Using Information from Telephone Panel Surveys to Predict Reasons for Refusal

Prognose von Verweigerungsgründen in telefonischen Panelbefragungen

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Abstract

One of the key problems in conducting surveys is convincing people to participate. However, it is often difficult or impossible to determine why people refuse. Panel surveys provide information from previous waves that can offer valuable clues as to why people refuse to participate. If we are able to anticipate the reasons for refusal, then we may be able to take appropriate measures to encourage potential respondents to participate in the survey. For example, special training could be provided for interviewers on how to convince potential participants to participate.

This study examines different influences, as determined from the previous wave, on refusal reasons that were given by the respondents in the subsequent wave of the telephone Swiss Household Panel. These influences include socio-demography, social inclusion, answer quality, and interviewer assessment of question understanding and of future participation. Generally, coefficients are similar across reasons, and between-respondents effects rather than within-respondents effects are significant. While 'No interest' reasons are easier to predict, the other reasons are more situational.

Zusammenfassung

Verweigerungen sind ein Hauptproblem in Befragungen. Oft ist es jedoch schwierig oder unmöglich zu bestimmen, warum manche Leute verweigern. Panelbefragungen können helfen, Verweigerungsgründe vorherzusagen, da Informationen von Respondenten aus früheren Wellen vorliegen. Falls Eigenschaften von Verweigerern und von ihnen verwendete Verweigerungsgründe antizipiert werden können, lassen sich geeignete Maßnahmen treffen, diese Personen zur Teilnahme zu bewegen. Dazu zählt zum Beispiel ein spezielles Interviewertraining zur Teilnahmeüberzeugung potentieller Respondenten.

Wir untersuchen Effekte aus der vorherigen Welle auf spezifische Verweigerungsgründe im telefonisch erhobenen Schweizer Haushalt Panel. Zu diesen Effekten zählen Sozio-Demografie, soziale Inklusion, Antwortqualität, und Interviewereinschätzung über das Fragenverständnis und die zukünftige Teilnahme. Allgemein sind die Koeffizienten für die verschiedenen Verweigerungsgründe ähnlich, wobei eher zwischen-Personen Effekte als innerhalb-Personen Effekte signifikant sind. Während 'Kein Interesse' einfacher zu prognostizieren ist, spielen

Survey-specific issues are able to distinguish different reasons to some extent.

bei den anderen Gründen situative Gründe eine grössere Rolle. Verschiedene Verweigerungsgründe lassen sich zum Teil durch befragungsspezifische Unterschiede erklären.

1 Introduction[1]

Refusing to complete a survey is the most important reason for nonresponse, both in cross-sectional (e. g., Stoop et al. 2010) and especially in panel surveys (e. g., Lipps 2009). To prevent (final) refusal, most surveys that use random samples implement some refusal conversion (e. g. Lipps 2011) or refusal avoidance technique (e. g., Schnell/Trappmann 2006). Good experiences with the strategy of tailoring (Groves/Couper 1998; Stoop 2004), i. e., adapting the treatment of sample members according to their characteristics, attitudes towards surveys, previous survey experiences and behavior, further motivates this.

To improve adaptation strategies, using information about the reasons for refusal is generally recommended (Barnes et al. 2008). Phillips et al. (2002) note that "refusals can be for a variety of different reasons, and more information about this will enable a sensitive and appropriate response" (p. 45). As for *final* results of different reasons, it is interesting to note that people who show reluctance due to survey related reasons rather than non-survey related reasons like no time are the most difficult to convince (Phillips et al. 2002; Laurie et al. 1999). Dutwin and Herrmann (2005) report a higher refusal conversion rate following the reason 'too busy' (45 %) compared with 'no interest' (31 %). Burton et al. (2006), investigating refusal conversion success in the British Household Panel Survey, report that many reasons for refusal are situational and a further attempt at a later date might be expected to be more successful in such cases. As a consequence, Burton et al. (2006) find that a relatively high proportion of people among the temporarily absent, who were almost never at home, where no household member was contacted by the end of fieldwork, or were looking after an ill or elderly person, return to the survey. Lipps (2011) reports similar findings in the Swiss Household Panel (SHP). Nonetheless, particular reasons have not been taken into account to improve refusal conversion programs. Predicting reasons for refusal can be a promising way to anticipate and take appropriate measures to prevent them (Menold/Zuell 2010), especially to distinguish more situational from survey related reasons.

