	12,653
PER DHS 1996	-0.044 (0.021)	-0.036 (0.017)	0.030 (0.016)	0.051 (0.027)	-0.014 (0.025)	28,119
PHL DHS 2003	-0.055 (0.018)	-0.044 (0.014)	0.013 (0.015)	0.021 (0.024)	-0.042 (0.023)	12,585
PNG DHS 2016	-0.080 (0.016)	-0.065 (0.013)	0.030 (0.013)	0.042 (0.019)	-0.049 (0.020)	16,001
RWA DHS 2000	-0.082 (0.019)	-0.082 (0.018)	0.010 (0.015)	0.021 (0.032)	-0.072 (0.024)	9,684
RWA DHS 2005	-0.071 (0.017)	-0.068 (0.016)	-0.015 (0.013)	-0.035 (0.029)	-0.086 (0.021)	10,270
RWA DHS 2010	0.016 (0.015)	0.016 (0.015)	-0.039 (0.011)	-0.092 (0.025)	-0.023 (0.019)	12,532
SEN DHS 2005	-0.128 (0.040)	-0.067 (0.020)	0.003 (0.031)	0.002 (0.030)	-0.125 (0.055)	7,411
SEN DHS 2010	-0.058 (0.039)	-0.030 (0.020)	0.083 (0.026)	0.082 (0.026)	0.025 (0.051)	7,902
SEN DHS 2014	-0.168 (0.050)	-0.087 (0.025)	0.026 (0.033)	0.026 (0.034)	-0.142 (0.066)	4,231
SEN DHS 2015	-0.060 (0.048)	-0.032 (0.025)	0.078 (0.031)	0.088 (0.037)	0.018 (0.063)	4,511
SEN DHS 2016	-0.153 (0.046)	-0.082 (0.023)	0.006 (0.031)	0.006 (0.033)	-0.147 (0.062)	4,437
SLE DHS 2008	-0.291 (0.022)	-0.230 (0.016)	0.162 (0.022)	0.230 (0.034)	-0.129 (0.031)	7,284
SLE DHS 2013	-0.129 (0.018)	-0.097 (0.013)	0.052 (0.014)	0.087 (0.025)	-0.077 (0.023)	12,620
SLE DHS 2017	0.004 (0.015)	0.004 (0.015)	0.004 (0.012)	0.008 (0.021)	0.008 (0.019)	15,308
SLE DHS 2019	-0.150 (0.017)	-0.119 (0.013)	0.058 (0.014)	0.099 (0.025)	-0.091 (0.023)	13,399
SUR DHS 2018	0.021 (0.021)	0.021 (0.021)	0.019 (0.015)	0.033 (0.027)	0.039 (0.025)	7,914
TCA DHS 2019	-0.003 (0.036)	-0.005 (0.061)	0.007 (0.031)	0.016 (0.073)	0.004 (0.041)	1,447
TCD DHS 1996	0.001 (0.028)	0.001 (0.025)	0.027 (0.022)	0.045 (0.038)	0.028 (0.037)	6,835
TCD DHS 2004	-0.017 (0.032)	-0.015 (0.028)	0.031 (0.025)	0.052 (0.042)	0.014 (0.042)	5,367
TCD DHS 2019	0.007 (0.014)	0.006 (0.014)	-0.025 (0.013)	-0.036 (0.019)	-0.018 (0.020)	18,967
TGO DHS 1998	-0.186 (0.024)	-0.145 (0.018)	0.020 (0.021)	0.028 (0.030)	-0.166 (0.035)	7,515
TGO DHS 2010	0.007 (0.025)	0.007 (0.024)	0.059 (0.022)	0.101 (0.039)	0.067 (0.034)	6,029
TGO DHS 2013	-0.098 (0.019)	-0.090 (0.016)	0.043 (0.016)	0.083 (0.032)	-0.055 (0.025)	9,548
THA DHS 2019	-0.009 (0.007)	-0.013 (0.011)	0.017 (0.007)	0.026 (0.011)	0.008 (0.009)	35,569
THA DHS 2022	-0.013 (0.008)	-0.019 (0.012)	0.006 (0.007)	0.009 (0.012)	-0.007 (0.010)	29,949
TLS DHS 2009	-0.074 (0.019)	-0.060 (0.015)	0.001 (0.017)	0.001 (0.020)	-0.073 (0.025)	11,462
TON DHS 2019	-0.007 (0.041)	-0.006 (0.035)	-0.012 (0.032)	-0.015 (0.040)	-0.018 (0.051)	2,498
TUN DHS 2018	0.004 (0.018)	0.004 (0.019)	0.006 (0.014)	0.009 (0.021)	0.009 (0.022)	11,224

Table A3: Effect of man's questionnaire on number of men in the household

	Eligible men		Ineligible men		Total men	
Survey	Absolute	Relative	Absolute	Relative	Absolute	N
TUV DHS 2019	-0.238 (0.099)	-0.156 (0.062)	0.005 (0.068)	0.006 (0.076)	-0.233 (0.127)	694
TZA DHS 1991	-0.026 (0.026)	-0.023 (0.022)	0.055 (0.022)	0.083 (0.034)	0.028 (0.035)	8,326
TZA DHS 1996	-0.074 (0.022)	-0.071 (0.021)	0.087 (0.019)	0.145 (0.034)	0.013 (0.029)	7,967
TZA DHS 2004	-0.010 (0.019)	-0.011 (0.020)	0.028 (0.019)	0.038 (0.026)	0.018 (0.027)	9,735
TZA DHS 2010	-0.065 (0.020)	-0.067 (0.020)	0.047 (0.019)	0.063 (0.026)	-0.019 (0.027)	9,623
TZA DHS 2015	0.002 (0.017)	0.002 (0.018)	0.032 (0.016)	0.045 (0.023)	0.034 (0.024)	12,563
TZA DHS 2022	-0.074 (0.014)	-0.084 (0.015)	0.022 (0.013)	0.032 (0.019)	-0.052 (0.019)	15,705
UGA DHS 1995	-0.069 (0.020)	-0.073 (0.021)	0.077 (0.019)	0.151 (0.040)	0.008 (0.027)	7,549
UGA DHS 2000	-0.041 (0.019)	-0.045 (0.021)	0.034 (0.020)	0.060 (0.036)	-0.006 (0.028)	7,876
UGA DHS 2006	-0.022 (0.019)	-0.023 (0.020)	-0.010 (0.018)	-0.016 (0.029)	-0.032 (0.026)	8,870
UGA DHS 2011	-0.112 (0.019)	-0.111 (0.019)	0.027 (0.018)	0.048 (0.032)	-0.085 (0.026)	9,033
UGA DHS 2016	-0.064 (0.013)	-0.068 (0.013)	-0.033 (0.011)	-0.060 (0.021)	-0.097 (0.017)	19,588
UKR DHS 2007	-0.061 (0.012)	-0.104 (0.019)	0.026 (0.010)	0.054 (0.021)	-0.035 (0.014)	13,368
UZB DHS 2002	-0.146 (0.036)	-0.095 (0.023)	0.057 (0.028)	0.083 (0.042)	-0.089 (0.043)	3,363
VNM DHS 2020	-0.028 (0.012)	-0.033 (0.014)	0.010 (0.010)	0.018 (0.019)	-0.018 (0.014)	13,359
WSM DHS 2019	-0.040 (0.046)	-0.027 (0.031)	0.040 (0.034)	0.043 (0.036)	0.001 (0.059)	3,196
XKX DHS 2013	-0.020 (0.032)	-0.014 (0.022)	0.035 (0.022)	0.042 (0.027)	0.014 (0.039)	4,127
XKX DHS 2019	-0.012 (0.026)	-0.009 (0.020)	0.010 (0.018)	0.013 (0.023)	-0.002 (0.031)	5,124
ZAF DHS 2016	-0.023 (0.016)	-0.024 (0.018)	-0.004 (0.011)	-0.012 (0.032)	-0.027 (0.020)	11,079
ZMB DHS 1996	-0.057 (0.026)	-0.049 (0.022)	0.082 (0.023)	0.130 (0.037)	0.025 (0.035)	7,286
ZMB DHS 2001	-0.156 (0.023)	-0.133 (0.019)	0.047 (0.021)	0.079 (0.035)	-0.109 (0.031)	7,123
ZWE DHS 1994	-0.052 (0.024)	-0.050 (0.023)	-0.012 (0.022)	-0.018 (0.033)	-0.064 (0.033)	5,983
ZWE DHS 1999	-0.063 (0.022)	-0.063 (0.021)	0.024 (0.020)	0.042 (0.035)	-0.039 (0.029)	6,369
ZWE DHS 2014	-0.057 (0.013)	-0.063 (0.014)	-0.002 (0.011)	-0.005 (0.024)	-0.060 (0.017)	15,686
ZWE DHS 2019	-0.030 (0.015)	-0.034 (0.017)	0.027 (0.013)	0.061 (0.029)	-0.003 (0.019)	11,091

Notes: Relative regression coefficients are computed as absolute regression coefficients over the control mean. Standard errors are displayed in parentheses.

