# Interviewer Effects on Nonresponse in the European Social Survey

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In face-to-face surveys interviewers play a crucial role in making contact with and gaining cooperation from sample units. While there are a few studies investigating the influence of interviewers on nonresponse, they are typically restricted to analyses within a single country. However, interviewer training, contacting and cooperation strategies as well as survey climates differ across countries, thus influencing differential nonresponse processes and possibly nonresponse biases. Combining call-record data from the European Social Survey (ESS) with data from a detailed interviewer questionnaire on attitudes and doorstep behavior, we analyze interviewer and country effects on nonresponse. Our findings show that there are systematic differences between countries in contacting and cooperation processes, which can in part be explained by differences in interviewer characteristics, such as contacting strategies and avowed doorstep behavior.

*Key words:* Contact; cooperation; interviewer attitudes; doorstep behavior; interviewer questionnaire; contact form; cross-cultural research; international surveys; paradata.

## 1. Introduction

Nonresponse in surveys is a serious concern of survey researchers all over the world, and there is considerable evidence that survey nonresponse has been increasing over time due to an increase in both noncontact and refusal rates (De Leeuw and De Heer 2002; Couper and De Leeuw 2003). All sectors of the survey industry – academic, government, business, and media – are suffering from falling response rates (Brehm 1994); also, all modes of data collection show this trend (Goyder 1987; Hox and De Leeuw 1994). In the past two decades, researchers have developed theoretic frameworks for the nonresponse process (Dillman 1978; Dillman et al. 2009; Goyder 1987; Groves et al. 1992; Groves and Couper 1998; Hox et al. 1996), and practical implementations based on these theories have been described (e.g., Campanelli et al. 1997; Stoop 2005 (see also the *JOS* special issue on survey nonresponse 1999).

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Several design features have proven to be effective in reducing nonresponse for all types of surveys and modes, and across different countries. Meta analyses, giving a statistical summary and synthesis of empirical research, provide evidence that both the use of prenotification (advance) letters (De Leeuw et al. 2007) and the use of incentives (Singer 2002; Singer et al. 1999; Cantor et al. 2008) raise response rates, although the effect sizes are modest.

Groves and Couper (1998, p. 30) point out that many factors influencing survey response, such as the social environment, are out of the researcher's control, while others, such as the survey design, can be influenced by the researcher. In face-to-face surveys, the interviewer is the researcher's representative, and through selection, training, and supervision, the researcher may influence the interviewer's work. While the main role of interviewers is conducting high-quality interviews, they also play a key role in contacting and convincing sample units. As a consequence, research into the role of interviewers in the nonresponse process is growing, and attention has been paid to interviewer attributes, such as experience (Durban and Stuart 1951; Couper and Groves 1992; Singer et al. 1983; Snijkers et al. 1999) and skills (Campanelli et al. 1997; Morton-Williams 1993), and to interviewer-respondent interaction (Groves and Couper 1998), as well as to survey design characteristics such as interviewer burden (Japec 2008) and interviewer payment (De Heer 1999; Durrant et al. 2010).

To explain differential response rates between interviewers and why more experienced interviewers achieve higher response rates, survey methodologists have examined interviewer attitudes and motivation (Campanelli et al. 1997; Groves and Couper 1998; Hox and De Leeuw 2002; Durrant et al. 2010). This strand of research was inspired by the work of Lehtonen (1996), who developed a short interviewer attitudes scale and showed that attitudes correlate with attained response rate. A second line of studies focuses on interviewer behavior and interviewer-respondent interaction (Campanelli et al. 1997; Couper and Groves 1992; Groves and Couper 1998; Snijkers et al. 1999). This started with the pioneering work of Morton-Williams (1993), who analyzed tape recordings of survey introductions and identified successful interviewer strategies, such as using professional and social skills, and adapting these to the doorstep situation.

Previous research has shown that the magnitude and composition of nonresponse differ across countries (De Leeuw and De Heer 2002; Couper and De Leeuw 2003; Billiet et al. 2007; Symons et al. 2008), and that there are cross-country differences in contact and cooperation processes (Blom, forthcoming; Kreuter and Kohler 2009). Research has also shown that interviewers' experience, motivation, attitudes, and behavior are related to interviewers' response rates within a single country (Campanelli et al. 1997; Couper and Groves 1992; Groves and Couper 1998; Pickery and Loosveldt 2002; Snijkers et al. 1999; Durrant et al. 2010), and that interviewers' attitudes and behavior differ between countries (Hox and De Leeuw 2002). However, cross-national analyses of the influence of interviewers on contact and cooperation are rare indeed, although a first attempt was made by Hox and De Leeuw (2002). This is not surprising, as survey methodologists have only recently started collecting and analyzing standardized paradata on (non)response processes in cross-national surveys (see Blom et al. 2010 for a review).