1 This work uses data from the Swiss Household Panel (SHP). The SHP data are collected within the framework of the research programme "Living in Switzerland", financed by the Swiss National Science Foundation. I wish to thank two anonymous reviewers for helpful comments.

At this point it must be noted that the willingness to participate or possible reasons for refusals in panel surveys may follow other patterns than in cross-sectional surveys. For example, panel members may be more motivated to participate in the panel survey for a certain time only. Or, different response patterns are possibly motivated by different factors. While most respondents become more and more committed, some become bored or uninterested over time or think they have done enough (Laurie et al. 1999). Watson and Wooden (2011) complain that "only rarely has any explicit consideration been given to the possibility that the magnitude of relationships between response probabilities and hypothesized predictors and correlates might vary with the type of response pattern" (p. 3). A few studies show that there may be some sort of "response continuum" in panel surveys: Lipps (2007) shows that the characteristics of respondents who drop out are similar across waves, leading to an increased bias over time. Voorpostel (2010) compares panel members who drop out and those having irregular response patterns with loyal respondents. She finds that "in many ways the respondents who had an irregular response pattern positioned themselves in between the respondents who were interviewed in every wave and those who dropped out" (p. 374). Both findings are an indicator of similar motives to drop out irrespective of the duration of panel participation. As for the distribution of reasons over time, while Barnes et al. (2008) report more broken appointments in second and later waves in the UK labor force survey, the distributions are quite similar across waves. Olson and Klein (1980) find that the distribution of reasons for wave 1 refusals does not differ substantially from the distribution of reasons for refusal after the initial interview. Data from the first and second waves (1999 and 2000) of the SHP confirm this, with the exception of no interest reasons, which are split between simple 'I am not interested' and 'I have done enough with the first wave interview' in wave two. Note that a similar distribution of reasons for refusal across waves does not necessarily mean that the amount of truth of the reasons before and after the initial interview is the same (see discussion in chapter 2 below).

The present article is organized as follows: first, we examine if there is a relationship between reasons for refusal stated and the true reasons in previous studies. To be able to accurately predict reasons for refusal we must be able to distinguish between real reasons and invented ones. Next, we review panel studies that analyze correlates with later panel refusal. In the absence of studies that distinguish *specific* reasons for refusal we use these correlates to explain specific reasons relative to cooperation. We use respondent socio-demography, social inclusion, reported survey quality, characteristics of the previous interviewer and her assessments of respondent difficulty. Next we introduce the data and the modeling approach. We then discuss the model results with regard to refusal prevention strategies.

2 Truthfulness of Reasons for Refusal

To be able to predict reasons for refusal they must not be mentioned at random but should be associated with the true reason. Many surveys implicitly assume that this is actually the case: for example, if interviewers offer to call back at a more suitable moment when respondents claimed to have no time to answer the interview (e. g., Voogt 2004; Scherpenzeel 2011). In this section we review if reasons mentioned are related to characteristics of the respondents in the literature, in cross-sectional surveys on one hand and panel surveys on the other. In face-to-face surveys, reasons (like too old) related to visible characteristics (like old age) should correlate with these characteristics (Bates et al. 2008). Lipps and Kissau (2012) show that this is the case in a telephone survey as well, where frame information like old age or foreign nationality is positively correlated with reasons like health or language problems. A priori, this is not so clear for reasons like no time or no interest. In cross-sectional surveys, there is discordance about whether survey refusers state the true reason. Olson and Klein (1980) do not find socio-demographic differences for refusal reasons. Abraham et al. (2006) report little evidence to confirm the hypothesis that busy people participate in surveys less often. Stoop (2005) finds that people who have less time are generally more likely to participate in surveys. Sztabinski et al. (2008), conducting in-depth interviews with refusers from the third round of the European Social Survey, report that people tend to refuse "flatly, without stating any reason" (p. 66). Such findings support doubts as to the truthfulness of reasons for refusal given (Rogelberg et al. 2003; Brehm 1993). Refusers may just look for an easy way to get rid of the interviewer. In addition, in case that several reasons apply, they may just name the first reason they can think of. People may also give a reason which they think will be convincing for the interviewer and/or is socially accepted. In the qualitative study from Sztabinski et al. (2008), even refusers who generally demonstrate acceptance for surveys could not identify rational arguments that led to a refusal. However, Couper (1997) finds for 'no interest' and 'too busy' reasons that