Table A4: Effect of woman's questionnaire on number of women in the household

Survey	Absolute	Relative	N
GAB DHS 2019	-0.021 (0.008)	-0.091 (0.034)	11,781
GHA DHS 2008	-0.121 (0.016)	-0.121 (0.015)	11,778
NAM DHS 2013	-0.003 (0.008)	-0.015 (0.042)	9,849

Notes: Relative regression coefficients are computed as absolute regression coefficients over the control mean. Standard errors are displayed in parentheses.

Table A5: Bounds missing women

Survey	Eligible women Absolute	Ineligible women Absolute	Lower bound Relative	Upper bound Relative	N
BEN DHS 2001	-0.155 (0.014)	0.026 (0.012)	-0.069 (0.006)	-0.069 (0.006)	123,950
BEN DHS 2011	-0.279 (0.008)	0.074 (0.007)	-0.136 (0.004)	-0.136 (0.004)	194,670
BEN MICS 2014	-0.179 (0.010)	0.041 (0.009)	-0.083 (0.005)	-0.083 (0.005)	192,364
BFA MICS 2006	0.037 (0.020)	0.293 (0.020)	-0.091 (0.009)	-0.091 (0.009)	240,602
BOL DHS 1994	-0.030 (0.009)	0.065 (0.008)	-0.044 (0.006)	-0.044 (0.006)	150,516
BOL DHS 2003	-0.022 (0.008)	0.045 (0.006)	-0.032 (0.005)	-0.032 (0.005)	212,911
CMR DHS 2004	-0.114 (0.011)	0.069 (0.009)	-0.075 (0.005)	-0.075 (0.005)	345,535
CMR MICS 2006	-0.243 (0.012)	0.047 (0.010)	-0.115 (0.006)	-0.115 (0.006)	346,001
CRI MICS 2011	0.021 (0.019)	0.055 (0.013)	-0.017 (0.013)	-0.017 (0.013)	126,620
CUB MICS 2010	0.015 (0.013)	0.071 (0.010)	-0.038 (0.012)	-0.038 (0.012)	376,454
CUB MICS 2014	-0.034 (0.013)	0.089 (0.010)	-0.082 (0.012)	-0.082 (0.012)	376,712
DOM MICS 2000	-0.049 (0.016)	0.022 (0.010)	-0.030 (0.008)	-0.030 (0.008)	204,663
GHA DHS 1998	-0.391 (0.011)	-0.089 (0.010)	-0.123 (0.006)	-0.123 (0.006)	371,542
GHA DHS 2008	-0.275 (0.012)	-0.003 (0.010)	-0.119 (0.007)	-0.119 (0.007)	545,826
IDN MICS 2000	0.003 (0.008)	0.062 (0.007)	-0.027 (0.005)	-0.027 (0.005)	5,062,004
KEN DHS 1989	-0.126 (0.013)	0.193 (0.012)	-0.145 (0.008)	-0.145 (0.008)	222,621
KEN DHS 1998	-0.112 (0.010)	0.101 (0.009)	-0.097 (0.006)	-0.097 (0.006)	319,701
KEN DHS 2008	-0.063 (0.012)	0.067 (0.011)	-0.061 (0.007)	-0.061 (0.007)	892,539
KHM DHS 2000	-0.014 (0.008)	0.061 (0.008)	-0.029 (0.004)	-0.029 (0.004)	227,777
KHM DHS 2010	-0.077 (0.008)	0.030 (0.007)	-0.042 (0.004)	-0.042 (0.004)	295,935
KHM DHS 2014	-0.112 (0.010)	0.041 (0.009)	-0.062 (0.006)	-0.062 (0.006)	44,172
KHM DHS 2021	-0.183 (0.007)	0.042 (0.006)	-0.097 (0.004)	-0.097 (0.004)	373,281
LAO MICS 2006	-0.127 (0.012)	0.049 (0.011)	-0.061 (0.006)	-0.061 (0.006)	100,760
LAO MICS 2017	-0.278 (0.007)	0.014 (0.006)	-0.101 (0.003)	-0.101 (0.003)	140,210
LBR DHS 2007	-0.156 (0.015)	0.063 (0.012)	-0.085 (0.007)	-0.085 (0.007)	73,260
LBR DHS 2009	-0.125 (0.019)	0.102 (0.016)	-0.088 (0.009)	-0.088 (0.009)	70,625
LSO DHS 2004	-0.200 (0.011)	0.090 (0.010)	-0.135 (0.007)	-0.135 (0.007)	49,099
MEX MICS 2015	-0.030 (0.016)	0.029 (0.012)	-0.028 (0.011)	-0.028 (0.011)	2,849,555
MMR DHS 2015	-0.133 (0.009)	0.054 (0.007)	-0.076 (0.005)	-0.076 (0.005)	1,092,036
MNG MICS 2010	-0.071 (0.009)	0.044 (0.007)	-0.054 (0.006)	-0.054 (0.006)	77,675
MOZ DHS 1997	-0.018 (0.019)	0.134 (0.014)	-0.072 (0.010)	-0.072 (0.010)	366,810
MOZ MICS 2008	-0.006 (0.008)	0.095 (0.008)	-0.049 (0.006)	-0.049 (0.006)	469,429
MOZ DHS 2009	-0.100 (0.010)	0.044 (0.010)	-0.061 (0.006)	-0.061 (0.006)	459,990
MWI DHS 1996	-0.110 (0.017)	0.092 (0.018)	-0.095 (0.012)	-0.095 (0.012)	227,107
MWI DHS 2000	-0.103 (0.007)	0.084 (0.007)	-0.089 (0.005)	-0.089 (0.005)	238,355
MWI MICS 2006	-0.160 (0.005)	0.067 (0.006)	-0.107 (0.004)	-0.107 (0.004)	311,089
MWI DHS 2010	-0.073 (0.006)	0.087 (0.006)	-0.076 (0.004)	-0.076 (0.004)	305,814
NER DHS 2012	-0.375 (0.011)	0.000 (0.012)	-0.129 (0.005)	-0.129 (0.005)	34,672
PER DHS 1991	0.116 (0.009)	0.101 (0.007)	0.006 (0.005)	0.006 (0.005)	483,608
PER DHS 2007	-0.096 (0.006)	0.073 (0.004)	-0.077 (0.003)	-0.077 (0.003)	706,727
PER DHS 2009	-0.104 (0.007)	0.047 (0.005)	-0.069 (0.004)	-0.069 (0.004)	688,434
PRY DHS 1990	0.015 (0.013)	0.057 (0.011)	-0.019 (0.007)	-0.019 (0.007)	90,914
RWA DHS 1992	0.050 (0.011)	0.060 (0.010)	-0.005 (0.007)	-0.005 (0.007)	154,753
RWA DHS 2000	-0.101 (0.009)	0.096 (0.009)	-0.084 (0.005)	-0.084 (0.005)	182,820
RWA MICS 2000	0.040 (0.014)	0.085 (0.013)	-0.019 (0.008)	-0.019 (0.008)	178,295
SEN DHS 2012	0.112 (0.037)	0.195 (0.024)	-0.021 (0.008)	-0.021 (0.008)	148,146
SEN DHS 2014	0.089 (0.039)	0.200 (0.024)	-0.028 (0.009)	-0.028 (0.009)	148,204
SEN DHS 2015	-0.024 (0.033)	0.189 (0.021)	-0.054 (0.008)	-0.054 (0.008)	148,480
SLE DHS 2013	-0.107 (0.011)	0.136 (0.009)	-0.083 (0.005)	-0.083 (0.005)	138,518
SLE DHS 2016	-0.166 (0.015)	0.173 (0.013)	-0.116 (0.006)	-0.116 (0.006)	132,633
TGO MICS 2010	-0.069 (0.014)	0.077 (0.012)	-0.061 (0.007)	-0.061 (0.007)	125,393
TTO MICS 2011	-0.085 (0.014)	0.042 (0.009)	-0.070 (0.009)	-0.070 (0.009)	37,230
TZA DHS 2003	0.006 (0.012)	0.061 (0.010)	-0.025 (0.007)	-0.025 (0.007)	816,339
TZA DHS 2004	-0.017 (0.011)	0.039 (0.009)	-0.025 (0.006)	-0.025 (0.006)	819,515
TZA DHS 2010	-0.106 (0.011)	0.107 (0.010)	-0.090 (0.006)	-0.090 (0.006)	948,780
TZA DHS 2011	-0.028 (0.012)	0.118 (0.010)	-0.061 (0.006)	-0.061 (0.006)	949,188
UGA DHS 2000	-0.095 (0.010)	0.046 (0.011)	-0.066 (0.007)	-0.066 (0.007)	514,392
UGA DHS 2014	-0.033 (0.013)	0.083 (0.012)	-0.054 (0.008)	-0.054 (0.008)	716,416
UGA DHS 2016	-0.073 (0.007)	0.034 (0.006)	-0.050 (0.004)	-0.050 (0.004)	730,357
URY MICS 2012	0.057 (0.039)	0.083 (0.030)	-0.018 (0.033)	-0.018 (0.033)	109,594
VEN MICS 2000	0.038 (0.016)	0.070 (0.012)	-0.013 (0.009)	-0.013 (0.009)	525,265
VNM MICS 2010	-0.085 (0.008)	0.068 (0.006)	-0.069 (0.005)	-0.069 (0.005)	3,624,796
VNM MICS 2020	-0.074 (0.007)	0.036 (0.007)	-0.060 (0.006)	-0.060 (0.006)	2,269,333
ZAF DHS 2016	0.028 (0.011)	0.046 (0.008)	-0.010 (0.007)	-0.010 (0.007)	979,636
ZMB DHS 1992	-0.174 (0.013)	0.016 (0.011)	-0.068 (0.006)	-0.068 (0.006)	133,677
ZMB DHS 2001	-0.046 (0.011)	0.061 (0.009)	-0.045 (0.006)	-0.045 (0.006)	188,640
ZWE DHS 2010	-0.009 (0.009)	0.051 (0.008)	-0.029 (0.006)	-0.029 (0.006)	166,079