We were able to draw on the cross-national call record data of the first round of the European Social Survey (ESS) conducted in 2002/2003, linked to interviewer data from

a specially designed international interviewer questionnaire (De Leeuw and Hox 2009). This provides us with a unique data set in which both contact data, paradata on sample units, and data on interviewer characteristics are combined for a large *standardized* international survey. The high methodological quality and standardization of these cross-national data permit us to examine how interviewer attributes affect contact and cooperation rates across different European countries, something that has not been possible before due to data limitations (cf. Hox and De Leeuw 2002; cf. Durrant et al. 2010).

## 2. Design and Data Collection

The European Social Survey (ESS) is an academic cross-national survey of social and political attitudes and behavior in Europe. It follows high methodological standards, such as strict probability sampling, careful comparative questionnaire design and translation procedures, in-person interviewer training, advance letters, and cross-national fieldwork monitoring (for more information see www.europeansocialsurvey.org). Data collection takes place through face-to-face interviews, and in each country interviewers are carefully selected and trained for this survey. Maximizing response in each country is a focal point of ESS survey implementation (see Stoop et al. 2010; Koch et al. 2009); nevertheless, countries differ in the magnitude and composition of their nonresponse (Symons et al. 2008). To monitor nonresponse processes in each ESS country, the survey implements standardized contact (call record) forms and conducts analyses to foster round-to-round improvement. This makes the ESS a unique data source to investigate nonresponse differences across European countries and interviewers' influence thereupon.

### 2.1. ESS Contact Forms

The ESS interviewers use standardized contact forms to collect call-level information on the contacting and cooperation processes, as well as on the neighborhood of each sample unit. The call-record data are measurements of key aspects of the process that leads to a fieldwork outcome. They provide information on all sample units (i.e., respondents and nonrespondents) and on all contact attempts. Information collected includes the date, time, mode (phone, mail or in-person), interviewer and outcome (no contact, interview, refusal, unable, ineligible, appointment, etc.) of each contact attempt. The data are used to monitor and optimize different stages of the data collection process. In addition to contact data, the ESS collects information on the housing and neighborhood of the sample unit, such as the state of the neighborhood, the presence of an intercom and security features at the house (Blom et al. 2010). From these paradata we derived indicators of contact and cooperation at the level of the sample unit and interviewer.

Table 1 presents the overall response rates, in-person household contact rates, and cooperation rates across those countries where contact data were available and the interviewer questionnaire had been administered.

### 2.2. International Interviewer Questionnaire

Prior to the first round of the ESS, a standardized international interviewer questionnaire was developed, based on earlier work by Hox and De Leeuw (2002). The core

*Table 1.	Response by country: response rate, contact rate, and cooperation rate*

| Country | Response rate % | Contact rate % | Cooperation rate % |
|---|---|---|---|
| Belgium | 58.6 | 89.2 | 65.7 |
| Finland | 73.2 | 80.1 | 91.4 |
| Netherlands | 67.9 | 94.1 | 72.1 |
| Poland | 72.2 | 94.2 | 76.6 |
| Portugal | 68.9 | 93.7 | 73.5 |
| Switzerland | 34.0 | 74.6 | 45.5 |
| United Kingdom | 53.3 | 94.5 | 56.4 |

Note: The contact rates are based on contact defined as in-person contact with the household.
Due to data protection laws there are no contact data available for Sweden in ESS Round 1 and thus no response rates could be calculated.

questionnaire consisted of attitude questions on persuasion strategies based on Lehtonen (1996), and questions on avowed doorstep behavior based on Campanelli et al. (1997), Groves et al. (1992), and Morton-Williams (1993). Drawing on new theoretical and empirical findings, several questions were added to this core questionnaire. These include questions on verbally dealing with reluctance (Pondman 1998) and on reported successful interviewer strategies (Snijkers et al. 1999). In addition, interviewer background characteristics (age, experience, and education) were collected. An English master questionnaire was made available to all countries participating in the first round of the ESS in 2002. For a detailed description of the interviewer questionnaire, including question texts and psychometric properties, see De Leeuw and Hox (2009).

