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# The Effect of Interviewer and Respondent Characteristics on Refusals in a Panel Survey

GEERT LOOSVELDT, ANN CARTON AND JAN PICKERY

***Abstract:** In this paper data from an election panel survey are used. The results make clear that respondents who are more interested in politics are more likely to take part in the second interview of an election panel survey and that the initial contact for the second interview is extremely important for the group of poorly educated women. To evaluate the effect of the interviewer a multi level analysis was done. The results of this analysis show that the effect of the interviewers used in '91 on the refusals realized in '95 is more significant than the effect of the interviewers used in '95. This remarkable result stresses the importance of the experience of the first interview. Several interviewer characteristics were used to model the differences between the interviewers. Only the number of interviews done by an interviewer has a significant effect: more interviews result in more refusals.*

***Keywords:** interviewer characteristics, respondent characteristics, election panel survey*

## 1 Introduction

Among others, refusals are an important component of nonresponse. A refusal is an active act of the respondent and can be considered as a crucial aspect of respondent behavior. There are several models to explain that kind of respondent behavior (Goyder 1987, Brehm 1993, Groves et al. 1992, Couper and Groves 1992, Morton-Williams 1993, Hox et al. 1996, Campanelli and Sturgis 1997). In these models respondent characteristics such as the "classic" respondent's background characteristics (age, gender, and education) and the respondent's attitude towards an interview are important components. Also interviewer characteristics (socio-demographics, experience, ...) are part of these models. The models make clear that, although the decision to participate or not is made by the respondent, also the interviewers have an important impact on that decision.

It is generally accepted that some interviewers are better at obtaining cooperation than others. Recently the role of the interviewer during the initial contact and the importance of the initial interaction between respondents and interviewers as an intervening variable

preceding the response decision is stressed (Campanelli and Sturgis 1997, Couper 1997, Maynard and Schaeffer 1997).

In the context of a panel research there is more than the interaction during the initial contact for the current interview. There is also the interviewer-respondent interaction during past interviews of the panel. An important general research question is: What is the effect of the respondent's experience with the interviews during previous waves of a panel on his or her decision to cooperate again. In accordance with the general models for nonresponse some respondent characteristics as well as some interviewer characteristics are used to answer that question.

## 2 Data

Data from the Belgian general election study are used. Only the interviews conducted in the Flemish region of Belgium are analyzed. Immediately after the national elections of November 1991, the Inter-university Centre for Political Opinion Research (ISPO, K.U.Leuven - Belgium) conducted the first wave of the election study in Flanders. The sample is representative of the Flemish population aged 18-75 years old. The second wave took place after the national elections of May 1995. During the second wave, 2580 respondents were used on the panel. The (non)response rate for the second wave is presented in Table 1.

**Table 1: (Non)response rate for the second wave**

	%
Completed Interview	68.3
Refusal	22.0
Non contacted	2.9
Ineligible	4.6
Other non-interview	2.2
<b>n</b>	<b>2580</b>

More than one-fifth (22%) of the panel respondents refused to participate a second time. It is clear that "refusal" is the most important reason (69.5% of the nonresponse) for the nonresponse in the second wave of this panel.

During the second wave 165 interviewers were used. 55 of them cooperated also during the first wave of the election panel. Only a small part of the panelrespondents were interviewed twice by the same interviewer.

### **3 The effect of respondent characteristics on refusals**

#### **3.1 The respondent's ability**

An important respondent characteristic in a panel research is the **respondent's experience with the interview during the first wave**. His or her experience can be negative or positive and the general idea is that a negative experience with survey research evokes respondent resistance and increases nonresponse (DeMaio 1980, Nederhof 1987, Brehm 1993). We assume that an interview situation is an unpleasant or a negative experience when respondents have not enough cognitive and communicative abilities to execute the respondent's role adequately. For these respondents the tasks and the questions during the interview are too difficult. They experience a lot of difficulties in performing their role and on the basis of this kind of negative experience they are not motivated to participate in a second wave. We expect that refusers in a second wave of a panel are overrepresented in the group of respondents with insufficient abilities.