Notes: Standard errors are displayed in parentheses.

Table A6: Bounds missing men

Survey	Eligible men Absolute	Ineligible men Absolute	Lower bound Relative	Upper bound Relative	N
BEN DHS 2001	-0.223 (0.017)	0.068 (0.015)	-0.117 (0.009)	-0.117 (0.009)	121,150
BEN DHS 2011	-0.294 (0.012)	0.064 (0.010)	-0.142 (0.006)	-0.142 (0.006)	183,196
BEN MICS 2014	-0.212 (0.016)	0.033 (0.015)	-0.104 (0.009)	-0.104 (0.009)	183,064
BOL DHS 2003	-0.059 (0.012)	0.040 (0.009)	-0.044 (0.007)	-0.044 (0.007)	200,818
CUB MICS 2014	-0.065 (0.017)	0.043 (0.014)	-0.072 (0.017)	-0.072 (0.017)	372,267
GHA DHS 1998	-0.482 (0.018)	-0.103 (0.014)	-0.147 (0.009)	-0.147 (0.009)	367,671
GHA DHS 2008	-0.356 (0.011)	-0.007 (0.009)	-0.150 (0.006)	-0.150 (0.006)	545,826
KEN DHS 1998	-0.162 (0.015)	0.066 (0.013)	-0.105 (0.009)	-0.105 (0.009)	315,578
KEN DHS 2008	-0.150 (0.017)	0.027 (0.014)	-0.083 (0.010)	-0.083 (0.010)	888,067
KHM DHS 2010	-0.125 (0.012)	-0.001 (0.009)	-0.051 (0.006)	-0.051 (0.006)	288,141
KHM DHS 2014	-0.170 (0.016)	0.012 (0.012)	-0.079 (0.009)	-0.079 (0.009)	33,982
LAO MICS 2017	-0.246 (0.010)	0.003 (0.008)	-0.090 (0.005)	-0.090 (0.005)	129,100
LSO DHS 2004	-0.242 (0.016)	0.073 (0.012)	-0.151 (0.009)	-0.151 (0.009)	44,809
MMR DHS 2015	-0.222 (0.012)	0.031 (0.010)	-0.117 (0.007)	-0.117 (0.007)	1,085,881
MOZ DHS 1997	-0.017 (0.027)	0.099 (0.023)	-0.059 (0.019)	-0.059 (0.019)	360,639
MWI DHS 2000	-0.105 (0.017)	0.052 (0.014)	-0.075 (0.011)	-0.075 (0.011)	227,898
MWI MICS 2006	-0.147 (0.010)	0.020 (0.010)	-0.083 (0.007)	-0.083 (0.007)	290,859
MWI DHS 2010	-0.093 (0.011)	0.087 (0.010)	-0.088 (0.007)	-0.088 (0.007)	289,819
NER DHS 2012	-0.610 (0.015)	0.069 (0.015)	-0.242 (0.007)	-0.242 (0.007)	29,101
RWA DHS 2000	-0.135 (0.015)	0.092 (0.013)	-0.112 (0.010)	-0.112 (0.010)	176,276
SEN DHS 2014	-0.226 (0.055)	0.053 (0.026)	-0.070 (0.014)	-0.070 (0.014)	146,117
SEN DHS 2015	-0.227 (0.042)	0.083 (0.025)	-0.078 (0.011)	-0.078 (0.011)	146,223
SLE DHS 2013	-0.283 (0.016)	0.127 (0.012)	-0.139 (0.007)	-0.139 (0.007)	132,227
TGO MICS 2010	-0.032 (0.025)	0.059 (0.018)	-0.038 (0.012)	-0.038 (0.012)	121,355
TZA DHS 2004	-0.053 (0.019)	0.035 (0.017)	-0.044 (0.012)	-0.044 (0.012)	812,977
TZA DHS 2010	-0.103 (0.020)	0.058 (0.018)	-0.078 (0.012)	-0.078 (0.012)	942,302
UGA DHS 2000	-0.129 (0.017)	0.039 (0.017)	-0.083 (0.012)	-0.083 (0.012)	509,239
UGA DHS 2016	-0.090 (0.012)	0.009 (0.010)	-0.050 (0.008)	-0.050 (0.008)	717,523
VNM MICS 2020	-0.134 (0.010)	0.030 (0.009)	-0.089 (0.008)	-0.089 (0.008)	2,262,794
ZAF DHS 2016	-0.071 (0.015)	0.037 (0.009)	-0.053 (0.008)	-0.053 (0.008)	974,195
ZMB DHS 2001	-0.146 (0.020)	0.069 (0.016)	-0.089 (0.010)	-0.089 (0.010)	183,946

Notes: Standard errors are displayed in parentheses.