> "there appears to be systematic variation in [their] use by ... demographic characteristics .... Rather than viewing these two sets of statements as equivalent indicators of general reluctance, the use of 'not interested' and 'too busy' appears to reflect what we know about those who are not interested in politics and those who have less discretionary time available for activities such as surveys. This suggests a degree of truthfulness in these statements." (p. 325)

Given these inconclusive findings in cross-sectional surveys, the degree to which refusal reasons are true should be higher in panel surveys, since respondents are well aware that there is usually a lot of information about them known to the interviewer.[2] At the least, the respondent needs to give an argument why there should be a sudden disinterest, like 'I have enough' or 'there was no change in my life so why do I have to repeat the answers every year?' Such an argument, in turn, should be correlated with the true reason in panel surveys to a relatively high extent. In fact, based on (open ended) interviewer documentations of final reasons for refusals in the 2005 wave of the SHP, people often refer to previous experiences with the survey (e. g., no time are reasoned with a too long questionnaire, or no interest with the fact that nothing has changed in the family and that telling the same is a waste of time). Sometimes, special household circumstances are mentioned, like e. g., 'as you know my husband is very old and needs a lot of care such that I do not have the time'. Of course, there are always people who hang up immediately but these cases are rare after a certain number of panel waves. Based on this analysis, I conclude from the statements made that it is unlikely that - while the true reason is No interest - a respondent explains why she has, e. g., no time, because socially more accepted. First, the time the respondent has to invent a reason is too short and second, there is only a small incentive (stating a socially more accepted reason for refusal) to invest the cognitive effort to think about a wrong reason.

The only literature I found that helps determine the degree of truthfulness of reasons given for refusal in panel surveys is Barnes et al. (2008). The authors report that in later waves much less 'Invasion of privacy' reasons are given, as well as the reasons 'Respondent does not believe in surveys', 'Respondent is anti-government', 'Not capable', or 'Respondent dislikes survey subject matter', compared to the first wave. The reason 'Survey takes/took too long' occurs more often in later waves. All this make sense given the respondent already took part in earlier waves, and knows both content and length of the survey. Also privacy concerns (DeMajo 1980) probably do not play a major role in a later wave of a panel survey.

2 From personal communication with interviewers who conduct interviews for the SHP. These interviewers try to discuss about the reason given and – given the respondent does not hang up immediately - generally have the impression that they can figure out the true reason, even if the first reason given was different.

3 Reasons for Refusal and Causes of Panel Non-Cooperation

We distinguish the following reasons for refusal:

- An appointment has been made, without fixing a date and time ('call later'); 'broken appointment (vague)'; BAv.
- An appointment has been made, with a date and time fixed, but the appointment was broken 'broken appointment (fixed)'; BAf.
- The respondent has no time; NT.
- The respondent has no interest; NI. NI is probably less situational than the aforementioned reasons.
- The respondent has 'other reasons'; OR. Although this reason is not specified it is an important "rest" category (Dutwin/Herrmann 2005).

In the next section, we formulate expectations about correlates of specific refusal reasons. Generally, since reasons are related to the survey to a different extent, we expect that while NI reasons are easier to predict, BAv, NT, and in part BAf reasons are more situational. Unfortunately we are not able to further distinguish the category other reasons.

3.1 Broken Vague or Fixed Appointment

Not to keep a fixed appointment or never fixing a date and time but rather putting off interviewers by vague appointments can be expected from people who are either busy, or - perhaps more important - not courageous enough to give a clear-cut reason for refusal. It may be that although these persons find it too hard to argue with interviewers, they are probably not against the survey. Rather, they may be undecided. We suspect that these characteristics may be associated with little social participation and trust (Hill/Willis 2001; Uhrig 2008, Voorpostel/Lipps 2011), or language problems (Haunberger 2010). In addition, not keeping an appointment means not behaving according to norms of civic duty. Groves and Couper (1998) and Groves et al. (2000) argue that while older people are more likely to stick to such duties, younger sample members might feel less obliged to respect norms of social obligation. In addition, since contacting the same person again and again who repeatedly mention "call again" is more likely in smaller households, we suspect higher occurrence of broken appointments in small households. Since a fixed appointment is a stronger commitment than a vague appointment, we expect all effects and especially those related to social obligation stronger for BAf than BAv.

