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How Answers on Political Attitudes are Shaped by Interviewers Evidence from a Panel Survey

Oliver Lipps* and Georg Lutz*

1 Introduction

We assume from rational choice theory that respondents have opinions on a large number of issues and that they express them in a sincere and non-strategic way. However, numerous studies have shown that this is not always the case. Many respondents hold only vague or no preferences on many issues questioned in a typical survey. Nevertheless they are willing to express an opinion if asked. Respondents are even willing to give opinions on artificial issues that don't exist (Bishop et al., 1986). Respondents do not always answer in an honest way either. They give answers in a specific direction, what they think society in general or interviewers in particular find more desirable because they want to create a positive self image. This leads to socially desired answers. Often social desirability arguments apply when explaining biased respondent answers to political or sensitive questions (see e. g., Krysan and Couper, 2003). We also know from survey research, that attitudes can depend on how an issue is framed (Bradburn, 1982; Tverski and Kahneman, 1981). Also the interviewer may be responsible for effects (Fowler, 2002; Ongena, 2005): If the answers of the respondents leave room for interpretation it is possible that some interviewers interpret the answers in a certain direction, which may be towards social desirability or their own values and beliefs.

“Society” in an interview situation is represented by the interviewer. Being asked to reveal personal matters creates an intimate situation in which respondents establish a personal relationship with the interviewer on a short term basis. In such a situation they will usually not want to insult or intimidate the interviewer. Interviewers should of course not reveal what they think themselves about an issue and they usually don't. Nevertheless interviewers cannot prohibit respondents from making guesses about their attitudes and beliefs and to give answers in the direction of assumed interviewer attitudes.

There are obvious characteristics of interviewers which move answers in a certain direction, such as gender and race. Many authors found evidence for the effect of the race of the interviewer on the answers on race sensitive issues, but also on political attitudes, voting, factual political questions and perceptions of citizen's duties in a more general sense (Callegaro et al., 2007; Davis, 1997; Krysan and

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Couper, 2003) and even drug use (Livert et al., 1998). Effects of an interviewer's gender on gender sensitive attitudes are also reported in a number of studies (Huddy et al., 1997, McCombie and Anarfi 2002).

Race and gender of the interviewer may be the most evident but likely not the only sources of interviewer effects. The interview format according to which the respondent and the interviewer have their fixed roles should ideally discourage discussion and exchange of ideas or small talk. However unconscious or purposeful deviations from the survey script which have an impact on the respondent's answers are possible. Respondents may adopt strategies of instrumental communication where they sometimes try to get hints from the interviewer as to how they should answer a question if they don't know much about an issue but are nevertheless willing to give an opinion. Atkin and Chaffee (1972) consider the case, in which the respondent knows "rather little about the [subject] and might adopt an information seeking strategy himself. It is quite common for interviewees to be asked for facts, or even for their own opinions, during an interview. The skilled interviewer turns these questions aside [...] because they represent a serious departure from the roles [of himself] as information-seeker and the respondent as information-giver. A more serious problem [...] is [...] that the respondent will adopt a social strategy in which he attempts to control the interviewer's feeling towards him. Normally the tendency would be to seek a positive reaction [...] such as liking, approval, or agreement. [...] Even if the interviewer does not overtly express his opinions during the interview, he gives the respondent many cues, which in turn will give the respondent a reasonable reliable estimate of what opinion will please the interviewer" (p. 70 f.).

There are several communication channels possibly available to the respondent to realize persuasion strategies. Cospers (1972) finds that in addition to perceptible characteristics like age, sex, or possibly education, also the interviewer's attitudes may well influence the respondent's reporting behavior on sensitive issues, like drinking behavior. Interviewers who are older, male, or married receive restrictive responses to questions regarding drinking. Surprisingly, the religious background of interviewers has an effect as well: Religious interviewers make respondents report less alcohol consumption than non-religious interviewers. Even more, Mulford and Miller (1959) report that interviewers who themselves drank, interviewed respondents which drank more (cited in Cospers, 1972). In such situations there must be non-verbal channels which make respondents guess correctly on certain not obvious characteristics and to adjust their expressed attitudes accordingly. Cospers (1972) states that "it is conceivable that, during a two hour interview primarily on drinking behavior, information on the interviewer's drinking preferences tends to become known. It is also possible that the relationship is spurious and is accounted for by one of the stereotypic factors such as religion" (p. 235). Overall, respondents are not only influenced by general characteristics of the interviewer but also by features of the interaction in the interview.