Table A7: Effect of man's questionnaire on the characteristics of eligible men

Survey	Age	Degrees of separation from household head	Years of schooling	Ever married	Number of biological children in household	N
ALB DHS 2008	0.011 (0.008)	-0.005 (0.013)	0.001 (0.007)	0.009 (0.022)	0.037 (0.037)	6,532
ALB DHS 2017	0.007 (0.005)	-0.003 (0.009)	-0.001 (0.006)	0.008 (0.011)	-0.027 (0.032)	14,980
ARM DHS 2000	0.004 (0.007)	-0.002 (0.013)	0.016 (0.006)		0.041 (0.040)	5,961
ARM DHS 2005	0.011 (0.009)	-0.013 (0.013)	0.012 (0.010)		0.035 (0.046)	5,493
ARM DHS 2010	-0.011 (0.008)	0.013 (0.014)	0.008 (0.006)	-0.021 (0.025)	0.025 (0.050)	5,224
ARM DHS 2015	0.004 (0.007)	0.020 (0.012)	-0.010 (0.006)	0.011 (0.023)	0.016 (0.039)	5,786
AZE DHS 2006	0.001 (0.007)	-0.017 (0.013)	0.008 (0.005)	0.018 (0.016)		8,641
BDI DHS 2010	0.014 (0.007)	0.000 (0.020)	0.015 (0.018)	0.020 (0.018)	0.060 (0.028)	9,301
BDI DHS 2016	0.015 (0.005)	-0.008 (0.016)	-0.004 (0.012)	0.042 (0.014)	0.055 (0.021)	16,360
BEN DHS 1996	0.002 (0.010)	-0.025 (0.041)	0.021 (0.041)		0.051 (0.038)	4,339
BEN DHS 2001	0.013 (0.009)	-0.032 (0.029)	-0.015 (0.026)		0.121 (0.039)	6,116
BEN DHS 2006	0.014 (0.005)	0.019 (0.019)	0.016 (0.015)	0.076 (0.013)	0.102 (0.021)	18,659
BEN DHS 2011	0.018 (0.006)	-0.030 (0.018)	0.026 (0.015)	0.071 (0.012)	0.116 (0.022)	18,552
BEN DHS 2014	0.012 (0.006)	-0.042 (0.018)	-0.010 (0.014)		0.070 (0.032)	14,559
BFA DHS 1998	0.019 (0.010)	0.010 (0.027)	0.001 (0.041)	0.047 (0.024)		6,110
BFA DHS 2003	0.021 (0.007)	-0.022 (0.020)	0.085 (0.032)		0.089 (0.032)	12,275
BFA DHS 2010	0.028 (0.006)	-0.030 (0.018)	0.014 (0.021)	0.077 (0.014)	0.120 (0.022)	16,286
BFA DHS 2021	0.030 (0.005)	-0.024 (0.015)	-0.020 (0.015)	0.086 (0.014)	0.094 (0.022)	16,910
BGD DHS 2004	0.016 (0.005)	0.003 (0.018)	-0.010 (0.015)	0.017 (0.013)		13,021
BOL DHS 1998	-0.001 (0.007)	-0.000 (0.021)	0.003 (0.009)		-0.000 (0.028)	12,788
BOL DHS 2003	0.009 (0.005)	0.020 (0.016)	-0.008 (0.006)		0.023 (0.023)	20,542
BOL DHS 2008	0.006 (0.005)	0.008 (0.016)	0.005 (0.006)		0.047 (0.024)	20,016
BRA DHS 1996	-0.009 (0.006)	-0.021 (0.019)	0.027 (0.012)		-0.002 (0.032)	15,325
CAF DHS 1994	0.024 (0.010)	-0.049 (0.027)	0.043 (0.026)		0.142 (0.051)	5,901
CAF DHS 2006	0.004 (0.006)	-0.000 (0.022)	0.025 (0.014)		0.080 (0.037)	11,028
CAF DHS 2010	0.001 (0.006)	0.001 (0.022)	0.007 (0.012)		0.115 (0.035)	11,175
CAF DHS 2018	-0.004 (0.007)	-0.019 (0.020)	0.002 (0.012)		0.013 (0.036)	8,832
CIV DHS 1994	-0.021 (0.008)	-0.010 (0.020)	0.029 (0.026)		0.013 (0.040)	8,700
CIV DHS 1998	0.014 (0.014)	0.027 (0.033)	0.077 (0.037)			3,120
CIV DHS 2011	0.013 (0.007)	0.022 (0.018)	0.021 (0.019)	0.056 (0.018)	0.157 (0.040)	11,852
CIV DHS 2021	-0.004 (0.005)	-0.013 (0.017)	0.010 (0.015)	0.040 (0.014)	0.082 (0.030)	16,288
CMR DHS 1998	-0.009 (0.009)	-0.009 (0.023)	0.020 (0.016)		-0.055 (0.044)	5,889
CMR DHS 2014	-0.000 (0.007)	-0.040 (0.019)	0.026 (0.010)		-0.005 (0.040)	9,923
COD DHS 2007	0.018 (0.007)	0.022 (0.021)	0.015 (0.010)	0.068 (0.017)	0.088 (0.040)	10,575
COG DHS 2005	-0.003 (0.008)	0.033 (0.022)	0.031 (0.012)		0.048 (0.042)	7,206
COG DHS 2014	-0.006 (0.006)	0.040 (0.022)	0.012 (0.009)		-0.083 (0.034)	10,991
COM DHS 1996	-0.031 (0.015)	0.007 (0.034)	0.083 (0.049)		0.003 (0.065)	2,961
COM DHS 2012	-0.032 (0.010)	0.025 (0.023)	0.001 (0.020)	-0.055 (0.025)	0.028 (0.050)	5,331
CUB DHS 2014	0.010 (0.006)	-0.025 (0.014)	-0.010 (0.006)		0.112 (0.076)	7,190
CUB DHS 2019	0.000 (0.006)	0.002 (0.014)	0.011 (0.006)		0.058 (0.063)	7,757
ETH DHS 2000	0.020 (0.007)	0.056 (0.022)	0.054 (0.023)		0.096 (0.040)	15,418
ETH DHS 2005	0.017 (0.006)	-0.018 (0.016)	0.047 (0.015)		0.069 (0.029)	15,092
FJI DHS 2021	0.002 (0.008)	-0.024 (0.020)	0.014 (0.008)		0.002 (0.043)	5,455
GAB DHS 2000	-0.013 (0.009)	0.001 (0.021)	0.016 (0.015)		0.049 (0.059)	7,303
GAB DHS 2012	0.002 (0.008)	0.025 (0.020)	0.002 (0.011)	0.064 (0.022)	0.139 (0.068)	9,210
GAB DHS 2019	-0.017 (0.007)	0.043 (0.019)	0.023 (0.010)	-0.005 (0.018)	-0.023 (0.055)	11,442
GEO DHS 2018	0.007 (0.006)	-0.026 (0.012)	0.009 (0.005)		0.115 (0.043)	8,877
GHA DHS 1998	0.005 (0.011)	0.069 (0.037)	-0.032 (0.018)	0.055 (0.028)		4,867
GHA DHS 2006	0.007 (0.010)	0.051 (0.028)	0.025 (0.016)		0.067 (0.054)	5,735
GHA DHS 2008	0.014 (0.007)	-0.024 (0.021)	0.029 (0.011)	0.051 (0.018)		10,607
GHA DHS 2011	0.024 (0.008)	-0.056 (0.021)	-0.003 (0.013)		-0.037 (0.044)	10,331
GHA DHS 2014	0.016 (0.007)	-0.042 (0.022)	0.003 (0.011)	0.030 (0.019)		9,667
GHA DHS 2017	-0.002 (0.007)	-0.005 (0.017)	0.008 (0.009)		-0.030 (0.046)	11,096
GIN DHS 1999	0.015 (0.010)	0.063 (0.025)	0.037 (0.038)		-0.004 (0.036)	7,038
GIN DHS 2005	0.021 (0.009)	-0.024 (0.023)	0.018 (0.030)		0.106 (0.039)	7,031
GIN DHS 2018	0.041 (0.008)	0.042 (0.022)	-0.002 (0.022)	0.087 (0.021)	0.116 (0.033)	9,213
GMB DHS 2013	-0.010 (0.008)	-0.021 (0.017)	0.054 (0.021)	-0.012 (0.021)	-0.049 (0.042)	10,617
GMB DHS 2018	-0.014 (0.007)	-0.007 (0.016)	0.023 (0.019)		-0.090 (0.042)	10,855
GMB DHS 2019	-0.004 (0.007)	-0.009 (0.017)	0.061 (0.021)	-0.005 (0.020)	0.019 (0.041)	10,988
GNB DHS 2014	0.005 (0.007)	-0.008 (0.015)	-0.015 (0.014)		0.034 (0.046)	9,784
GNB DHS 2018	0.007 (0.008)	0.006 (0.017)	0.015 (0.014)		0.021 (0.047)	10,415
GTM DHS 2014	0.003 (0.004)	0.000 (0.011)	0.007 (0.008)	0.014 (0.010)	0.033 (0.020)	24,718
HND DHS 2011	0.007 (0.004)	0.024 (0.012)	-0.005 (0.008)		0.014 (0.020)	25,326
HND DHS 2019	0.003 (0.005)	-0.010 (0.011)	0.002 (0.007)		-0.004 (0.025)	19,674
HTI DHS 1994	-0.013 (0.010)	0.020 (0.026)	-0.015 (0.026)		-0.027 (0.049)	5,568
HTI DHS 2000	-0.007 (0.008)	-0.003 (0.018)	0.001 (0.017)		0.008 (0.057)	10,977
HTI DHS 2005	-0.004 (0.007)	0.022 (0.016)	-0.001 (0.015)	0.008 (0.018)	-0.012 (0.037)	11,093
HTI DHS 2012	-0.006 (0.006)	-0.015 (0.014)	-0.001 (0.012)	0.013 (0.017)	0.060 (0.036)	15,135
IND DHS 2005	0.008 (0.002)	-0.018 (0.007)	0.001 (0.004)	0.028 (0.005)	0.076 (0.013)	139,980
IND DHS 2015	0.008 (0.001)	-0.013 (0.003)	-0.005 (0.002)	0.025 (0.003)	0.055 (0.007)	768,359
IND DHS 2019	0.002 (0.001)	-0.006 (0.003)	0.004 (0.002)	0.008 (0.003)	0.019 (0.008)	766,282
KEN DHS 1993	0.020 (0.008)	-0.001 (0.033)	-0.013 (0.013)		0.172 (0.043)	5,655
KEN DHS 1998	0.022 (0.008)	-0.016 (0.024)	0.013 (0.010)		0.072 (0.041)	8,075
KEN DHS 2003	0.013 (0.007)	-0.012 (0.021)	0.014 (0.011)		-0.022 (0.037)	8,600
KEN DHS 2008	0.006 (0.008)	0.008 (0.022)	-0.008 (0.009)	0.026 (0.021)		8,259
KEN DHS 2014	0.008 (0.004)	0.010 (0.012)	-0.002 (0.005)	0.025 (0.010)	0.013 (0.021)	31,482
KEN DHS 2022	-0.002 (0.004)	0.002 (0.011)	0.002 (0.004)	0.017 (0.011)	0.007 (0.022)	32,890

