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Gender of Interviewer Effects in a Multi-topic Centralized CATI Panel Survey

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Abstract

This paper is motivated by two recent articles which show that numerous studies which analyzed gender of interviewer effects did not take interviewer nonresponse selection effects into account. For example, interviewers may be more successful at recruiting respondents with characteristics similar to themselves and who give answers that are similar to their own, and this may result in spurious gender of interviewer effects. Our research is novel because it uses data from a large panel survey in which the same respondent is asked the same questions repeatedly by interviewers of random genders using the centralized telephone mode. We use the panel design to show the importance of checking for all relevant variables in models where selection may cause bias. To this end, we use respondent fixed effects models as a reference to yield unbiased coefficients.

We find gender of interviewer effects that are in line with social desirability theory on gender issues such as female discrimination. However, not all gender-related questions are affected by gender of interviewer effects and, in addition, we do not find any effects on political and (factual) household task related questions. In line with the notion of social distance, there is a higher likelihood that answers respondents are less comfortable with are given to interviewers of the same gender regarding (sensitive) health questions.

Introduction

Gender of interviewer effects may cause severe answer bias (Groves et al., 1992; Davis et al., 2010). For example, in interviewer-based surveys, people may give more liberal answers to questions on women's rights to female interviewers than to male interviewers due to a wish to ensure a good atmosphere during the interview by providing answers that are assumed to be preferred by the interviewer. In addition, the nature of the answers given may depend on the match in characteristics between interviewer and respondent (e.g., Catania et al., 1996). Measurement errors may not be the only source of gender of interviewer effects, as even if interviewers are *assigned* to respondents at random, female interviewers may *interview* different sample members than male interviewers so that their respondent sample is different (Groves & Couper, 1998). Two recent articles addressed this issue: one focused on telephone surveys (West & Olson, 2010) and the other on face-to-face surveys (West et al., 2013). Each found that large parts of the interviewer variance were actually due to nonresponse error variance in addition to measurement error variance. However, to distinguish these error sources in cross-sectional surveys which are typically analyzed (West & Olson, 2010) is very difficult.

Compared with existing studies on gender of interviewer effects (see Table 2.2 in Davis, 2008), to the best of our knowledge our approach is the first to use a panel survey with a random assignment of interviewers of both sexes to respondents across waves to study gender of interviewer effects. In this model, the same respondent answers the same questions repeatedly, sometimes to male, sometimes to female interviewers, a design that guarantees that interviewers of both genders interview the same sample so that there is no gender of interviewer nonresponse effect. In addition, we use a large sample that is representative of a national residential population, and a large number of socio-demographically heterogeneous interviewers. This means the study is not a simple experimental low N-study with a highly selective use of respondents.

This article is organized as follows: after providing theoretical reasons for gender of interviewer effects and reviewing empirical findings, we describe the data and the survey design we use to analyze gender of interviewer effects and formulate the following hypotheses. We expect no gender of interviewer effects in domains where gender roles are unimportant, even if men and women give different answers. On the contrary, we expect more traditional answers to questions from male interviewers in domains where gender roles prevail. In addition, we expect more valid or honest answers to questions given by interviewers of the same gender

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on sensitive or embarrassing topics with which the respondent is less comfortable with. After introducing the models used, we present and discuss the results and offer our conclusion.

1   Theory and Empirical Findings

There are different reasons why people give different answers to male or female interviewers (Atkin & Chaffee, 1972; Cosper, 1972; Fowler & Mangione, 1990). According to *social desirability* theory (DeMaio, 1984; Paulhus, 2002), respondents reflect on what might be considered the mainstream views in a society on a given topic and then adapt their answer to this view. The likelihood of respondents giving a response which they think is more accepted by society may depend on interviewer characteristics, such as their gender. That men and women hold systematically different attitudes on a wide range of issues is widely known: men are typically more traditional and women are more liberal and more in favor of social welfare programs and equal rights (Blekesaune & Quadagno, 2003; Eagly & Steffen, 1984; Eagly et al., 2004; Pratto et al., 1997).