To measure **the respondent's ability** to perform their task we use three indicators. Two of these indicators are related to the respondent's behavior during the interview of the first wave namely the use of the "don't know" response category (18 questions) and the number of inconsistent answers (three pairs of statements). The third indicator is the interviewer's evaluation of the respondent's ability to answer the questions (a 6-point scale: very high to totally inadequate). The percentage of refusals in the second wave increases with the number of DK answers used during the interview of the first wave. The percentage of refusals is significantly higher if there is at least one inconsistent answer. We find the highest percentage of refusals for the category of respondents with - according to the interviewers - the lowest ability.

**Table 2: Percentages of refusals by number of DK answers, inconsistent answers and ability to answer (bivariate associations)**

Indicator	% Refusals	n
<b>Number of DK answers</b>		
0 - 2	21.4	1313
3 - 11	26.5	698
12 - 18	32.5	319
$\chi^2 = 18.0, df= 2, p= 0.001$		
<b>Inconsistent answers</b>		
none	23.1	1976
at least one	31.4	354
$\chi^2 = 11.0, df= 1, p= 0.001$		
<b>Ability to answer</b>		
(very) high	18.9	972
adequate	27.8	916
(very) poor tot. inadeq.	29.9	425
$\chi^2 = 28.5, df= 2, p= 0.001$		

In order to combine these three indicators into a typology of respondent's ability we performed a latent class analysis. It was possible to fit a latent class model with one latent variable with three classes (Table 3). In fact, we can consider these classes as a typology of the respondent's ability to answer the questions.

**Table 3: Latent class analysis: latent class and conditional latent class probabilities**

Type		Interviewer's evaluation of the respondent's ability			Use of DK			Inconsistent answers	
		high	adeq.	inadeq.	0 - 2	3 - 11	12 - 18	0	1+
1	.41	.81	.19	.00	.76	.24	.00	.90	.10
2	.48	.15	.65	.20	.45	.37	.18	.82	.18
3	.11	.00	.05	.95	.18	.25	.58	.84	.16
Chi-square= 2.36, df=3, p=0.5									

The first type contains respondents (41%) with enough cognitive skills to perform their task. The ability of everyone of this type is adequate or more than adequate. Most respondents of this type do not give inconsistent answers and the use of the DK answers is limited. Respondents of the second type (48%) have more problems. Their ability is lower, they give both more "DK answers" and inconsistent answers. Respondents of the third type (11%) experience a lot of problems during the interview. The ability of nearly all the respondents of this type is "poor" or less than "poor". They also have a high frequency of both "DK answers" and inconsistent answers. For these respondents the interview must be a rather unpleasant and negative experience. It certainly does not create a desire to participate a second time.

Given the description of the types, one can order the types from type 1 to type 3 according to their ability to perform their role as a respondent. As expected, there is an increase in the percentage of refusals over the three types.

**Table 4: Percentage of refusals by respondent's ability to answer the questions**

	Typology		
	Type 1	Type 2	Type 3
% refusals	19.0	27.7	31.8
n	942	1192	179
$\chi^2 = 27.168, df = 2, p = 0.001$			

The results support the basic idea that if respondents experience difficulties in fulfilling their role during the first interview because they do not have sufficient skills and abilities to perform their task, this will result in a non-participation for the second interview.

### 3.2 Political interest

The respondent's **level of interest in and knowledge of the topic of the questionnaire** is related to the respondent's ability to perform his or her task. If the respondents are interested in the topic of the questionnaire and they know a lot about it, then they do not experience much difficulty in performing their task. In the context of an election study knowledge and interest mean political knowledge and interest in political affairs. We expect the highest refusal rate for the respondents with the lowest political interest.