Table A7: Effect of man's questionnaire on the characteristics of eligible men

Survey	Age	Degrees of separation from household head	Years of schooling	Ever married	Number of biological children in household	N
KGZ DHS 2012	0.010 (0.007)	0.020 (0.016)	0.006 (0.005)	0.007 (0.017)	0.043 (0.034)	7,693
KHM DHS 2010	0.006 (0.005)	0.019 (0.012)	0.000 (0.009)	0.030 (0.013)	0.015 (0.022)	18,018
KHM DHS 2014	0.017 (0.005)	0.003 (0.012)	0.013 (0.009)	0.040 (0.012)	0.058 (0.025)	16,461
KIR DHS 2018	-0.010 (0.009)	-0.022 (0.022)	0.014 (0.010)		0.007 (0.043)	4,226
LAO DHS 2017	0.003 (0.003)	0.002 (0.009)	-0.001 (0.006)		0.013 (0.016)	25,994
LBR DHS 2013	0.013 (0.007)	-0.019 (0.018)	0.018 (0.014)	0.047 (0.018)	0.091 (0.045)	9,284
LBR DHS 2019	0.010 (0.008)	0.022 (0.020)	0.037 (0.015)	0.051 (0.018)	0.069 (0.046)	9,366
LSO DHS 2004	0.029 (0.010)	-0.051 (0.019)	0.005 (0.017)		0.245 (0.060)	7,473
LSO DHS 2009	0.001 (0.009)	-0.036 (0.019)	0.016 (0.015)	-0.012 (0.023)	0.040 (0.047)	7,502
LSO DHS 2014	0.003 (0.009)	-0.009 (0.020)	-0.008 (0.014)	0.037 (0.025)	0.033 (0.053)	7,124
LSO DHS 2018	0.002 (0.007)	0.024 (0.018)	0.013 (0.009)		-0.066 (0.047)	9,047
MDA DHS 2005	0.007 (0.007)	0.004 (0.017)	0.066 (0.054)		-0.039 (0.035)	9,252
MDA DHS 2012	0.003 (0.008)	-0.041 (0.019)	0.008 (0.008)		-0.020 (0.044)	6,439
MDG DHS 2003	0.017 (0.008)	-0.000 (0.026)	0.027 (0.014)		0.050 (0.044)	9,012
MDG DHS 2008	0.012 (0.005)	0.010 (0.016)	-0.019 (0.010)	0.030 (0.010)	0.035 (0.021)	19,338
MLI DHS 1995	0.022 (0.008)	0.045 (0.029)	-0.050 (0.037)		0.107 (0.032)	9,443
MLI DHS 2001	0.005 (0.007)	0.103 (0.026)	-0.013 (0.031)		0.036 (0.031)	12,756
MLI DHS 2006	0.014 (0.006)	0.031 (0.021)	0.044 (0.028)		0.031 (0.032)	14,743
MLI DHS 2012	0.040 (0.007)	-0.063 (0.021)	-0.042 (0.024)	0.096 (0.016)	0.150 (0.028)	10,442
MLI DHS 2015	0.013 (0.005)	0.001 (0.013)	0.014 (0.018)		0.030 (0.027)	18,184
MLI DHS 2018	0.029 (0.007)	-0.054 (0.020)	0.003 (0.023)	0.096 (0.016)	0.146 (0.028)	10,431
MMR DHS 2015	0.005 (0.006)	-0.028 (0.015)	-0.008 (0.010)	0.026 (0.015)	0.042 (0.029)	10,970
MNG DHS 2013	0.019 (0.005)	-0.022 (0.016)	0.001 (0.007)		0.029 (0.022)	12,991
MNG DHS 2018	0.009 (0.005)	-0.034 (0.016)	0.001 (0.008)		0.065 (0.031)	11,543
MOZ DHS 1997	0.014 (0.009)	0.026 (0.023)	0.033 (0.017)		0.050 (0.072)	8,998
MOZ DHS 2003	0.007 (0.007)	0.007 (0.019)	0.009 (0.016)		0.038 (0.031)	13,417
MRT DHS 2007	0.020 (0.007)	-0.003 (0.019)	0.033 (0.021)		0.088 (0.039)	11,159
MRT DHS 2015	-0.018 (0.007)	-0.000 (0.017)	0.002 (0.018)		-0.072 (0.038)	11,586
MWI DHS 1992	0.013 (0.010)	-0.011 (0.042)	0.008 (0.020)		0.059 (0.048)	4,003
MWI DHS 2000	0.008 (0.007)	0.002 (0.021)	-0.010 (0.011)		0.032 (0.031)	13,723
MWI DHS 2004	0.019 (0.007)	0.024 (0.022)	-0.033 (0.012)		0.062 (0.029)	12,234
MWI DHS 2006	0.011 (0.004)	-0.013 (0.014)	-0.003 (0.007)		0.037 (0.022)	26,763
MWI DHS 2010	0.005 (0.005)	0.003 (0.014)	0.001 (0.008)	0.009 (0.011)	0.011 (0.021)	23,558
MWI DHS 2013	0.007 (0.004)	-0.022 (0.013)	0.003 (0.007)		-0.002 (0.023)	24,831
MWI DHS 2015	0.007 (0.005)	0.001 (0.013)	-0.002 (0.007)	0.054 (0.012)	0.031 (0.021)	25,285
MWI DHS 2019	-0.001 (0.005)	-0.031 (0.012)	-0.003 (0.007)		-0.002 (0.024)	23,785
NAM DHS 2000	-0.010 (0.008)	-0.014 (0.017)	0.008 (0.014)		0.041 (0.066)	7,279
NAM DHS 2006	0.007 (0.007)	-0.002 (0.014)	0.002 (0.011)	0.070 (0.034)	0.076 (0.060)	9,268
NAM DHS 2013	-0.005 (0.007)	0.005 (0.015)	-0.001 (0.010)	-0.001 (0.024)	-0.006 (0.048)	10,718
NER DHS 1998	0.028 (0.009)	-0.038 (0.027)	0.035 (0.043)			6,849
NER DHS 2006	0.029 (0.008)	0.022 (0.025)	0.070 (0.036)			8,306
NER DHS 2012	0.038 (0.007)	0.001 (0.025)	0.039 (0.029)	0.089 (0.016)		10,242
NGA DHS 2003	0.002 (0.008)	0.029 (0.026)	0.023 (0.015)		0.086 (0.047)	8,407
NGA DHS 2008	0.013 (0.004)	0.013 (0.013)	0.012 (0.006)	0.037 (0.010)	0.039 (0.016)	35,595
NGA DHS 2013	0.012 (0.004)	0.037 (0.012)	0.016 (0.005)	0.009 (0.011)	0.052 (0.020)	35,801
NGA DHS 2018	0.019 (0.004)	0.007 (0.012)	0.019 (0.005)	0.116 (0.010)	0.219 (0.019)	41,909
NIC DHS 1998	-0.005 (0.007)	0.002 (0.017)	-0.001 (0.014)	0.056 (0.015)	0.057 (0.031)	14,975
NPL DHS 2006	-0.013 (0.007)	-0.043 (0.019)	-0.010 (0.015)	-0.002 (0.012)	0.015 (0.028)	9,306
NPL DHS 2011	0.023 (0.007)	-0.025 (0.018)	-0.007 (0.011)	0.020 (0.012)	0.001 (0.028)	11,022
NPL DHS 2016	0.005 (0.007)	-0.034 (0.018)	0.006 (0.011)	0.029 (0.015)	0.062 (0.031)	8,902
NPL DHS 2019	-0.014 (0.005)	-0.002 (0.014)	0.024 (0.009)		-0.015 (0.026)	11,622
PER DHS 1996	0.000 (0.006)	0.019 (0.020)	-0.009 (0.008)		0.108 (0.033)	34,583
PHL DHS 2003	0.003 (0.005)	-0.013 (0.017)	-0.014 (0.007)			15,521
PNG DHS 2016	0.012 (0.005)	-0.025 (0.013)	0.024 (0.009)	0.027 (0.014)	0.099 (0.033)	18,927
RWA DHS 2000	0.012 (0.008)	-0.040 (0.023)	0.029 (0.017)		0.096 (0.035)	9,513
RWA DHS 2005	0.022 (0.007)	0.008 (0.021)	0.019 (0.016)	0.032 (0.019)	0.064 (0.029)	10,281
RWA DHS 2010	-0.000 (0.006)	-0.022 (0.018)	-0.005 (0.012)	-0.007 (0.016)	-0.032 (0.023)	12,718
SEN DHS 2005	-0.005 (0.007)	-0.007 (0.017)	0.070 (0.026)		0.030 (0.038)	13,845
SEN DHS 2010	-0.008 (0.006)	0.021 (0.015)	0.020 (0.021)	-0.010 (0.017)	0.014 (0.036)	15,210
SEN DHS 2014	-0.001 (0.009)	0.001 (0.019)	0.021 (0.029)	-0.013 (0.024)	0.093 (0.057)	7,848
SEN DHS 2015	0.008 (0.009)	0.022 (0.019)	-0.020 (0.027)	0.037 (0.025)	0.078 (0.048)	8,242
SEN DHS 2016	-0.002 (0.009)	0.025 (0.018)	0.050 (0.027)	-0.028 (0.022)	0.007 (0.047)	7,995
SLE DHS 2008	0.022 (0.008)	-0.053 (0.020)	0.020 (0.021)	0.092 (0.019)	0.181 (0.041)	8,137
SLE DHS 2013	0.003 (0.006)	0.026 (0.014)	0.034 (0.015)	0.017 (0.013)	0.001 (0.024)	15,874
SLE DHS 2017	-0.012 (0.005)	0.015 (0.014)	0.009 (0.014)		-0.029 (0.027)	15,041
SLE DHS 2019	0.017 (0.006)	0.004 (0.014)	0.025 (0.013)	0.053 (0.014)	0.113 (0.029)	15,832
SUR DHS 2018	0.004 (0.007)	0.014 (0.017)	-0.009 (0.009)		-0.032 (0.047)	7,967
TCA DHS 2019	0.006 (0.020)	0.074 (0.087)	0.024 (0.017)		0.366 (0.284)	834
TCD DHS 1996	0.002 (0.009)	0.098 (0.026)	0.038 (0.032)		0.074 (0.040)	7,398
TCD DHS 2004	0.013 (0.010)	0.028 (0.029)	0.048 (0.033)		0.008 (0.044)	6,125
TCD DHS 2019	0.002 (0.005)	0.029 (0.015)	0.020 (0.016)		0.019 (0.025)	19,619
TGO DHS 1998	0.026 (0.008)	0.008 (0.021)	0.012 (0.018)		0.147 (0.040)	8,899
TGO DHS 2010	0.008 (0.009)	0.000 (0.027)	-0.016 (0.016)		-0.048 (0.040)	6,249
TGO DHS 2013	0.019 (0.007)	0.011 (0.021)	0.022 (0.013)	0.072 (0.019)	0.016 (0.032)	9,916
THA DHS 2019	-0.001 (0.004)	0.005 (0.008)	0.004 (0.005)		0.052 (0.040)	23,559
THA DHS 2022	0.000 (0.004)	-0.004 (0.009)	0.003 (0.005)		-0.038 (0.041)	19,874
TLS DHS 2009	0.008 (0.006)	-0.005 (0.016)	0.011 (0.013)	0.029 (0.018)	0.025 (0.027)	13,804