Differences are, however, not likely to be enough to produce interviewer effects, because most attitudes do not have a clear gender dimension. Some have argued that we should find interviewer effects only on issues that are based on *social role* theory (Diekman & Schneider, 2010). Social role theory asserts that interviewer gender effects occur when attitudes are linked to expectations about gender roles and gender equality. Gender stereotypes and expectations of gender roles are still widely present in western societies despite some signs of a decline (Wilde & Diekman, 2005), and Diekman & Goodfriend (2006) state that women still typically occupy social roles of care takers for others while men are assumed to take the role of leadership and power. Another theory states that communication is more comfortable over a smaller social distance (Groves et al., 1992; Liu & Stainback, 2013; Snell Dohrenwend et al., 1968; Tu & Liao, 2007). Respondents, when answering sensitive questions, may feel more at ease with interviewers with whom they have something in common, including the same gender. As a consequence, respondents give more valid or honest responses to such questions.

Previous research has focused a lot on interviewer effects on gender issues where the general expectation is that female interviewers are either more likely to produce more feminist or liberal responses (Lueptow et al., 1990) or, the other way around, male interviewers ellicit responses that "appear more traditional" (Flores-Macias & Lawson, 2008, p.100). Huddy et al. (1997), for example, find that respondents were more likely to give a feminist response to a female interviewer in two local-area telephone surveys in the U.S. on questions related to the women's movement, women's issues, and gender equality. Interviewers might affect men and

women to a different extent, depending on the sensitivity of the question in the cultural context (Becker et al., 1995; Benstead, 2013). For example, Flores-Macias & Lawson (2008) find that interviewer gender is more likely to affect men living in (rather liberal) Mexico City than women regarding gender-sensitive questions, while Lueptow et al. (1990) find that male interviewers have more influence on the response variance of women in a Midwestern metropolitan area. In general, however, gender of interviewer effects are rather weak and sometimes inconsistent (see the review in Davis et al., 2010), especially concerning interviewer-respondent gender interaction effects. For example, Fuchs (2009) finds both opposite-gender and same-gender effects in a German CASI experiment, which contradicts social distance theory. And although Liu and Stainback (2013) find gender of interviewer effects on questions regarding the happiness of married persons compared to unmarried persons in a Chinese survey, they do not find differences according to respondents' gender.

Recently some scholars have investigated whether interviewer-specific non-response bias causes significant portions of "gender of interviewer" effects. Using factual questions, West and his colleagues analyzed how much of the interviewer effect is due to measurement error and how much is due to selection error. While West and Olson (2010) found substantial selection effects in a cross-sectional tele-phone survey, West et al. (2013) report selection effects in a cross-sectional face-to-face survey. The surveys used in the two articles were matched with administration data which contained the "true" values. Without the availability of such auxiliary data, the identification of the two interviewer error variances is not possible. In addition, interviewer effects can only be examined for factual variables, not atti-tudes. However, the latter may be more fruitful when analyzing gender of inter-viewer effects.

In the light of these inconclusive findings and weak data sources, Davis et al. (2010) argue for more research which uses designs in which respondents are randomly assigned to interviewers (Gillikin, 2008), and which utilze a large num-ber of interviewers. Davis et al. (2010) complain that "[t]hese ideal study quali-ties may be difficult to achieve [...] However, even if lacking perfect design, the repeated investigation and reporting of interviewer effects, whether significant or null, will contribute to a significantly enhanced understanding of the magnitude and frequency of interviewer effects" (p. 24). In addition Davis (2008) calls for more telephone-administered studies (p. 28, 29). We have thus accommodated this by measuring gender of interviewer effects in different topic domains and done so more accurately by using panel data as it seems particularly suitable for this pur-pose. Specifically we test the following hypotheses:

H1: We expect gender of interviewer effects when two conditions are met: questi-
    ons 1) show different answers between men and women and 2) relate to clear
    gender specific social roles. The latter means that there needs to be a gender

specific dimension such as female rights or discrimination. Questions on more general topics such as general political questions are not sufficient even if different attitudes between the genders are present.

H2: In terms of the direction of effects, we expect that female interviewers prompt more liberal views, while male interviewers prompt more traditional opinions from respondents of both genders. We do not expect gender of interviewer-respondent matching effects

H3: We expect gender of interviewer-respondent matching effects on questions the answers to which may be embarrassing for respondents, even if they are not related to gender specific social roles. We expect more valid answers if the interviewer and the respondent have the same gender.