We used several indicators to measure political interest: a question about reading political news in the newspapers, one about discussing social and political issues among friends and a question about the respondent's evaluation of the complexity of politics (5-point scale were used): (almost) always to never). Table 5 shows that the less respondents read and discuss about the political news, the more they refuse the second interview of the panel. The relationship with reading political news in the newspaper is rather weak. We also see that the percentage of refusals is higher for respondents who (completely) agree with the statement that "politics are too complicated for people like me".

**Table 5: Percentage refusals by reading political news in newspapers, discussing with friends and evaluation of the complexity of politics (bivariate associations)**

Indicator	% Refusals	n
<b>Reading newspapers</b>		
(almost) always, often	21.1	579
now and then	24.1	523
seldom, never	26.1	1226
$\chi^2 = 5.2, df = 2, p = 0.07$		
<b>Discussing</b>		
(almost) always, often	21.5	452
now and then	21.4	916
seldom, never	28.5	960
$\chi^2 = 15.5, df = 2, p = 0.001$		
<b>Complexity of politics</b>		
(completely) agree	27.0	1236
neither agree nor disagree	22.9	468
(completely) disagree	20.1	617
$\chi^2 = 11.4, df = 2, p = 0.003$		

With the three indicators in Table 5 it was possible to construct a (rather) reliable scale (Cronbach coefficient Alpha = 0.66). On the basis of the first and the third quartile of this scale we distinguish three groups: high (below first quartile), moderate (between first and third quartile) and low (above third quartile) political interest. This more general measure of interest is strongly related to the percentage of refusals. Nearly one-fifth of the

respondents with high political interest and knowledge refuse a second interview; for respondents with low knowledge and interest we find that 29% refuse.

**Table 6: Percentage refusals by respondent's political interest**

	Political interest		
	low	moderate	high
% refusals	28.7	25.2	18.7
n	571	1165	594
$\chi^2 = 16.66, df= 2, p= 0.001$			

The results are consistent with the expectation that respondents who are more interested in politics are more likely to take part in the second interview of an election panel survey.

### 3.3 Respondents' background characteristics

Respondents' background characteristics such as age, gender, education, occupational status, and place of residence are part of most models for nonresponse. A lot of these characteristics are indeed related to panel nonresponse (Kalton, Lepkowski, Montanari and Maligalig 1990, Rizzo et al. 1996). To make a selection, we performed a logistic regression analysis with only a small number of the most usual and relevant background characteristics as independent variables: education, age, gender, and occupational status. Table 7 presents the Wald ( $\chi^2$ ) statistics for each characteristic.

**Table 7: Logistic regression with age, education, gender, and occupational status as independent variables**

variable	df	chi-square	prob
Constant	1	308.10	0.000
Education	2	5.96	0.051
Age	2	2.17	0.338
Gender	1	7.54	0.006
Occupational status	2	5.60	0.061
Likelihood ratio= 43.03, df=44, p= 0.51			



There is a significant effect of gender. The effect of age is not significant. The effects of education and occupational status are comparable. However, education fits better with the emphasis on the respondent's ability to perform his or her task. For that reason, we decided to drop occupational status and to select education and gender as background characteristics. To describe the effect of these variables we use table 8. The refusal rate is higher for women than for men, and low educated respondents refuse more than high educated respondents. It is clear that the initial contact for the interview of the second wave is extremely important for the group of low educated women.

**Table 8: Percentages refusals by gender and education**

gender	men			women		
education	low	medium	high	low	medium	high
% refusals	24.4	23.3	13.3	30.4	23.1	22.7
n	631	266	269	634	277	233

### 3.4 Simultaneous analysis of the effect of the respondent's ability, political interest, and background characteristics

We have seen that the respondent's ability, political interest, gender, and education have an effect on the respondent's decision to participate in the second interview of a panel survey. However, these characteristics are interdependent. Gender and education for example are also strongly related to the respondent's ability (Gender:  $\chi^2 = 82.3$ ,  $df=2$ ,  $p=0.001$ ; Education:  $\chi^2 = 616.9$ ,  $df=4$ ,  $p=0.001$ ) and to political knowledge and interest (Gender:  $\chi^2 = 152.3$ ,  $df=2$ ,  $p=0.001$ ; Education:  $\chi^2 = 343.6$ ,  $df=4$ ,  $p=0.001$ ). Therefore it is necessary to evaluate the partial effects of these variables. The results of a logistic regression analysis show that controlling for education, gender, and type the effect of political interest is not significant.