3.2 No Interest

No interest reasons are likely associated with little interest in politics (Couper 1997) and probably with a worse report quality (Pickery et al. 2001; Groves et al. 2004, De Keulenaer 2005). A bad report quality may stem from a lack of motivation and signals 'satisficing'[3] that is followed by a drop-out (Loosveldt/Carton 2001; Loosveldt et al. 2002). In addition, people who are hard to convince to participate (Spiess/Kroh 2008; Uhrig 2008; Loosveldt/Carton 1997; Loosveldt et al. 2002), or those supposed not to repeat at the next wave by interviewers (Campanelli/O'Muircheartaigh 2002) are candidates for no interest reasons at the next wave survey request. To the contrary, we expect fewer no interest reasons amongst those with higher levels of education since the higher educated are more likely to see the utility of survey participation and the links between participation and the greater good (Groves/Couper 1998). In addition lower levels of participation and trust can be expected from people who mention no interest as well as higher levels of alienation (Couper 1997; Phillips et al. 2002).

Because NI reasons are less situational than the other reasons investigated, we expect more explanation power from the significant variables in the NI model compared with the other models.

3.3 No Time

Couper (1997) reports a much smaller number of significant covariates for respondents mentioning time-related concerns. According to Couper (1997), this suggests "no association between the use of 'too busy' in the introductory conversation and political interest ... or participation" (p. 331). Also Stoop (2005) finds that "the respondents ... being too busy ... can hardly be distinguished from the reference groups in terms of the variables in the model. Being not able might be a situational reason for refusal that has probably less to do with a dislike of surveys ... and therefore might just be coincidental" (p. 208). Other authors expect people stating no time more often among employed people and those with small children (Stoop 2004). Similarly, we expect younger people to state no time reasons more often and older people less often (Couper 1997). Also socially more involved people can be expected to be busier (Stoop 2005).

We include other reasons (OR) for comparison reasons.

3 I. e., instead of "optimally answering a survey question ..., some respondents simply provide a satisfactory answer" (Krosnick 1991: 213).

4 Data

To test these expectations, we use data from the Swiss Household Panel (SHP). The SHP is designed to observe social change, in particular the dynamics of changing living conditions in Switzerland. Questions are about household composition and socio-demographics, health, well being and attitudes, politics, social networks, and economics. The SHP is a nationwide, annual centralized CATI panel survey that started in 1999 with a sample of 5,074 households, randomly drawn from the telephone register and covering the Swiss residential population. The refreshment sample, first observed in 2004, consists of about 2,538 households selected in the same way. Each year, the household reference person is asked to first complete the household roster using the grid questionnaire. Conditional of the listing of all individuals in the household, all household members 14 years old and older are required to complete their individual questionnaires. In addition, interviewers are asked about their socio-demography, interview experience, and job satisfaction.[4] We use matched data from respondents and their interviewers. Because respondents are assigned to interviewers completely at random the subsample of matched cases is not selective. In the modeling step, we will distinguish between the household (reference person, when asked to complete the household grid) and the individual respondent (when asked to complete the individual questionnaire) level. We use data from 2004 to 2010 with the respectively related dependent variable (reasons for refusal, or cooperation as reference category) measured one wave after, i. e., from 2005 to 2011. The analysis sample amounts to 10,261 respondents each surveyed 3.3 times on average including cooperation and first reason for refusal if any, by a total of 312 interviewers. The distribution of the first reasons for refusal is given in Table 1.[5]

As for the results of possible refusal conversion attempts following these reasons for refusal, Lipps (2011) shows that on the household level, the chances of a successful refusal conversion after a broken appointment is 55 % higher relative to the chances of a successful refusal conversion after another reason for refusal (odds ratio). This shows that on the household level, refusal conversion attempts especially pay off after a broken appointment. To the contrary, on the individual level, the odds of a successful refusal conversion after a no interest reason are 74 % lower compared with the odds of a successful refusal conversion after another reason for refusal.