Interviewer effects are not only present in face to face but also in telephone interviews. Respondents are well able to find out not only the interviewers' gender but also their race. Callegaro et al (2003) provide a summary of telephone surveys where respondents successfully guess the interviewer's race in about 75% of the interviewer and interviewers gender in almost 100% of the interviews correctly. Davis (1997) states that the use of telephone survey data should produce more conservative non-random measurement errors. This is because even when the interviewer's characteristics are perceived by the respondent, motivation to alter behavior based on this information may be lessened by the greater social distance over the phone lines. We believe that this is not necessarily true. There are also many ways how social interaction beyond the strict question and answer scheme given by the CATI framework takes place between interviewers and respondents in a telephone interview situation. This includes additional verbal exchange beyond the question wording as well as for example intonation of the interviewer (Oksenberg and Cannell, 1988). To explore if and to what extent interviewer effects are present also in telephone interviews is particularly important due to the much larger number of interviews completed by telephone compared to face-to-face interviews (Singer, Frankel, & Glassman, 1983).

In this study we analyze the effect of the interviewer's attitudes on the respondent's attitudes on a set of political question in a telephone panel survey. Specifically, we are interested in whether the *interviewer's attitudes have an effect on the direction of the respondents' attitudes*. We will show that such effects are present and that they also do not disappear once controlled for obvious interviewers characteristics such as gender and age.

2 Hypotheses

Based on the literature review, we expect that interviewer effects are present and that the influence depends on both respondent and interviewer characteristics. For the respondents we expect effects that either correlate with stronger issue preferences or are more prone to seek an appropriate answer that pleases the interviewer. We assume that these effects are not the same for all respondents. Some respondents have less developed opinions and are therefore more likely to react to interviewers, expressing an opinion similar to that of the interviewer. The hypotheses are as follows:

- H1 Respondents with a low level of education, little interest in politics or problems to understand the questions are more influenced by interviewers. Respondents of the same sex or age state the same opinion more often.

These respondent characteristics will be included as interaction effects with the interviewer opinion to detect whether certain respondent characteristics are more prone to move their opinion in the direction of the interviewer than others.

A second hypothesis relates to effects of panel conditioning. We know from a number of studies that repeated surveys on the same topic with the same respondents can change the response behavior. For example people involved in a pre-election voter survey are more likely to vote than those not involved in the survey, because the survey itself makes people more interested and more aware that an election is ahead than those not involved in a pre-election survey (Kraut and McConahay, 1973, see for an overview on panel conditioning Sturgis and Brunton-Smith, 2008). In line with Sturgis and Brunton-Smith (2008) we assume that

H2 Over time, the interviewer effects become smaller, which means that respondents grow less likely to express an opinion in the direction of the interviewer.

We also assume that certain interviewer characteristics have an effect. Survey companies are aware of interviewer effects and try to minimize these effects. Interviewers get constant training and there is a close monitoring of their performance. Therefore we believe that:

H3 Experienced interviewers are less likely to influence the respondents than inexperienced interviewers.

3 Data

Many studies try to capture interviewer effects on response behavior through experimental designs (e. g., Stocké, 2004). In our paper we use a general population survey to explore if and how respondents react to interviewers. This has the advantage that compared to most experiments, a much larger sample of both respondents and interviewers is available, that can be assumed to be representative of the general population. In addition we use longitudinal data which has variations of both respondents and interviewers. Specifically, we use data from the Swiss Household Panel (SHP) between 2004 and 2008. The SHP is a yearly conducted centralized CATI panel survey which started in 1999 with slightly more than 5,000 households, representative for the Swiss resident population. Questions are asked about household composition and socio-demographics, health, well being and attitudes, politics, social networks, and economics. The centralized SHP has the advantage – other than face-to-face surveys – that respondents are randomly assigned to interviewers (Edwards and Berg, 1993), both within a wave and between waves. The address management is pooled and respondents are connected automatically to interviewers based on the availability of the interviewers and respondents. Also interviewers are

surveyed annually, after each wave, using a paper & pencil questionnaire. Amongst others, this interviewer survey asks about the interviewer's socio-demography, which will be used for the analyses. The interviewer response rate to this questionnaire amounts to about 70%, and the matching rate with individual respondent questionnaire to about 80%. We include responses on four questions about attitudes which are asked in both the main and the interviewer survey:

- “Are you in favor of Switzerland joining the European Union or are you in favor of Switzerland staying outside of the European Union”.
- “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”.
- “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”.
- “Are you in favor of a reduction or in favor of an increase of the Confederation's social spending”

Respondents could give an opinion on those issues or they could choose the neither nor option which was read out to them or in case of the interviewers was an option on the paper questionnaire. The neither nor option was placed between the yes/no opinions as a middle category. We exclude all missing (“don't know”, “does not say”) cases from the analysis.

4 Modeling interviewer effects

In a first analysis we simply perform chi-square tests to detect whether we can find effects at all (see Table 1), using only the first wave reported for each respondent. We do find significant positive relationships between the interviewer's and the respondent's positions on all issues. With one exception (in favor of a reduction of environmental protection rather than of economic growth), for all issues the number of respondent's answers that coincide with that of the interviewer (diagonal elements) is higher than might be expected if independence were assumed. The chi-squares of the diagonal elements are high for all “CH into EU” coinciding positions, but small for some of the other three issues. We note however that all coinciding respondent and interviewer's positions, which represent the interviewer minority attitude (e.g., undecidedness about “same chances for foreigners”), have a high chi-square contribution in the expected direction. This means that interviewers who have a minority opinion influence respondents into giving opinions in the same direction.

Table 1: Frequency and expected frequency of respondents' (rows) and interviewers' (columns) preference on four policy issues. Data: SHP 2004-2008, first respondent wave.

	Opinion on EU membership			Total
	in favor	neither nor	against	
<i>in favor; freq.</i>	1651	885	1076	3612
Expected freq.	1579	895	1139	
Chi ² contribution	3.3	.1	3.5	6.9
<i>neither nor; freq.</i>	162	119	71	352
Expected freq.	154	87	111	
Chi ² contribution	.4	11.6	14.4	26.5
<i>against; freq.</i>	1628	946	1336	3910
Expected freq.	1709	968	1233	
Chi ² contribution	3.8	.5	8.6	12.9
<i>Total; freq.</i>	3441	1950	2483	7874
Chi ² contribution	7.6	12.2	26.5	46.3
Pr (Pearson chi ²) = .000, Kendall Tau-b = .045, Std.Err. = .011				
	Opinion on changes for foreigners			Total
	same chances	neither nor	Swiss better chances	
<i>same chances; freq.</i>	3916	371	983	5270
Expected freq.	3874	376	1020	
Chi ² contribution	.5	.1	1.3	1.9
<i>neither nor; freq.</i>	432	66	113	611
Expected freq.	449	44	118	
Chi ² contribution	.7	11.5	.2	12.4
<i>Swiss better chances; freq.</i>	1749	155	509	2413
Expected freq.	1774	172	467	
Chi ² contribution	.3	1.7	3.8	5.9
<i>Total; freq.</i>	6097	592	1905	8294
Chi ² contribution	1.5	13.3	5.3	20.1
Pr (Pearson chi ²) = .000, Kendall Tau-b = .022, Std.Err. = .011				

Continuation of table 1 on the following page.

Continuation of table 1.