To test these hypotheses, we used data from Switzerland. Though gender equality is a constitutional norm and legislation to prohibit gender discrimination came into force in 1995 (Federal Authorities, 2013), some people still hold the view that women should play a more important role in the home while men should be the primary earner (Bernardi et al., 2013; Makarova & Herzog, 2015). Although female labor force participation is increasing (SFSO, 2015), this expansion is evident predominantly through part-time jobs, especially in lower-pay sectors with less responsibility (Bernardi et al., 2013), and wage differences are still substantial (Murphy & Oesch, 2015). While this has contributed to more heterogeneous life trajectories for women, men's life trajectories still correspond to the classical breadwinner model (Widmer et al., 2003). To explore if gender of interviewer effects are limited to gender related issues or whether this is a broader phenomenon, we included answers to questions in additional domains: politics (Huddy et al., 1997; Hutchinson & Wegge, 1991; Lipps & Lutz, 2010), the role of performing different household tasks (Ballou & DelBoca, 1980; Grimes & Hansen, 1984; Kane & Macauley, 1993, Klein & Kühhirt, 2010), and health (Davis et al., 2010).

2 Data

Telephone surveys are well suited to the study of interviewer gender effects (Davis & Silver, 2003; Grimes & Hansen, 1984; Groves & Magilavy, 1986; Huddy et al., 1997; Kane & Macaulay, 1993; Lueptow et al., 1990). While respondents are able to make an accurate guess about an interviewer's gender in a telephone interview (Callegaro et al., 2005), possibly distracting information about an interviewer's socioeconomic status, physical attractiveness, dress, personal demeanor, or other cues that might influence face-to-face survey responses are absent (Adenskaya & Dommeyer, 2011; Groves & Fultz, 1985). In addition, telephone surveys conducted from a telephone center use random interviewer-respondent assignments, thus

reducing the risk of confusing area effects and interviewer effects as is often the case in face-to-face surveys (O'Muircheartaigh & Campanelli, 1998; West et al., 2013). Roberts et al. (2006) find that telephone respondents are more likely to give socially desirable responses than face-to-face respondents. Davis (1997), however, argues that telephone surveys should produce smaller effects because of the greater social distance inherent in using a phone line (also Fowler & Mangione, 1990).

We used data from the Swiss Household Panel (SHP; Voorpostel et al., 2015) which is an annual, centrally conducted and nationwide CATI panel survey, using a stratified random sample of the Swiss residential population. Starting in 1999 with more than 5,000 households, the SHP added two refreshment samples, one in 2004 with more than 2,500 households, and one in 2013 with about 4,000 households. In their respective first waves, the 1999 original sample household level response rate amounted to 64%, that of the 2004 refreshment sample was 65%, and that of the 2013 refreshment sample was 60% (RR1; AAPOR, 2015). Fieldwork is conducted each year between September and January using about 100 interviewers, and each year, the household reference person is asked to first complete the household grid questionnaire and then the household questionnaire, which includes among other questions the share of household tasks between the partners of a household. Finally, all household members aged 14 or over are interviewed using the individual questionnaire. The SHP contains a wide range of questions about health, well-being, attitudes, social networks and economics. Gender of interviewer information is available for almost all interviewers in 2000, and from 2003 on. Since not all questions investigated have been asked in all the years (2000, 2003-2014), the sample size is different according to the question analyzed. Interviews from 18,555 respondents interviewed by 605 interviewers with given gender are used. While about a third of the respondents report, respectively, one, two to four, and five to 13 waves, 65% of the interviewers work only one wave, 20% two waves, and about 15% work more than two waves. A third of the 605 interviewers are men. To rule out selection effects due to a different response rate, we analyzed response rate differences between male and female interviewers and ran two cluster robust logit models, using pooled data from the first contacts on the household grid level and on the individual questionnaire level, respectively. First contacts are crucial determinants of final cooperation and are well suited to investigate interviewer performance in centralized CATI surveys (Lipps, 2009), although about 60% of the households and individuals needed more than one contact to be finalized. After checking the survey year, whether the first contact occurred during the normal or the refusal conversion[1] field phase, the number of contacts, and the number of unsuccessful calls, results show that the predicted cooperation probabilities of male (female) interviewers amount to 82.1% (81.6%) on the household grid level and to 78.7% (78.9%)

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1   All households/individuals, who uttered a soft refusal during the normal field phase, were tried to be converted.

on the individual questionnaire level respectively. Both gender of interviewer differences are insignificant on the 1% level.