Table A7: Effect of man's questionnaire on the characteristics of eligible men

Survey	Age	Degrees of separation from household head	Years of schooling	Ever married	Number of biological children in household	N
TON DHS 2019	0.008 (0.013)	-0.030 (0.026)	-0.001 (0.009)		-0.035 (0.069)	2,909
TUN DHS 2018	-0.008 (0.007)	-0.015 (0.012)	-0.005 (0.009)		0.000 (0.037)	10,627
TUV DHS 2019	-0.026 (0.019)	-0.073 (0.044)	0.002 (0.019)		-0.180 (0.100)	998
TZA DHS 1991	-0.003 (0.009)	0.005 (0.022)	0.014 (0.014)		0.020 (0.043)	9,643
TZA DHS 1996	0.012 (0.009)	0.049 (0.025)	0.047 (0.033)		0.038 (0.038)	8,088
TZA DHS 2004	0.000 (0.008)	0.008 (0.020)	-0.021 (0.012)		0.029 (0.039)	9,065
TZA DHS 2010	0.002 (0.008)	0.011 (0.021)	-0.006 (0.010)	0.005 (0.021)	-0.024 (0.037)	9,172
TZA DHS 2015	-0.005 (0.007)	-0.012 (0.019)	-0.008 (0.009)	-0.024 (0.018)	-0.016 (0.031)	11,995
TZA DHS 2022	0.005 (0.006)	-0.021 (0.016)	-0.007 (0.009)	0.025 (0.017)	0.042 (0.031)	13,351
UGA DHS 1995	0.012 (0.009)	0.030 (0.027)	0.028 (0.015)		0.131 (0.043)	6,997
UGA DHS 2000	0.015 (0.009)	0.061 (0.029)	0.012 (0.015)		0.094 (0.039)	7,074
UGA DHS 2006	0.015 (0.008)	0.032 (0.024)	-0.009 (0.013)	0.053 (0.020)	0.039 (0.034)	8,257
UGA DHS 2011	0.013 (0.008)	-0.001 (0.023)	0.001 (0.013)	0.062 (0.020)	0.070 (0.037)	8,742
UGA DHS 2016	0.008 (0.005)	-0.004 (0.017)	0.027 (0.009)	0.027 (0.013)	0.035 (0.024)	17,929
UKR DHS 2007	0.003 (0.006)	0.005 (0.014)	-0.001 (0.005)		0.003 (0.040)	7,470
UZB DHS 2002	0.015 (0.008)	-0.019 (0.017)	-0.024 (0.012)			4,981
VNM DHS 2020	-0.006 (0.005)	-0.000 (0.012)	-0.002 (0.008)		0.024 (0.024)	11,009
WSM DHS 2019	-0.008 (0.010)	-0.014 (0.021)	0.004 (0.009)		0.023 (0.052)	4,637
XKX DHS 2013	-0.009 (0.008)	0.007 (0.016)	-0.006 (0.006)		-0.011 (0.037)	5,965
XKX DHS 2019	-0.001 (0.007)	-0.004 (0.016)	0.002 (0.006)		0.046 (0.040)	6,452
ZAF DHS 2016	-0.012 (0.007)	0.039 (0.017)	-0.010 (0.007)	-0.022 (0.025)	-0.060 (0.052)	10,142
ZMB DHS 1996	-0.022 (0.009)	-0.018 (0.022)	0.004 (0.013)	-0.002 (0.021)	-0.016 (0.036)	8,401
ZMB DHS 2001	0.020 (0.008)	0.029 (0.024)	0.018 (0.011)		0.144 (0.037)	8,019
ZWE DHS 1994	0.003 (0.009)	0.029 (0.023)	-0.019 (0.011)		0.033 (0.050)	5,993
ZWE DHS 1999	-0.012 (0.009)	0.007 (0.023)	0.007 (0.010)		0.063 (0.051)	6,173
ZWE DHS 2014	0.004 (0.006)	-0.013 (0.015)	-0.011 (0.005)		0.016 (0.028)	13,762
ZWE DHS 2019	0.001 (0.007)	-0.040 (0.017)	0.003 (0.005)		-0.000 (0.032)	9,582

Notes: All regression coefficients are relative to the control mean. Standard errors are clustered at the household level and displayed in parentheses.