Opinion on social expenses: is in favor of ... social expenses				
	lower	neither nor	higher	Total
<i>lower</i> ; freq.	162	675	1016	1853
Expected freq.	134	658	1062	
Chi ² contribution	6.1	.5	2.0	8.5
<i>neither nor</i> ; freq.	204	994	1584	2782
Expected freq.	200	987	1594	
Chi ² contribution	.1	.0	.1	.2
<i>higher</i> ; freq.	204	1139	1935	3278
Expected freq.	236	1163	1879	
Chi ² contribution	4.4	.5	1.7	6.6
<i>Total</i> ; freq.	570	2808	4535	7913
Chi ² contribution	10.5	1.0	3.7	15.3

Pr (Pearson chi²) = .004, Kendall Tau-b = .035, Std. Err. = .010

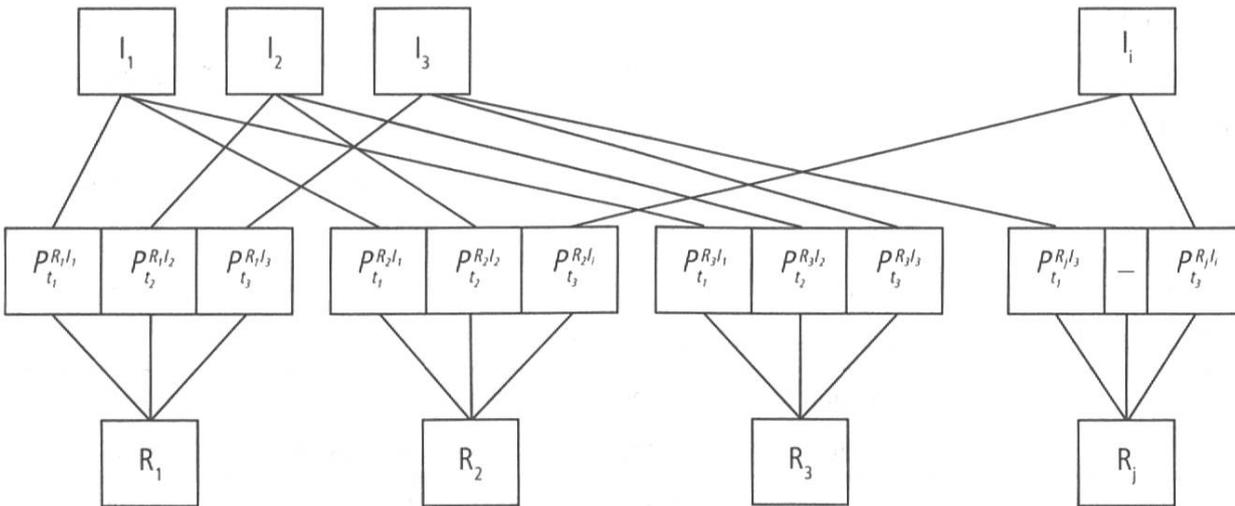
Opinion on environment vs. economic growth				
	pro environ	neither nor	pro. ec. growth	Total
<i>pro environ</i> ; freq.	1926	1589	372	3887
Expected freq.	1959	1593	335	
Chi ² contribution	.6	.0	4.1	4.7
<i>neither nor</i> ; freq.	1531	1240	175	2946
Expected freq.	1485	1207	254	
Chi ² contribution	1.4	.9	24.4	26.7
<i>pro ec. Growth</i> ; freq.	733	578	169	1480
Expected freq.	746	607	128	
Chi ² contribution	.4	1.3	13.5	15.1
<i>Total</i> ; freq.	4190	3407	716	8313
Chi ² contribution	2.2	1.3	42.1	46.6

Pr (Pearson chi²) = .000, Kendall Tau-b = -.009, Std.Err. = .010

More importantly, the *ordinal* relationships of all but the “in favor of reduction of environmental protection rather than of economic growth” issues are statistically significant (tau-b). We drop this variable from further analyses and combine the “against” and “undecided” positions of the three remaining variables to reach binary outcomes. The sign and extent of the ordinal relationships do not change vis-à-vis those of the original variables.

We analyze the respondent’s and interviewer’s attitudinal relationships for the three issues using models that can take into account the hierarchical structure of the data. The levels involved are interviewers, respondents, and time. The structure of our data requires a specific statistical model which can take into account that respondents and interviewers appear multiple times. The data structure is schematized in figure 1.