We selected questions where we found clear differences in the response behavior of men and women. Table 1 gives an overview of the different questions, the number of observations, and the mean values of men and women in relation to these questions. Four questions are gender specific, five questions are related to general politics attitudes, five questions ask about the distribution of household tasks, and five questions about health issues. The question wording and their exact answer categories are listed in the appendix.

Answers to all questions show highly significant differences between men and women, and the differences mostly go in the expected direction. This is the case for gender related measures: women believe more often that they are penalized, that there should be more measures to support women, that having a job is the best guarantee for women and men to be independent, and they disagree more often that pre-school children suffer when the mother works for pay. For example, men report 0.45 units less discrimination than women (first question). In terms of political questions, women are less in favor of a strong army than men; more in favor of environmental protection rather than economic growth, more against nuclear energy, and more in favor of increasing social expenses. The only unexpected result is that women are less often in favor of equality between Swiss and foreigners and hence more discriminatory than men. As for household tasks, women do more cleaning and washing, while men manage the finances and administrative tasks slightly more often. Not surprisingly, women report many more hours of housework. As for health issues, women tend to report more physical and mental health problems than men.

Table 1   Means of dependent variables by sex and t-tests of differences.

	N(obs.)	Women	Men	P(|T| >| t|)
GENDER				
Women in Switzerland are sometimes penalized (0=no-10=yes)	52212	5.41	4.96	0.000
There should be more measures to support women in Switzerland (0=no-10=yes)	51776	6.00	5.34	0.000
To have a job is the best guarantee for women and men to be independent (0=no-10=yes)	49821	8.26	8.01	0.000
A pre-school child suffers, if his or her mother works for pay (0=no-10=yes)	49205	5.25	6.18	0.000
POLITICS				
In favor of a strong Swiss army (0=no, 1=neither nor, 2=yes)	47802	0.97	1.08	0.000
Foreigners should have the same opportunities as Swiss (0=no, 1=neither nor, 2= yes)	51171	1.32	1.41	0.000
Environment should be more important than economic growth (0=no, 1=neither nor, 2=yes)	51248	1.41	1.25	0.000
Switzerland should continue to have nuclear energy (0=no, 1=neither nor, 2=yes)	50315	0.52	0.87	0.000
Switzerland should increase social expenses (0=no, 1=neither nor, 2=yes)	49465	1.25	1.13	0.000
HOUSEHOLD TASKS				
In our Household it is mostly me who does the cleaning (0=no, 1=yes)	43009	0.79	0.29	0.000
In our Household it is mostly me who does the laundry (0=no, 1=yes)	43009	0.88	0.25	0.000
In our Household it is mostly me who manages the finances (0=no, 1=yes)	43009	0.30	0.35	0.000
In our Household it is mostly me who handles administration (0=no, 1=yes)	43009	0.62	0.66	0.000
Hours of housework (per week)	70561	14.71	5.87	0.000
HEALTH				
Body weight (kg)	60405	63.91	78.42	0.000
Suffering from headaches during the past four weeks (0=no, 1=yes)	60933	0.40	0.27	0.000
Physical health bad (1=very good, …, 5=not well at all)	72414	2.00	1.89	0.000
Having the blues (0=never-10=always)	72371	2.35	1.69	0.000
Sadness (0=never-10=always)	48109	3.73	3.05	0.000

Data: Swiss Household Panel 2000, 2003-2014.

3   Variables and Modeling

Our independent *research* variables are interviewer gender and interviewer gender interacted with respondent gender. We used female as a reference gender category. A significant interviewer male coefficient b means that there is a difference by b between survey answers to a female and a male interviewer. A significant interaction coefficient b' (interviewer and respondent male match) means that a man, when interviewed by a man, exhibits a difference by b' to the situation, when interviewed by a woman (the main effects are controlled).