4 The interviewer variables of the SHP are collected from interviewers by means of a paper and pencil questionnaire and are available for about 75 % of all interviews.

5 We exclude age, health or family related reasons.

Table 1 First Reasons for Refusal

	Frequency (Occurrence)	Percent (Occurrence)
Broken vague Appointment (BAv)	311	12.2
Broken fixed Appointment (BAf)	393	15.5
No Interest (NI)	1012	39.8
No Time (NT)	279	11.0
Other Reasons (OR)	547	21.5
All Reasons	2542	100.0

Data: SHP 2005-2011

5 Modeling Approach and Independent Variables

In the models, we separately compare each of the refusal reasons BAv, BAf, NI, NT, and OR with cooperation. Since the interviewer of the previous wave may have effects on the reasons (Pickery et al. 2001), we consider her basic characteristics (and ID). Because respondents and previous interviewers are clustered in a non-hierarchical way, we use multilevel cross-classified models (Fielding/Goldstein 2006). Specifically, we model:

$$\text{logit } y_{(ij)t} = \mu + \beta x_{(ij)t} + [\mu_i + \nu_j], \qquad \nu_j \sim N(0,\sigma_\nu^2),\ \mu_i \sim N(0,3.29)$$

where logit $y_{(ij)t}$ denotes the logarithmic probability to mention the reason for refusal considered rather than cooperation (log odds) by the (crossed) i-th respondent to the j-th interviewer at wave t, $x_{(ij)t}$ the respective covariates, μ the grand mean, μ_i the mean of random departure due to respondent i, and ν_j the mean of random departure due to interviewer j. We assume the usual zero covariance between x and μ_i, and x and ν_j. Note that there is no continuously distributed lowest level random residual. Variation on this level is binomially distributed as $y_{(ij)t}(1-y_{(ij)t})$ and is a function of the probability $y_{(ij)t}$. The variance on the lowest level is not estimable but can be fixed to the surface under the logit curve ($=\pi^2/3 \sim 3.29$; see Snijders and Bosker (1999)). We control for the wave in order to capture time effects.

To check if multilevel models need to be used, we start with variance components models ("null model") which include only the intercept and random effects. We find substantive interviewer random effects in all but the NT model such that we keep the interviewer level. Next, we add the following independent variables,

known to be effective on attrition in the SHP (Lipps 2007; Voorpostel 2010). We list the basic descriptive statistic (most often the mean):

1. Previous wave survey specific and socio-demographic control variables:
   - whether the respondent is a household reference person (i. e., household or individual level): (mean=63 %)
   - survey wave [0..10]: (median=6)
   - respondent male: (mean=44 %)
   - whether the respondent owns the house/apartment she is living in: (mean=55 %)
   - whether the respondent has a partner present in the household: (mean=64 %)
   - whether the respondent has a foreign nationality from one of the neighboring countries: (mean=6 %)
   - whether the respondent has a foreign nationality from a country other than one of the neighboring countries: (mean=4 %)
   - whether a child under the age of 7 years is present in the household: (mean=12 %)
   - respondent education [continuous variable 0..10]: (mean=5.1)
   - respondent age group [14-25 years (18 %), 26-34 years (12 %), 35-64 years (57 %) (=reference), 65+ years (13 %)]
   - whether the respondent is working: (mean=69 %)
   - household size (1,2,3+=3; mean=2.34)

2. Previous wave social inclusion:
   - whether the respondent is active in voluntary work in a club or group: (mean=53 %)
   - trust in other people [0=absolutely no .. 10=complete]: (mean=6.1)
   - political interest [0=absolutely no .. 10=complete]: (mean=5.7)

3. Previous wave answer quality:[6]
   - proportion of midscale answers on subjective 11 categories questions: (mean=15 %)
   - proportion of extreme answers on subjective 11 categories questions: (mean=20 %)
   - proportion of item-nonresponse on subjective 11 categories questions: (mean=.6 %)

6 These measures are indirect indicators of measurement errors and could therefore have a relationship with variables from the other blocks. However these indicators only use subjective questions most of which are not included in the other variable blocks. The only variable used in another block which is affected by item-nonresponse to a minor extent is political interest.