Figure 1: Data structure of the preferences in relation to interviewers and respondents in the panel study



An Interviewer I_i interviews a respondent R_j at wave 1 (t_1) who gives a preference on an issue ($P_{t_1}^{R_j I_i}$). The same respondent R_j is likely to give a preference on the same issue to another interviewer I_2 in the second wave at t_2 , resulting in a preference value of $P_{t_2}^{R_j I_2}$ and so on. The data structure is not hierarchical, but rather cross-classified (Goldstein, 1995, Fielding and Goldstein, 2006). In our example, not only do interviewers ask different respondents but also respondents are likely to be questioned by several interviewers over time (Pickery and Loosveldt, 2000, Pickery et al., 2001, Lipps, 2007). In order not to overburden the models, we do not model interviewers and respondents as cross-classified, but rather hierarchical. This is consistent with the data because only few interviewers work longer than one wave (about 20%), and the probability that a respondent is interviewed twice by the same interviewer is almost 0. The 2-level (final) models estimate the parameters in the following equation:

$$y_{ij} = \mu + \alpha X_j + \beta Z_i + \gamma (XZ)_{ij} + [\mu_j + \varepsilon_{ij}], \quad \mu_j \sim N(0, \sigma_u^2) \text{ and } \varepsilon_{ij} \sim N(0, \sigma_e^2)$$

With j the respondent, i the interviewer, y the issue considered, μ the “grand mean”, X the respondent characteristics, Z the interviewer characteristics, and XZ the interactions. The interviewer position is included in Z , time in X .

To estimate the models, we use the default setting implemented in the MLwiN software: the first order Taylor approximated MQL method. Departing from this

default caused non-convergence of many models. Due to underdispersion, we relax the assumption of a binomial distribution by allowing for an extra-distributional parameter. For each issue, we build two two-level models: Models 0 include the interviewer attitudes plus the following respondent control variables.:

- Original sample from 1999 (base: refreshment sample from 2004)
- Respondents' age (less than 30 = 1)
- Respondents' sex (male = 1)
- Respondents' education (0–11 ordinal scale)
- Respondents' political interest (0 = very low – 10 = very high)
- Respondents' interviewer assessment whether respondent understood questions in general (0 = absolutely not – 4 = completely)

In the Models 1 we add the hypothesized interviewer opinion interacted with survey year, respondent education, respondent political interest, respondent question understanding score, the interviewer socio-demographic control variables and their interactions with interviewer opinion, and respondent/interviewer matching effects sex and agegroup crossed with interviewer opinion. In the Models 1 we drop a covariate once it falls short of significance¹. Similarly, if any of the crossed effects is insignificant, we stop adding further interaction variables. However we always keep the main effects once interaction effects are in the model.

5 Modeling results²

Generally, the interviewer share of the total variance amounts to between 2.2% (“Same chances for foreigners”) and 5.5% (the other two items) in the control models.³ This can be expected from other sensitive questions in telephone studies (e.g., Hox et al., 1991, Japac, 2005, Heeb and Gmel, 2001). For the first two items (“Switzerland into EU” and “Same chances for foreigners”), we find just about significant positive effects of interviewer attitudes on respondent attitudes in the control models, for the item “Increase of social expenses” the significance of the positive effect is higher. This proves that the (binary) interviewer attitudes have effects on the (binary) respondent attitudes in the same direction, even in an appropriate model with relevant respondent characteristics controlled for. Generally, the signs and values of the respondent control covariates and the interviewer and respondent residual variances in the control models (Models 0) are as expected. We therefore discuss the effects of the interaction models only.

1 “Insignificance” means here an absolute value that is below its standard error.

2 See table 2 in the appendix for the results.

3 In logit models the variance at the lowest level can be interpreted as the area under the logistic curve ($\pi^2/3 - 3.29$) times the underdispersion factor (Snijders and Bosker, 1999).

The residual variances of the first and the third control models decreased somewhat on both the interviewer and the respondent levels, while those of the second model virtually stay the same. Interviewer socio-demography is only marginally significant. Younger interviewers produce more answers that are in favor of Switzerland to join the EU, and of same chances for foreigners. Experienced interviewers have a similar (albeit weaker) tendency with respect to joining the EU, and also a slightly positive tendency to make respondents stating to be in favor of an increase of social expenses. Concerning interviewer demography-attitude interaction effects, younger interviewers seem to produce attitudes that are different from their own's with respect to the "joining EU" question. This appears to balance out the strong (main) effect of interviewer age. Considering the interviewer-respondent interaction effects, only that of the respondent's education with the interviewer attitude is relevant, in the models for "Same chances for foreigners" and "Increase of social expenses". There is no evidence that interviewers purposely code according to their own opinion if the respondent does not understand the question well. Also time effects do not play a role.