**Table 9: Logistic regression with education, gender, political interest, and respondent's ability**

variable	df	chi-square	prob
Constant	1	234.27	0.000
Education	2	5.20	0.074
Gender	1	4.19	0.041
interest	2	2.00	0.367
ability	2	6.82	0.033
Likelihood ratio= 47.59 , df=41, p= 0.22			

#### 4 The effect of interviewer characteristics on refusals

Until now, we have related respondent characteristics measured during the interview of the first wave of the panel to the decision to participate or not with the interview of the second wave. The analysis becomes more complex when interviewer characteristics are introduced in the analysis. There is the interviewer of the first wave (first-interviewer) and the interviewer of the second wave (second-interviewer). A panel respondent is not necessarily interviewed twice by the same interviewer. Most of the time the respondent is confronted with two different interviewers. Only 22,5 % of the panel respondents were interviewed by the same interviewer. Whether the respondent was interviewed by the same interviewer or not is a respondent characteristic. We expect that using the same interviewer will increase the refusal rate when the first interview was a negative experience (respondent type 3) and will decrease the refusal rate when the interview was a positive experience (respondent type 1). Table 10 shows indeed the highest percentage of refusals in the combination of respondent type 3 and the same interviewer. However, the same interviewer with respondent type 1 does not result in the lowest refusal rate. Controlling for type of respondent, using the same interviewer results in a higher refusal rate. As a consequence, the advice in a panel survey about politics is not to ascribe the same respondent to the same interviewer. This advice is contrary to the idea that it is necessary to have the same interviewers return to the same respondent in order to maintain good response rates in longitudinal surveys (Campanelli and Sturgis 1997, pp. 2-9).

**Table 10: Percentages refusals by the same interviewer or not and type of respondent**

interviewer	the same			not the same		
respondent	type 1	type 2	type 3	type 1	type 2	type 3
% refusals	24.4	28.6	41.5	17.5	26.6	28.2
n	230	238	41	692	924	135

The interviewer of the first wave (first-interviewer) plays an important role in how the respondent experiences the first interview. The interviewer of the second wave (second-interviewer) is the one who must convince the respondent to cooperate again. We expect a first-interviewer effect as well as a second-interviewer effect on the decision to cooperate or not a second time. To analyse these interviewer effects we did a multilevel analysis with the result of the respondent's decision as dependent variable (0= refusal, 1= response). In a first analysis the interviewers of '91 were used to specify the second level in the analysis. Furthermore, no independent variables were used (model A). In this model the variance of the dependent variable (refusal or not) is divided into a respondent part (level 1) and an interviewer part (level 2). In a second analysis the same was done with the interviewers of '95 (model B). Both analysis show a significant interviewer effect. At the random part we see that the variance of the constant differs significantly from zero. This means that the differences in refusal rate between the interviewers are significant. The effect of the interviewers used in '91 on the refusals realized in '95 is more significant than the effect of the interviewers used in '95. This remarkable result stresses the importance of the experience of the first interview. However, to evaluate these interviewer effects, it is important to control for relevant respondent characteristics. In Model C and Model D these characteristics are incorporated in the analysis: two dummy variables for type of respondent (type1: 1= a respondent of type 1, 0 = not a respondent of type 1; type 3: 1 = a respondent of type 3, 0 = not a respondent of type 3), gender of the respondent (gender: 1= man, 0= women), same interviewer or not (same: 1= not the same, 0= the same) and two dummies for education (educ1: 1= low, 0= not low; educ3: 1= high, 0= not high). In both models the interviewer effects remain significant after controlling for these respondent characteristics. To evaluate the effect of these characteristics the parameters in the fixed part are used. These parameters can be interpreted as logistic regression coefficients. Although in the model C only the dummy variable type1 is significant at level .05, the same pattern is found in model C and model D. The response increases in type 1, for male respondents and when the second interview is done by another interviewer. There is no significant effect of education.