4. Previous wave interviewer assessment of respondent understanding and willingness to continue:[7]
   - whether the respondent understands questions well [0=no .. 2=absolutely]: (mean=1.91)
   - whether the respondent is difficult to be convinced to participate [1=no .. 3=absolutely] : (mean=1.05)
   - whether the respondent will repeat in next wave [0=no .. 3=absolutely]: (mean=2.73)

5. Previous wave interviewer:
   - experience as interviewer for survey agency [years] (mean=2.3)
   - interviewer male (mean=.32)
   - interviewer age [years] (mean=32)
   - interviewer-respondent sex match (Lipps 2010) (mean=52 %)
   - interviewer young (<30 years) and respondent young (Lipps 2010) (<35 years) (mean=18 %)

For most variables, we model both between-respondents (respondent specific means) and within-respondents (within-respondent de-meaned variables) effects (Brüderl 2010). If variables do not or hardly vary within respondents (sex, age, education level, nationality, club membership and home ownership), we only estimate between-respondent effects. Where we expect an effect from changes (wave, likelihood to move, trust) we only estimate within-respondent effects. The rationale to consider both between-respondents and within-respondent effects is the following: while the within-respondent indicators capture *causal* effects of the respondent's changed characteristics, the between-respondents indicators measure effects between different respondents.[8] Generally, we expect fewer effects from within-respondent variables (Voorpostel/Lipps 2011). Interviewer variables are modeled as between-respondents effects.

7 Since the interviewer assessment values could be a consequence of the same underlying process that leads to non-participation, rather than a cause, one could conjecture an association between these variables and the survey wave. As it stands, the wave correlates positively with the respondent's likelihood of repeating the survey, and negatively with the respondent's difficulty, and these measures correlate with the different reasons for refusal in the expected way. Nevertheless, the correlation coefficients of these latter relationships vary greatly between different reasons for refusal, from a small .004 (respondent understanding and NT) to a high value of .073 (respondent difficulty and NI).

8 The latter may suffer from unobserved heterogeneity, see Brüderl (2010).

6 Results

The results of the models are depicted in Table 2. First, we note that there are different interviewer variances across the different reason for refusal models, both for the null and the full models. The BAv, NI, and OR null models contain comparatively high interviewer variances. This indicates that some of the previous interviewers are better able than others at motivating people not to use these reasons in the next wave. The interviewer variances decrease in all models after inclusion of the independent variables to an almost zero level. This shows that if the previous interviewer has an effect on reasons mentioned in the next wave, this is mostly the case for modeled characteristics only. In the BAf model however, although the interviewer random effects are small in the null model, they remain the highest after inclusion of the independent variables. This means that previous wave interviewers are similarly effective, irrespective of the (identifiable) respondent characteristics. The previous interviewer has no effects on NT reasons. This may be a first indication of a situational reason.

Next we note that the Bayesian DIC difference between the null and the full models is much stronger in the NI model. This indicates that the people likely to choose a NI reason are easier to identify based on the variables included in the model. Probably NI reasons are less situational than other reasons for refusal.

Finally, with the exception of the questionnaire level (household/grid or individual) and the survey wave, few within-respondent effects are significant. It is thus between-respondent differences rather than within-respondent changed characteristics, attitudes or behavior, which are responsible for the reasons for refusal and which possibly distinguish the use of different reasons. It could be the case that seven years (2004-2010) is too short to capture enough within-respondent variation.

Based on the significant (5 % and especially the 1 ‰ level) regression coefficients, we characterize people that are more likely to use one of the reasons for refusal, and compare these with our expectations. Generally, if significant, the coefficients have the expected sign, although it is sometimes difficult to distinguish people using different reasons for refusal. Although the coefficients are similar across reasons, our expectations are met at least in parts.