That education is the only *respondent* characteristic that interacts with the interviewer's attitude shows that respondent attitudes reported are – if at all – biased by interviewer attitudes basically across all population groups. The sign of the interaction effect is positive. This corresponds to the social desirability theory insofar, as in telephone surveys only the better educated are able to find out about the interviewer's attitude and report a similar attitude. That interviewer work experience and interviewer attitude interaction effects tend to work in the same direction is surprising, although this effect is barely significant.

6 Conclusion

A number of elements influence the attitudes expressed in opinion polls. In this analysis we look at the influence of the interviewer's own attitudes on the attitudes of the respondent in a CATI panel survey. We find a small but significant effect of the interviewer's attitudes on the attitudes expressed by the respondents on four political questions.

We do not find that the respondent's characteristics such as political interest, how questions are understood, or whether sex or age matches with the interviewer have an influence on whether or not a respondent expresses an opinion similar to that of the interviewer. That is, the cross-level interaction effects between most respondent's social characteristics and the interviewer's attitudes are insignificant. Over time, the interviewer attitude effect remains stable.

More educated respondents however seem to find ways to find out about the interviewer's attitude in telephone surveys and express a similar opinion. Similarly,

experienced interviewers make respondents more likely to express a socially desired position. We believe that especially the finding that only educated respondents have a higher tendency to report an opinion similar to that of the interviewer deserves further research. For example, it would be interesting to explore whether this is also true for other attitudes than the political attitudes which are in the centre of this article.

Usually studies that look at the interviewer's effects focus on the effect of the interviewer's gender and race for obvious reasons: It is a very noticeable characteristic for respondents not only in face-to-face but also in telephone interviews. However we can show that other transmission channels must be important as well. We find in this study an influence of the interviewers' own political attitudes on the attitudes of respondents. Even if the interviewers are unlikely to reveal their preferences to respondents directly, there must be channels where the interviewers give hints indirectly about their own preferences and this makes respondents move their opinions in this direction. To find out more about this mechanism of how information is passed from interviewers to respondents will be important in order to reduce the interviewers' effects in future studies.

7 References

- Atkin, Charles K. and Steven H. Chaffee. 1972. Instrumental Response Strategies in Opinion Interviews. *Public Opinion Quarterly*, 36(1):69–79.
- Bishop, George F., Alfred J. Tuchfarber, and Robert W. Oldendick. 1986. Opinions on Fictitious Issues: The Pressure to Answer Survey Questions. *Public Opinion Quarterly* 50:240–50.
- Bradburn, Norman H. 1982. Question-wording Effects in Surveys. In R. Hogarth (ed.): *Question Framing and Response Consistency*. San Francisco: Jossey-Bass, 65–76.
- Callegaro, Mario, Femke DeKeulenaer, Jon A. Krosnick, and Robert P. Daves. 2003. *Interviewer Effects in a RDD Telephone Pre-Election Poll in Minneapolis 2001. An Analysis of the Effects of Interviewer Race and Gender*. Paper presented at the annual meeting of the American Association for Public Opinion Association, Fontainebleau Resort, Miami Beach.
- Cosper, Ronald. 1972. Interviewer Effect in a Survey of Drinking Practices. *The Sociological Quarterly* 13: 228–236.
- Davis, Darren. 1997. Nonrandom Measurement Error and Race of interviewer Effects among African Americans. *Public Opinion Quarterly* 61:187–207.
- Edwards W.Sherman and Marc L. Berk. 1993. Effect of interviewer and respondent characteristics on reporting of chronic conditions. In: *1993 proceedings of the American Statistical Association, Section on Survey Research Methods*. Vol 1. Alexandria, VA: American Statistical Association, 1993:330–334.
- Fielding, Antony and Goldstein, Harvey. 2006. *Cross-classified and Multiple Membership Structures in Multilevel Models: An Introduction and Review*. Research Report RR791, Department for Education and Skills, University of Birmingham.
- Fowler, Floyd J. 2002. *Survey Research Methods*. Thousand Oaks: SAGE Publications.
- Goldstein, Harvey. 1995. *Multilevel Statistical Models*. London: Edward Arnold.