**Table 11A: Results of some multilevel analysis (standard error between brackets)**

Parameter	model A	model B	model C	model D
<b>Fixed</b>				
constant	1.211 (0.063)**	1.195 (0.059)**	0.802 (0.169)**	0.792 (0.164)**
type1			0.383 (0.126)**	0.323 (0.124)**
type3			-0.160 (0.185)	-0.137 (0.183)
same			0.255 (0.137)*	0.273 (0.132)**
gender			0.202 (0.105)*	0.231 (0.104)**
educ1			-0.101 (0.132)	-0.132 (0.131)
educ3			0.223 (0.169)	0.232 (0.165)
<b>Random</b>				
<b>Interviewer level</b>				
$\sigma^2_{\text{constant}}$	0.195 (0.067)**	0.141 (0.059)**	0.191 (0.067)**	0.126 (0.058)**

\* p &lt; 0.1

\*\* p &lt; 0.05

Another important question is whether some interviewer characteristics can be used to model the differences between the interviewers. Relevant interviewer characteristics are : gender of the interviewer (genderint: 1= men, 0= women); experience (experint: 0= low, 1= high); political knowledge (polknowint: 0= low, 1= high); political interest (polinint: 0= low, 1= high); number of interviews done by the interviewer (numint) and new interviewer in the election survey (newint 0= no, 1= yes). In model E the interviewers of '95 are used as second level and all these interviewer characteristics are added to the significant respondent characteristics of model D. Of these interviewer characteristics, only the number of interviews done by an interviewer has a significant effect: more interviews result in more refusals. Even the general interviewer effect is no longer significant. This can be explained by the fact that part of the interviewer variance is taken into account by the not significant effects of the interviewer characteristics. In this model the effect of the respondent characteristic 'Same' is also not significant. This is due to the high correlation with some of the interviewer characteristics.

In model F, all the characteristics are included with a significant effect in the previous analysis.

**Table 11B: Results of some multilevel analysis (standard error between brackets)**

Parameter	model E	model F
<b>Fixed</b>		
constant	0.669 (0.232)**	0.98 (0.194)**
typel	0.483 (0.109)**	0.476 (0.109)**
same	0.219 (0.185)	0.295 (0.130)**
gender	0.219 (0.103)**	0.224 (0.103)**
genderint	0.056 (0.121)	
experint	0.186 (0.117)	
polknowint	0.206 (0.168)	
polintint	0.083 (0.133)	
numint	-0.020 (0.009)**	-0.019 (0.009)**
newint	0.049 (0.172)	
<b>Random</b>		
Interviewer level		
$\sigma^2_{\text{constant}}$	0.083 (0.052)	0.111 (0.056)**

## 5 Discussion

The results presented in this paper support the idea that, after controlling for some relevant respondent characteristics, some interviewers realize more refusals than others. With the interviewer characteristics used in this analysis it was only partially possible to explain these differences.

An important respondent characteristic related to the decision to participate or not, is the respondent's ability to perform his or her task during the first interview. For the respondent the interview should not be a confrontation with his or her inability to answer a lot of questions. For some respondents, long questionnaires with difficult questions create an unpleasant interview situation. Respondents with this kind of a negative

experience are less willing to cooperate again. Consequently, the researcher is responsible for the nonresponse.

It is clear that the respondent makes the decision to participate or not and that the interviewer can influence that decision. Respondent and interviewer characteristics related to the respondent's task (e.g. respondent's ability) and the task of the interviewer (e.g. number of interviews) are important to explain the outcome of the decision.

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