Table A8: Women's selection

Survey	Age	Degrees of separation from household head	Years of schooling	Ever married	Children ever born	N Survey	N PHC
BEN DHS 2001	0.008 (0.004)	-0.115 (0.008)	0.040 (0.029)	0.010 (0.008)		6,448	154,594
BEN DHS 2011	0.034 (0.002)	-0.092 (0.005)	-0.093 (0.013)	0.055 (0.006)		17,329	229,892
BEN MICS 2014	0.043 (0.003)	-0.050 (0.007)	-0.056 (0.014)	0.054 (0.007)	0.182 (0.011)	16,348	237,416
BFA MICS 2006	0.031 (0.004)	0.015 (0.011)	0.177 (0.052)	0.006 (0.010)		8,159	329,415
BOL DHS 1994	0.004 (0.003)	-0.102 (0.007)	0.158 (0.011)	0.069 (0.009)		9,316	152,815
BOL DHS 2003	0.005 (0.003)	-0.159 (0.006)	0.024 (0.006)	0.116 (0.007)		18,487	200,216
CMR DHS 2004	-0.004 (0.003)	0.016 (0.007)	-0.067 (0.009)	0.215 (0.008)	0.119 (0.012)	11,304	412,147
CMR MICS 2006	0.014 (0.004)	-0.050 (0.008)	-0.021 (0.011)	0.110 (0.010)		9,408	422,494
CRI MICS 2011	0.002 (0.006)	0.018 (0.015)	0.000 (0.011)	0.154 (0.018)		5,740	121,704
CUB MICS 2010	-0.011 (0.005)	-0.025 (0.012)	0.072 (0.006)	0.174 (0.010)		9,440	276,307
CUB MICS 2014	0.011 (0.005)	-0.028 (0.011)	0.094 (0.006)	0.124 (0.011)		9,232	276,307
DOM MICS 2000	-0.015 (0.005)		0.015 (0.011)	-0.027 (0.011)		4,784	235,841
GHA DHS 1998	0.015 (0.004)	-0.245 (0.008)	0.145 (0.016)	0.057 (0.010)	0.043 (0.015)	4,970	449,300
GHA DHS 2008	0.012 (0.003)	-0.152 (0.006)	0.004 (0.008)	0.032 (0.008)	0.146 (0.018)	11,015	619,442
IDN MICS 2000	0.013 (0.003)	-0.046 (0.004)		-0.005 (0.006)		11,183	5,614,162
KEN DHS 1989	0.041 (0.005)	-0.083 (0.009)		0.104 (0.010)		7,424	236,014
KEN DHS 1998	0.025 (0.004)	-0.136 (0.008)	0.125 (0.009)	0.070 (0.009)	0.049 (0.012)	8,233	342,285
KEN DHS 2008	0.023 (0.005)	-0.005 (0.010)	0.083 (0.008)	0.043 (0.011)	0.049 (0.014)	8,767	934,904
KHM DHS 2000	0.020 (0.003)	-0.047 (0.006)	0.037 (0.011)	-0.006 (0.006)	0.034 (0.009)	15,557	281,213
KHM DHS 2010	0.024 (0.003)	0.003 (0.006)	0.080 (0.008)	0.052 (0.007)	0.092 (0.010)	19,237	358,486
KHM DHS 2014	0.017 (0.003)	0.032 (0.007)	0.009 (0.009)	0.125 (0.009)	0.163 (0.013)	18,012	34,975
KHM DHS 2021	0.027 (0.002)	-0.035 (0.006)	0.023 (0.007)	0.093 (0.006)	0.141 (0.009)	19,845	409,977
LAO MICS 2006	0.019 (0.004)	0.016 (0.006)	-0.095 (0.013)			7,703	137,057
LAO MICS 2017	0.034 (0.002)	-0.051 (0.003)	0.020 (0.007)	0.093 (0.005)	0.186 (0.007)	26,103	170,942
LBR DHS 2007	0.044 (0.005)	0.001 (0.011)	0.025 (0.021)	0.150 (0.011)	0.277 (0.017)	7,448	85,341
LBR DHS 2009	0.029 (0.006)	0.021 (0.014)			0.341 (0.021)	4,513	85,341
LSO DHS 2004	0.014 (0.004)	-0.020 (0.009)	-0.056 (0.006)	0.097 (0.011)	0.151 (0.016)	7,522	43,911
MEX MICS 2015	0.014 (0.005)	-0.063 (0.007)	0.007 (0.008)	0.089 (0.012)	0.108 (0.014)	12,937	2,989,055
MMR DHS 2015	0.027 (0.003)	-0.021 (0.007)	-0.023 (0.007)	0.025 (0.008)		13,454	1,341,553
MNG MICS 2010	0.032 (0.003)	-0.111 (0.007)		0.102 (0.009)		9,599	72,774
MOZ DHS 1997	0.017 (0.006)	0.025 (0.013)		0.059 (0.009)		9,590	377,199
MOZ MICS 2008	0.015 (0.003)	-0.012 (0.006)		0.062 (0.005)		15,060	472,585
MOZ DHS 2009	0.026 (0.006)	-0.040 (0.008)		0.074 (0.006)		6,749	534,121
MWI DHS 1996	0.034 (0.008)	-0.129 (0.011)	0.250 (0.025)	0.027 (0.011)	0.147 (0.024)	2,737	237,593
MWI DHS 2000	0.011 (0.003)	-0.094 (0.006)	0.084 (0.012)	0.026 (0.005)	0.024 (0.009)	13,538	237,593
MWI MICS 2006	-0.001 (0.002)	-0.081 (0.004)	-0.100 (0.007)	0.075 (0.004)	0.038 (0.007)	27,073	296,180
MWI DHS 2010	0.012 (0.002)	-0.044 (0.005)	0.049 (0.007)	0.001 (0.004)		23,748	295,369
NER DHS 2012	0.030 (0.004)	-0.217 (0.005)	-0.054 (0.029)	0.083 (0.005)		11,698	34,811
PER DHS 1991	-0.009 (0.002)	-0.013 (0.006)	0.052 (0.005)	-0.004 (0.007)	-0.031 (0.009)	17,351	570,535
PER DHS 2007	0.016 (0.002)	-0.073 (0.004)	0.054 (0.004)	0.005 (0.005)	0.041 (0.007)	42,636	730,539
PER DHS 2009	0.015 (0.002)	-0.091 (0.005)	-0.004 (0.004)	0.020 (0.007)	0.004 (0.008)	24,606	730,539