Our target is to estimate random effects (RE) models the gender of interviewer coefficients of which are close to those of the respective fixed effects (FE) models. Only then can we be sure that we have included the relevant respondent *time invariant* variables (Morgan & Winship, 2014) which we suspect are responsible for a great deal of possible selection effects. For example, the "naïve" mean difference to the first question between male and female interviewers amounts to 0.43 units, which is almost as high as the differences between male and female respondents (0.45) and which suggests that despite our design there are some selection effects. We aim to control for all variables which may have effects on the gender of interviewer sample selection, due to a selective accessibility and/or a selective cooperation (Groves & Couper, 1998). To decide which variables to include as controls for gender of interviewer sample selection effects, we tested mean differences between the samples of male and female interviewers for the following variables by means of T-tests. Respondent gender itself is not affected by gender of interviewer sample selection (P(|T| >|t|) = .257 (.053) on the household (person) level (but included in the RE model).

- Respondent is the household reference person (P(|T| >|t|) = .000)
- Household needed refusal conversion (P(|T| >|t|) = .026)
- Language region: Swiss-German speaking part (reference), French speaking part (P(|T| >|t|) = .000), Italian speaking part (P(|T| >|t|) = .000)
- Respondent's highest education (P(|T| >|t|) = .115)
- Respondent has a partner (P(|T| >|t|) = .077)
- Respondent is employed (P(|T| >|t|) = .000)
- Respondent lives in a city (P(|T| >|t|) = .071)
- Day of first contact: Monday (P(|T| >|t|) = .019), Tuesday (P(|T| >|t|) = .494), Wednesday (P(|T| >|t|) = .127), Thursday (P(|T| >|t|) = .580), Friday (P(|T| >|t|) = .073), Saturday (P(|T| >|t|) = .064).
- Time of first contact: before 2 pm (P(|T| >|t|) = .003), between 2 pm and 6 pm: (P(|T| >|t|) = .164), between 6 pm and 8 pm: (P(|T| >|t|) = .324), after 8 pm: (P(|T| >|t|) = .249)
- Number of contacts (P(|T| >|t|) = .249).

- Number of unsuccessful calls (calls with no contact) (P(|T| >|t|) = .031).
- Age of youngest child in the household: no child (reference), between 0 and 6 years: (P(|T| >|t|) = .029), between 7 and 17 years: (P(|T| >|t|) = .324)
- Survey wave to control for panel conditioning (Warren & Halpern-Manners, 2012): first (reference), second (P(|T| >|t|) = .428), third or higher (P(|T| >|t|) = .000)
- Survey year to account for time effects and for different interviewer compositions across different years: 2000 (reference), 2003, 2004, 2005, 2007, 2009, 2011-2012, 2014 (P(|T| >|t|) = .000), 2006 (P(|T| >|t|) = .013), 2008 (P(|T| >|t|) = .039), 2010 (P(|T| >|t|) = .014), 2013 (P(|T| >|t|) = .46)
- Age group: 14-25 years (reference), 26-35 years (P(|T| >|t|) = .035), 36-45 years (P(|T| >|t|) = .000), 46-55 years (P(|T| >|t|) = .000), 56-65 years (P(|T| >|t|) = .287), 66+ years (P(|T| >|t|) = .251)

Based on these findings we decided to control for all variables apart from education, partner, living in a city, age of youngest child in the household, day and time of first contact, number of contacts or unsuccessful calls, and whether the household needed refusal conversion (the latter five variables come from the CATI call data and are available only from 2005 on). Before we dropped the call data variables, we tested their joint significance in a linear regression of the residual of the dependent variables (see Table 1) on all other variables. As it turns out, these call data variables have little additional explanatory power. Exceptions are significant (1%) F-values in two gender models, two household tasks models, and two health models. However, all models have a McFadden Pseudo R^2 smaller than .003. Using the research and the control variables, we ran Hausman tests to test the differences between the coefficients of the (consistent but less efficient) FE model and the coefficients of the (more efficient) RE model.

Finally, we tested whether there are gender of interviewer effects depending on other respondent characteristics. For example Huddy et al. (1997) found that that gender of interviewer effects were more pronounced among younger respondents. We found that gender of interviewer in interaction with respondent age groups did not show substantial effects, with the exception of younger people who are less gender of interviewer sensitive when asked whether women are discriminated against, and – surprisingly – young people who report a higher weight to male interviewers. In the end, we decided not to include interactions of respondent socio-demographic characteristics other than gender with interviewer gender.