Table 2 Logits Cross-Classified Models

Specific Reason given vs. Cooperation	Coeff.	BAv	BAf	NI	NT	OR
Wave	W	0.14	**0.30**	**-0.09**	**-0.20**	
Person is Household Reference Person	W	-0.83	0.57			-0.58
Household Size	W	0.65				
Respondent has partner living in the same Household	W					
Child under 7 years in household	W	**-1.53**				-0.85
Respondent working	W					
Respondent is interested in politics [0=no .. 10=yes]	W					
Proportion of midscale answers on subjective questions	W					
Proportion of extreme answers on subjective questions	W					
Proportion of item-nonresponse on subjective Questions	W	-8.26		3.93		
Respondent difficult to convince to participate [1..3]	W					0.56
Respondent will repeat in next wave [0..3]	W					
Likelihood to move next 12 mnth [0=low .. 10=high]	W					
Respondent has trust in people [0=no .. 10=yes]	W					
Person is Household Reference Person	B	**-1.19**	**0.57**	**-0.39**	**-0.70**	**-0.56**
Household Size=2 (base=1)	B	**-1.15**		0.41		
Household Size=3+ (base=1)	B	**-1.17**	-0.65	0.39		
Respondent has partner living in the same Household	B	0.52				
Child under 7 years in household	B					-.41
Respondent working	B	0.36	0.46	0.28	**0.92**	
Respondent is interested in politics [0=no .. 10=yes]	B			**-0.06**		-0.05
Proportion of midscale answers on subjective questions	B	1.58	2.07	1.24	2.30	1.46
Proportion of extreme answers on subjective questions	B	1.03	1.10	.67	1.35	1.22
Proportion of item-nonresponse on subjective Questions	B					
Respondent understands Questions [0..2]	B			**0.43**		
Respondent difficult to convince to participate [1..3]	B			**1.16**		0.68
Respondent will repeat in next wave [0..3]	B			**-0.46**	-0.73	-0.83
Respondent Education [0low..10high]	B			**-0.07**		
Respondent Active in a Club or Group	B		-0.28	-0.23		
Respondent is owner of house	B	-0.35				
Respondent male	B		**0.52**			
Respondent Age (in 2004) 14-25	B	**1.18**	0.63	0.35		
Respondent Age (in 2004) 26-34	B	0.52	0.48			
Respondent Age (in 2004) 65+	B		**-1.13**		-1.66	
Resp. has foreign nationality of a neighboring country	B					
Respondent has foreign nationality of another country	B		0.43			
Interviewer male	I			**0.42**	0.33	
Interviewer age	I	0.01				**0.01**
Interviewer experience [years]	I					
Interviewer male and Respondent male	I-R					
Interviewer young (<30) and Respondent young (<35)	I-R			-0.33		
Bayesian DIC [1)]		2974	3562	7440	2748	4807
Bayesian DIC (Null (intercept only) model)		3455	4211	8841	3183	5437
Random Effects: Interviewer Variance		0.00	0.11	0.11	0.00	0.02 (ns)
Random Effects: Interviewer Variance (Null model)		0.44	0.18	0.33	0.11 (ns)	0.41
N (Observations)		31579	31661	32280	31547	31815

BAv= broken vague appointment, BAf=broken fixed appointment, NI=No Interest, NT=No Time, OR=Other Reasons. Coefficients: W: within-respondent estimator, B: between-respondent estimator, I Interviewer, I-R Interviewer-Respondent Interaction. All listed coefficients |z|>1.96 (5 % level) (1 ‰ level with |z|>3.09 in bold). Models controlled for year dummies and intercept. Data SHP 2004-2010.

1) The Bayesian Deviance Information Criterion (DIC) is an MCMC penalised goodness of fit measure and is equivalent to the Akaike Information Criterion (AIC) used in maximum likelihood estimation.

Broken Vague Appointment (BAv)

As it turns out, BAv reasons occur less often on the household than on the individual level, both within and between persons. This means, for both people who become reference person and those who are the usual household reference person, this reason is hardly used on the household but rather on the individual level. Young renters in small households without young children but with a (possibly new) partner, who satisfice to a certain extent, use BAv more often.

Broken Fixed Appointment (BAf)

BAf reasons are more likely mentioned at later waves and more often on the household level, both between and within individuals. Such people tend to be men, of young to middle age, living in rather small households, working, have a foreign nationality of another than one of the neighboring countries, not being members of a group or club, and satisficing to a certain extent. It is possible that many people using BAf are stressed out by the additional task to become household reference person. Maybe they are not willing to argue with the interviewer contacting the household, but rather agree to fix an appointment, and break it in a follow-up contact.