- Heeb, Jean-Luc and Gerhard Gmel. 2001. Interviewers' and respondents' effects on self-reported alcohol consumption in a Swiss health survey. *Journal of Studies on Alcohol*, 62 (4):434–342.
- Hox, Joop, Edith De Leeuw and Ita Kreft. 1991. The Effect of Interviewer and Respondent Characteristics on the Quality of Survey Data: A Multilevel Model. In: Biemer, Groves, Lyberg, Mathiowetz and Sudman (eds.): *Measurement Errors in Surveys*. New York: Wiley.
- Huddy Leonie, Joshua Billig, John Bracciodieta, Lois Hoeffler, Patrick J. Moynihan, and Patricia Pugliani 1997. The Effect of Interviewer Gender on the Survey Response. *Political Behavior* 19:197–220.
- Japéc, Lilli. 2005. *Quality issues in interviewer surveys: some contributions*. PhD Thesis. Department of Statistics, Stockholm University.
- Kraut, Robert E., and John B. McConahay. 1973. How Being Interviewed Affects Voting: an Experiment. *Public Opinion Quarterly* 37:398–406.
- Krysan Maria, and Mick P. Couper. 2003. Race in the Live and Virtual Interview Racial Deference, Social Desirability, an Activation Effects in Attitude Surveys. *Social Psychology Quarterly* 66 (4):364–383.
- Lipps, Oliver. 2007. Interviewer and Respondent Survey Quality Effects in a CATI Panel. *Bulletin de Méthodologie Sociologique* 95: 5–25.
- Livert, David, Charles Kadushin, Mark Schulman and Andy Weiss. 1998. Do interviewer-respondent race effects impact the measurement of illicit substance use and related attitudes? *Public Opinion Quarterly* 62(3): 434–373.
- McCombie, Susan and John Anarfi. 2002. The Influence of Sex of Interviewer on the Result of an AIDS Survey in Ghana. *Human Organisation* 61(1):51–57.
- Mulford, H. A and D. E. Miller. 1959. Drinking in Iowa. I. Sociostructural distribution of drinkers; with a methodological model for sampling evaluation and interpretation of findings. *Quarterly Journal of Studies on Alcohol* 20 (December):704–726.
- Ongena, Yfke. 2005. *Interviewer and Respondent Interaction in Survey Interviews*. Doctoral thesis, Vrije Universiteit Amsterdam.
- Oksenberg, Lois and Charles Cannell. 1988. Effects of Interviewer vocal Characteristics on Nonresponse. In: Robert Groves et.al (eds): *Telephone Survey Methodology*. New York: Wiley
- Pickery, Jan, and Geert Loosveldt. 2000. Modeling interviewer effects in panel surveys: An application. *Survey Methodology* 26 (2):189–198.
- Pickery, Jan, Geert Loosveldt, and Ann Carton. 2001. The Effects of Interviewer and Respondent Characteristics on Response Behavior in Panel Surveys: A Multilevel Approach.. *Sociological Methods Research* 29 (4):509–23.
- Snijders, Tom and Roel Bosker. 1999. *Multilevel analysis*. Newbury Park, California: Sage
- Singer, Eleanor, Martin R. Frankel, and Marc B. Glassman. 1983. The Effect of Interviewer Characteristics and Expectations on Response. *Public Opinion Quarterly* 47:68–83.
- Stocké, Volker. 2004. *Entstehungsbedingungen von Antwortverzerrungen durch soziale Erwünschtheit. Ein Vergleich der Prognosen der Rational-Choice Theorie und des Modells der Frame-Selektion*. Sonderforschungsbereich 504, Paper 03–24. University of Mannheim.
- Sturgis, Patrick, Nick Allum and Ian Brunton-Smith. 2008. Attitudes Over Time: The Psychology of Panel Conditioning. In: *Methodology of Longitudinal Surveys*, P. Lynn (ed.). London: Wiley & Sons.
- Tverski, Amos, and Daniel Kahneman. 1981. The Framing of Decisions and the Psychology of Choice. *Science, New Series* 211(4481):453–458.