4   Results

The Hausman tests of all models are significant on the 1% level. This means that for all issues there are time invariant respondent specific omitted variables which cause biased gender of interviewer effects in RE models. Nevertheless, the size of the coefficients of the FE gender of the interviewer are very similar to those of the RE gender of the interviewer for most dependent variables (see Table 2). As an example of our success in controlling for some relevant gender of interviewer selection variables, the mean difference between male and female interviewers to answers on the first question is now reduced to about 0.25 units. Interaction gender of the respondent * gender of the interviewer coefficients show a greater difference between the FE and the RE models. Since the FE models yield consistent parameter estimates (Morgan & Winship, 2014) we rely on these modeling results to interpret the gender of interviewer effects even if we lose some statistical precision. For the sake of completeness, however, we list both the FE and the RE coefficients. Since all Hausman tests are significant on the 1% level we do not list the respective significance separately.

Table 2   Random and fixed linear effects model coefficients of interviewer male and interaction interviewer male*respondent male.

Coefficient of Gender of Interviewer male and interaction interviewer male*respondent male	N	RE-models		FE-models	
		Iwer male	both male	Iwer male	both male
GENDER					
Women in Switzerland are sometimes penalized (0=no-10=yes)	52,210	-.254*	-.092+	-.255*	-.063+
There should be more measures to support women in Switzerland (0=no-10=yes)	51,774	-.382*	-.088+	-.370*	-.077
To have a job is the best guarantee for women and men to be independent (0=no-10=yes)	49,819	-.109*	.039	-.119*	.034
A pre-school child suffers, if his or her mother works for pay (0=no-10=yes)	49,203	.011	-.029	.013	-.048
POLITICS					
In favor of a strong Swiss army (0=no, 1=neither nor, 2=yes)	47,800	-.006	-.010	-.010	-.004
Foreigners should have the same opportunities as Swiss (0=no, 1=neither nor, 2= yes)	51,169	.010	-.007	.010	-.004
Environment should be more important than economic growth (0=no, 1=neither nor, 2=yes)	51,246	-.012	.007	-.009	.008

Coefficient of Gender of Interviewer male and interaction interviewer male*respondent male	N	RE-models		FE-models	
		Iwer male	both male	Iwer male	both male
Switzerland should continue to have nuclear energy (0=no, 1=neither nor, 2=yes)	50,313	-.002	-.015	-.009	-.013
Switzerland should increase social expenses (0=no, 1=neither nor, 2=yes)	49,463	-.032*	.005	-.033*	.007
HOUSEHOLD TASKS					
In our Household it is mostly me who does the cleaning (0=no-1=yes)	43,008	-.000	-.007	-.000	-.006
In our Household it is mostly me who does the laundry (0=no-1=yes)	43,008	-.002	.005	-.001	.005
In our Household it is mostly me who manages the finances (0=no-1=yes)	43,008	.002	.004	.001	.009
In our Household it is mostly me who does administration (0=no-1=yes)	43,008	.001	.001	.000	.006
Hours of housework (per week)	70,559	-.149+	.183	-.132	.167
HEALTH					
Body weight (kg)	60,403	-.264*	.434*	-.279*	.452*
Suffering from headaches during the past four weeks	60,931	-.017*	.019*	-.019*	.020*
Physical health bad (1=very good, …, 5=not well at all)	72,412	-.037*	.016	-.035*	.011
Having the blues (0=never-10=always)	72,369	-.103*	.063+	-.111*	.071*
Sadness (0=never-10=always)	48,109	-.089*	.018	-.091*	.007

Data: Swiss Household Panel 2000, 2003-2014. Mean number of observations by respondent between 3.287 (Sadness) and 3.904 (bad health). Models controlled for reference person (all but Household Tasks), respondent male (RE Models), language region, being employed, age, respondent wave (first, second, third or later), year dummies. *=significant on 1% level += significant on 5% level.

In the following we briefly describe the gender of interviewer effects across the different domains and discuss if our hypotheses are confirmed or not.