No Interest (NI)

'No interest' reasons are stated at rather earlier waves, at the individual level, by politically uninterested people in larger households with a low educational level, satisficers, and not active participators in a club or group. These people understand the questions well, but can easily be identified as potential next wave refusers. Interestingly, the previous interviewer tends to be male.

No Time (NT)

People stating 'no time' reasons do this preferably at early waves. These people tend not to be household reference person, are younger than 65 years old and working. In addition, they can be identified as potential refusers. Again, the previous interviewer tends to be a man.

Other Reasons (OR)

Other reasons are mentioned on the individual level, by people comparatively easily identified as potential refusers.

7 Summary and Conclusion

In this article we analyze if reasons for refusal given for noncooperation in a telephone panel survey can be predicted from prior respondent information. Although interviewers use lists with arguments even today, it might be easier if reasons of potential candidates can be anticipated and interviewers be better prepared (Dillman 2000). The reasons include broken vague appointment (appointments where a time was never fixed but a 'call later' was agreed; BAv), broken fixed appointment (a time was fixed for an interview but the appointment was broken; BAf), no interest (NI), no time (NT), and other reasons (OR). We first discuss if reasons given for refusals are valid and conclude that this should be the case at least in panel surveys. Next we review the literature for correlates with non-cooperation and try to associate the correlates that might have been the cause for our specific reasons. Correlates stem from the wave preceding the refusal (if this occurs at all) and cover respondents' socio-demography, social inclusion, motivation and response quality, interviewer assessment of the interview atmosphere and future cooperation, and the interviewer. We model the reasons given using data from the 2004-2010 waves of the centralized CATI Swiss Household Panel (SHP) against cooperation. We use cross-classified multilevel models that take into account that respondents and interviewers are crossed in a non-hierarchical way. We model both within-respondent and between-respondent effects. The aim is to identify effects of both within-respondent changes and between-respondents differences as predictors of specific reasons for refusal, compared to cooperation.

The main findings with respect to a better adaptation to candidates likely to use a specific reason are the following:

1. Generally between-respondents effects are more predictive of refusals than within- respondents effects. This supports the hypothesis that – if at all – in addition to situational factors, fixed characteristics determine the use of specific reasons for refusal.[9]
2. Significant respondent characteristics (household size, sex, age, education, working status, satisficing behavior) of the refusers are similar across specific reasons. An exception is the household size. Generally, it is rather the survey status (wave, being household reference person or not) that distinguishes the use of different reasons.
3. Reasons other than NI are more difficult to predict from information of previous waves and are thus are more situational. In addition to prepare well for

9 Another point could be that within-respondents variances are too small over seven years.

these situational reasons it might be a good idea to optimize calling times especially for respondents likely to state a non-NI reason, both with respect to making contact and to choosing a time which does not annoy people (Lipps 2012).

4. The fact that BAf occurs more often at the household level should be taken seriously, because a total household drop-out is more severe than a partial household drop-out. In addition, information from the household grid contains details on household composition and basic changes, which is important for sample weighting. Because of the higher importance of the household level, more effort should be invested at the start of the fieldwork.
5. As NT reasons tend to occur at earlier waves, special care should be taken to have good arguments ready for this reason once people are asked for the first time.
6. The fact that the previous wave interviewer plays a role is interesting. In particular, that the interviewer in the wave preceding an NT and especially an NI refusal tend to be male deserves further research.

Limitations of this study are first the measurement of the reasons for refusal. The categories are somewhat rough and the coding is at the discretion of the interviewer. However Menold and Zuell (2010) report a sufficiently high intercoder-reliability when a suitable categorisation scheme is used. Nevertheless, more general models could be used in the case of mismeasured reasons for refusal (Hausman 2001). Second, we associated *specific* reason with correlates for non-cooperation in general reported in the literature. People using these reasons are to some extent similar when compared with cooperating respondents. More work needs to be done to find causes that are able to better discriminate between the specific reasons and to ground them on a more thorough theory. Third, the empirical part is based on only one survey which seems problematic for generalization. In particular it is questionable whether the findings hold for surveys that do not use the telephone survey mode, for instance face-to-face. Fourth, what is of course still lacking is a test if our recommendations are effective.

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