8 Appendix

Table 2 Multilevel logit models explaining respondent attitudes. Data: SHP 2004–2008. Standard errors in brackets. “–”: smaller than standard error (in absolute values) and dropped

Respondent pro Switzerland to join EU	Model 0: Control	Model 1: Interaction
I pro Switzerland to join EU	.094 (.045)	.186 (.071)
sample: 1999 vs. 2004 (= base)	.163 (.026)	.173 (.026)
R young (under 30 = 1))	–.144 (.030)	–.141 (.031)
R male	–.267 (.026)	–.272 (.026)
R education (1-11)	.112 (.005)	.114 (.005)
R political interest (0–10 = highly interested)	.065 (.005)	.066 (.005)
R understanding quest. (0–4)	.080 (.039)	.088 (.039)
Survey Year		–
Survey year * I pro ...		–
R education * I pro ...		–
R political interest * I pro ...		–
R understanding quest. (0–4) * I pro ...		–
I male		–.098 (.063)
I young		.325 (.069)
I years of work experience		.089 (.011)
I male * I pro ...		–
I young * I pro ...		–.224 (.090)
I years of work experience * I pro ...		–
I male * R male * I pro ...		–
I young * R young * I pro ...		–
Underdispersion Factor	.414 (.027)	.462 (.028)
Interviewer (residual) Variance	.208 (.024)	.158 (.019)
Respondent (residual) Variance	2.304 (.118)	2.188 (.126)
Respondent pro same chances for foreigners	Model 0: Control	Model 1: Interaction
I pro same chances for foreigners	.091 (.045)	–.066 (.068)
sample: 1999 vs. 2004 (= base)	.152 (.027)	.151 (.027)
R young (under 30 = 1))	.453 (.032)	.452 (.031)
R male	.050 (.027)	.050 (.027)
R education (1–11)	.118 (.005)	.101 (.005)
R political interest (0–10 = highly interested)	.084 (.005)	.084 (.005)
R understanding quest. (0–4)	.181 (.039)	.182 (.039)
Survey Year		–
Survey year * I pro ...		–

Continuation of table 2 on the next page.

Continuation of table 2.

Respondent pro Switzerland to join EU	Model 0: Control	Model 1: Interaction
R education * I pro023 (.010)
R political interest * I pro ...		–
R understanding quest. (0–4) * I pro ...		–
I male		–
I young		.139 (.056)
I years of work experience		–
I male * I pro ...		–
I young * I pro ...		–
I years of work experience * I pro ...		–
I male * R male * I pro ...		–
I young * R young * I pro ...		–
Underdispersion Factor	.605 (.030)	.600 (.029)
Interviewer (residual) Variance	.082 (.012)	.079 (.012)
Respondent (residual) Variance	1.806 (.141)	1.815 (.140)
Respondent pro increase of social expenses	Model 0: Control	Model 1: Interaction
I pro increase of social expenses	.208 (.042)	.142 (.058)
sample: 1999 vs. 2004 (=base)	.021 (.025)	.017 (.025)
R young (under 30 = 1))	.224 (.029)	.223 (.029)
R male	–.371 (.025)	–.371 (.025)
R education (1-11)	.016 (.004)	.008 (.006)
R political interest (0–10 = highly interested)	–.009 (.005)	–.009 (.005)
R understanding quest. (0–4)	.041 (.039)	.038 (.039)
Survey Year		.057 (.015)
Survey year * I pro ...		–
R education * I pro015 (.008)
R political interest * I pro ...		–
R understanding quest. (0–4) * I pro ...		–
I male		–
I young		–
I years of work experience		.044 (.012)
I male * I pro ...		–
I young * I pro ...		–
I years of work experience * I pro ...		–
I male * R male * I pro ...		–
I young * R young * I pro ...		–
Underdispersion Factor	.473 (.030)	.476 (.031)
Interviewer (residual) Variance	.193 (.022)	.178 (.021)
Respondent (residual) Variance	1.951 (.128)	1.933 (.130)