Gender

When asked by a man, both genders advocate more traditional positions towards women's discrimination and measures to support women, as well as about the independence which a job guarantees. Interestingly, the gender of interviewer effect on these three questions is as high as about half of the gender of the respondent effect (see table 1). Generally, there are weak or no respondent-interviewer gender

match effects. We find no gender of interviewer effects on the question whether a pre-school child suffers if his or her mother works for pay. An explanation for the lack of interviewer effects for this question about child suffering could be that unlike the first three questions in this domain, the job related question for a mother with a small child is interesting only for those concerned. We run the model about child suffering for the sample of people who work and have a child under the age of 7 years at home. For this sample, we find a positive interviewer=male effect for women and a zero effect for men. It is possible that the three (more general) initial questions are less deeply reflected upon, and more socially desired answers are mechanically provided in response to these questions.

Politics

With one exception ("Switzerland should increase social expenses"), items on political attitudes are not affected by the interviewer gender.

Household Tasks

There are no gender of interviewer effects on household task items.

Health

For health issues, we find evidence that men, and even more so women, report better physical and mental health when interviewed by a man. This shows that health issues are potentially sensitive and women are trusted more. Interestingly, both genders, and especially women, report lower body weight when interviewed by an interviewer of the opposite sex: women report .279 kg less, men a significant (1%) .452 kg - .279 kg = .173 kg less. Reporting a high body weight to an interviewer of the opposite sex may be embarrassing. The same holds for headaches and in parts for having the blues, where interviewers of the same sex "admit" worse health conditions. For example, in terms of headaches, the main effect of -.019 from male interviewers means that women report 1.9 % points less occurrences to male than to female interviewers, while men report the same amounts to interviewers of both genders (-.019+.020 is insignificant). Similarly, while women report .111 less often having the blues to male interviewers, men again show no gender of interviewer effect (-111+.071 is insignificant). Male interviewers receive reports of better physical health and less levels of sadness by respondents of both genders.

Before concluding, we compare our findings with our hypotheses:

H1 (effects if answers differ between men and women and if questions have a gender specific social role): We find that answers on *general* gender issues are affected by the gender of the interviewer. Questions from which respondents are not concerned, are not affected. Political questions and household tasks are not affected. Hypothesis H1 is confirmed to a great extent.

H2 (male interviewers produce more traditional answers and interaction effects): When significant, the sign of the interviewer=male effect is in the expected direction. Interaction effects occur only on health questions. Hypothesis H2 is in parts confirmed.

H3 (gender of interviewer effects on sensitive questions if the interviewer and the respondent have the same gender): We find gender of interviewer effects on health issues, especially for female respondents: Women in particular feel embarrassed to disclose bad mental or physical health to men, although there is not a social role involved with health issues. Men, as representing the "strong sex", are reported better health, by both genders. For some issues, interviewers of the same gender are trusted more. This shows that for sensitive questions like health, social distance may play a role. Our hypothesis H3 is partly confirmed.

5   Conclusion

The motivation for this article comes from two recent articles which show that omitted interviewer nonresponse selection effects may have resulted in spurious gender of interviewer effects in a number of studies, even if interviewers are assigned to *sample members* at random. To examine gender of interviewer effects, this article uses data from the Swiss Household Panel (SHP), a large centralized CATI panel with randomly assigned interviewers to respondents. The same survey questions are answered repeatedly by the same respondent to interviewers of both genders. When designing the models, we remained concerned about selection effects because even in the SHP, interviewers of a certain gender may select respondents with omitted characteristics. If these characteristics are correlated with the dependent variable, the gender of interviewer coefficient will be biased. FE models eliminate this error if the characteristics are time-invariant. A careful choice of control variables yielded very similar gender of interviewer estimates in RE and FE models. This makes us confident that we have included the relevant variables in the models.

We find the expected effects of gender of interviewer on *general* gender issues (such as on female discrimination in Switzerland) where social desirability and social role theory has a sufficient impact. Not all gender-related questions are affected by gender of interviewer effects, although there are differences between the respondents' genders. This is true for the statements about "A pre-school child suffers, if his or her mother works for pay". Our explanation for the lack of gender of interviewer effects on this question is that unlike the (rather general) other gender-related questions, only a small part of the sample is personally affected. Consequently we find gender of interviewer effects on this question for women with

small children at home. We do not find effects on political and on (factual) household task related questions. (Sensitive) health questions are affected by the gender of the interviewer. In particular, women report better physical and mental health to male interviewers, while, on the contrary, respondents report a higher body weight to interviewers of the same gender. This points to social desirability effects and the impact of social role theory on gender-related questions and the theory of social distance on health questions.