PRY DHS 1990	-0.004 (0.004)	-0.008 (0.010)	0.028 (0.009)	0.057 (0.011)	0.052 (0.015)	6,263	95,020
RWA DHS 1992	0.004 (0.004)	0.001 (0.008)		0.011 (0.009)		6,947	157,610
RWA DHS 2000	0.019 (0.003)	0.026 (0.008)	0.011 (0.011)	0.079 (0.008)		10,622	203,410
RWA MICS 2000	-0.010 (0.005)		-0.035 (0.016)	0.017 (0.013)		5,207	205,833
SEN DHS 2012	-0.025 (0.004)	0.056 (0.010)	-0.082 (0.025)	0.021 (0.011)		9,043	287,052
SEN DHS 2014	-0.004 (0.005)	0.067 (0.012)	0.033 (0.030)	0.030 (0.012)		8,831	287,052
SEN DHS 2015	-0.013 (0.004)	0.049 (0.010)	0.053 (0.027)	0.038 (0.011)		9,162	287,052
SLE DHS 2013	0.042 (0.003)	-0.003 (0.007)	-0.055 (0.015)	0.074 (0.007)	0.200 (0.011)	17,132	183,886
SLE DHS 2016	0.024 (0.004)	-0.021 (0.009)			0.309 (0.015)	8,526	183,886
TGO MICS 2010	0.019 (0.004)	-0.222 (0.008)	0.006 (0.017)	-0.004 (0.010)	0.048 (0.014)	7,016	143,932
TTO MICS 2011	0.012 (0.005)	-0.099 (0.009)	0.030 (0.006)	0.330 (0.022)		4,424	29,094
TZA DHS 2003	0.003 (0.004)	-0.098 (0.008)	0.069 (0.010)	0.044 (0.008)	-0.033 (0.011)	7,154	894,768
TZA DHS 2004	0.011 (0.003)	-0.115 (0.008)	0.026 (0.011)	0.066 (0.007)	-0.032 (0.010)	10,611	894,768
TZA DHS 2010	-0.004 (0.004)	-0.110 (0.008)	-0.043 (0.008)	0.110 (0.008)	-0.015 (0.011)	10,522	1,102,685
TZA DHS 2011	0.001 (0.004)	-0.089 (0.008)	0.015 (0.009)	0.093 (0.009)	-0.006 (0.010)	11,423	1,102,685
UGA DHS 2000	0.016 (0.004)	-0.066 (0.008)	-0.009 (0.012)	0.085 (0.008)	0.046 (0.011)	7,734	540,836
UGA DHS 2014	-0.003 (0.004)	-0.046 (0.010)			0.069 (0.014)	5,494	760,637
UGA DHS 2016	0.011 (0.002)	0.012 (0.007)	0.049 (0.006)	0.010 (0.005)	0.030 (0.008)	19,088	760,637
URY MICS 2012	0.023 (0.013)	-0.003 (0.046)		0.098 (0.043)		3,103	78,649
VEN MICS 2000	0.004 (0.004)	-0.015 (0.010)	0.055 (0.008)	-0.003 (0.012)		5,235	618,630
VNM MICS 2010	0.027 (0.003)	-0.079 (0.005)	-0.119 (0.005)	0.083 (0.006)	0.099 (0.009)	12,115	4,021,751
VNM MICS 2020	0.016 (0.003)	-0.122 (0.006)	0.014 (0.005)	0.096 (0.006)	0.178 (0.009)	11,294	2,077,336
ZAF DHS 2016	-0.007 (0.003)	0.007 (0.009)	0.017 (0.004)	-0.147 (0.014)		9,878	906,048
ZMB DHS 1992	-0.008 (0.004)	-0.054 (0.008)	0.104 (0.010)	0.100 (0.008)	0.161 (0.013)	7,250	177,735
ZMB DHS 2001	0.017 (0.003)	-0.038 (0.008)	0.093 (0.010)	0.045 (0.008)	0.108 (0.012)	7,944	217,666
ZWE DHS 2010	0.007 (0.003)	-0.026 (0.008)	-0.016 (0.004)	0.019 (0.007)	0.027 (0.010)	9,831	161,929

Notes: All regression coefficients are relative to the control mean. Standard errors are clustered at the household level and displayed in parentheses.

Table A9: Surveys with randomly assigned man's questionnaire excluded from analysis

Reason for exclusion	Excluded surveys	Total
Additional survey features administered in control households (without man's questionnaire) that were not implemented in treatment households (with man's questionnaire)	AGO DHS 2015; BEN DHS 2017; CIV MICS 2016; CMR DHS 2004, 2011, 2018; COD DHS 2013; COD MICS 2017; COG DHS 2011; COM MICS 2022; DOM DHS 2002; GIN DHS 2012; JOR DHS 2017; KAZ DHS 1999; KHM DHS 2005, 2021; MDG DHS 2021; MDG MICS 2018; MOZ DHS 2011; MRT DHS 2019; NPL DHS 2022; RWA DHS 2014, 2019; SEN DHS 2018, 2018, 2019; TCD DHS 2014; TLS DHS 2016	28
Eligibility for man's questionnaire conditional on marital status	AFG DHS 2015; BGD DHS 1996, 1999, 2007, 2011; IDN DHS 2002, 2007, 2012, 2017; MDV DHS 2009; NPL DHS 2001; PAK DHS 2012, 2017	13
Randomization of man's questionnaire stratified by presence of children at household listing stage, but stratification variable not available in microdata	BLR MICS 2012, 2019; GUY MICS 2014; MNE MICS 2013, 2018; UKR MICS 2012	6
No upper age limit for eligibility for man's questionnaire	BFA DHS 1993, MAR DHS 1992, SEN DHS 1992	3
Individual identifiers do not match across microdata source files	STP MICS 2019; SWZ MICS 2014; TGO MICS 2017	3
Random assignment of man's questionnaire across clusters rather than across households within clusters	GHA DHS 1993	1