For researchers who work with cross-sectional data and who like to estimate unbiased gender of interviewer effects, our research shows the importance of including all variables which have an effect on interviewer sample selection and the dependent variable. Suppose a researcher analyzes gender of interviewer effects on the female discrimination question (our first dependent variable). If the survey was conducted in a country with regions of different cultural contexts with different distributions of male and female interviewers and with different gender of interviewer effects, these contexts (in our case the language regions) must be controlled for. This sounds trivial but may be ignored by a number of researchers who are less familiar with the design of the survey at hand. Omitting the language region in a simple pooled OLS model would result in an interviewer=male coefficient of -.356, and this estimate would amount to -.260 if region is controlled. The latter comes very close to our estimate of -.254 in a RE model and -.255 in a FE model. Of course FE models are not without problems: FE models yield biased gender of interviewer coefficients if a changed interviewer gender goes with a parallel change of a related (unobserved) variable. For example, if men tend to interview at different times than women and these different times are correlated with attitudes of the then recruited respondents, the gender of the interviewer coefficient will be biased. However we believe that our random respondent-interviewer assignment and our control variables yield sufficiently unbiased gender of the interviewer coefficients for the variables analyzed.

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Appendix

Dependent variable questions with number observations, means and standard deviations

The questions are asked in German, French or Italian, depending on the language of the respondent. Details of the wording in the different languages (including English), for example in wave 13, can be found at: http://www.swisspanel.ch/IMG/pdf/QuestionML-P-W13.pdf

Gender

– Do you have the feeling that in Switzerland women are penalized compared with men in certain areas? (0=not at all penalized, …, 10=strongly penalized)
– Are you in favor of Switzerland taking more steps to ensure the promotion of women? (0=not at all in favor, …, 10=totally in favor)
– To have a job is the best guarantee for a woman as for a man to be independent. (0=completely disagree, …, 10=completely agree)
– A pre-school child suffers, if his or her mother works for pay. (0=completely disagree, …, 10= completely agree)

Politics

– Are you in favor of Switzerland having a strong army or for Switzerland not having an army? (2=strong army, 1=neither nor, 0=no army)
– Are you in favor of Switzerland offering foreigners the same opportunities as those offered to Swiss citizens or in favor of Switzerland offering Swiss citizens better opportunities? (2=same opportunities, 1=undecided, 0=in favor of better opportunities for Swiss citizens)
– Are you in favor of Switzerland being more concerned with protection of the environment than with economic growth, or in favor of Switzerland being more concerned with economic growth than with protection of the environment? (2=in favor of stronger protection of the environment, 1=undecided, 0=in favor of stronger economic growth)
– Are you in favor of Switzerland having nuclear energy, or are you in favor of Switzerland not having nuclear energy? (2=in favor of Switzerland having nuclear energy, 1=undecided, 0=in favor of Switzerland not having nuclear energy)
– Are you in favor of a reduction or in favor of an increase of the Confederation's social spending? (2=in favor of an increase, 1=undecided, 0=in favor of leaving the same of a reduction)

Household Tasks

– Generally, who takes care of the cleaning or tiding up in your household? (1=mostly me, 0=another person)
– Generally, who takes care of the washing or ironing in your household? (1=mostly me, 0=another person)
– Generally, who manages the finances in your household? (1=mostly me, 0=another person)
– Generally, who does the administration in your household? (1=mostly me, 0=another person)
– On average, how many hours do you spend on housework (washing, cooking, cleaning) in a normal week?

Health

– How much do you weigh (in kg without clothes)?
– During the last 4 weeks, have you suffered from headaches? (0=not at all, 1=somewhat or very much)
– How is your health in general? (scale reversed to 4=very bad, 3=bad, 2=fair, 1=good, 0=very good)
– Do you often have negative feelings such as having the blues, being desperate, suffering from anxiety or depression? (0=never, …, 10=always)
– How frequently are you generally sad? (0=never, …, 10=always)