Before the start of the ESS data collection all country coordinators were approached by email and asked if they were willing and able to let their interviewers fill out an interviewer questionnaire. This activity was entirely voluntary and eight countries participated. The coordinators of these countries provided for a careful translation of the master questionnaire and the subsequent data collection. Table 2 lists the participating countries, the number of interviewers in each country, their age, sex, and average years of experience.

Due to privacy regulations, age and gender of the Swedish interviewers were not recorded. Due to the same privacy regulations, the ESS interviewer identification for the Swedish interviewers was not provided and no Swedish contact data were available in Round 1. For all other countries the interviewer questionnaire data could be successfully

*Table 2.	Interviewers by country: number, mean age, % male, and mean years of experience*

| Country | Frequency | Percent | Mean age | % Male | Mean experience |
|---|---|---|---|---|---|
| Netherlands | 60 | 6.8 | 52 | .40 | 10.4 |
| Belgium | 82 | 9.3 | 48 | .41 | 6.8 |
| Switzerland | 46 | 5.2 | 34 | .50 | 1.8 |
| United Kingdom | 149 | 16.9 | 56 | .49 | 6.5 |
| Sweden | 177 | 20.1 | – | – | 7.9 |
| Poland | 175 | 19.9 | 40 | .40 | 4.9 |
| Portugal | 58 | 6.6 | 38 | .29 | 6.4 |
| Finland | 133 | 15.1 | 52 | .96 | 12.7 |
| Total | 880 | 100.0 | 47 | .52 | 7.4 |

linked to the contact-form data. In Switzerland half of the sample was included in an experiment, during which all the initial contacting was conducted via telephone in a call center. Since this meant that the experimental part of the Swiss sample could not be compared to the samples from the other ESS countries, where initial contact is usually attempted in person, we only examine the nonexperimental (face-to-face) part of the Swiss sample. Our analysis thus included seven countries: the Netherlands, Belgium, Switzerland (nonexperimental sample), the United Kingdom, Poland, Portugal, and Finland, and the data of the 703 interviewers in these countries.

## 3. Analysis Method

The two most important components of nonresponse in household interview surveys are noncontacts and refusals (Groves and Couper 1998) and attempts to reduce nonresponse focus mainly on these components (Dillman et al. 2002). Furthermore, processes leading to cooperation differ from those leading to contact (Lynn and Clarke 2002). Therefore we model the two processes separately and the resulting dependent variables in our study are (1) contact (i.e., whether in-person contact with the household was made or not), and (2) cooperation (i.e., whether the sample unit was interviewed or not, *after* successful contact had been made). Accordingly, two separate data files were created: one to investigate the interviewers' influence on contact, the second to investigate the interviewers' influence on cooperation after the sample unit had been successfully contacted.

   All Swedish interviewers had to be excluded as due to Swedish privacy rules their interviewer data could not be linked to the ESS contact-form data (177 interviewers in total). Due to missing or incomplete interviewer identification numbers on the contact-forms, the call record and interviewer data could not always be matched (23 nonmatching interviewers across the remaining countries). In addition, cases at the level of the sample unit and the interviewer had to be deleted list-wise due to incomplete call record and interviewer data (item missings).

   For the analyses of interviewers' effect on (non)contact, the sample units in the ESS contact-form data were linked to the interviewer questionnaire data of the interviewer who undertook the *last* contact attempt at these sample units. This resulted in a noncontact data set with questionnaire data on 662 interviewers and contact-form data for 15,700 eligible sample units, of whom 14,292 were contacted.

   For the analyses of interviewers' effect on cooperation, the sample units in the ESS contact-form data were linked to the interviewer questionnaire data of the *last* interviewer that tried to convince the sample unit to participate in the interview, given contact had been established. The contacted sample units consisted of completed interviews, refusals, unable (e.g., language barrier), and otherwise noncooperative sample units (e.g., broken appointment). In our analysis we do not distinguish between the different forms of noncooperation, since the line between refusals and other forms of nonresponse is indistinct, the group of "other contact but no interview" is rather heterogeneous, and the numbers for these categories were small (see Blom 2009, Chapter 2). This resulted in a cooperation data set with data on 660 interviewers and contact-form information for 13,717 contacted sample units, of whom 10,044 cooperated.

We performed separate analyses for contact and for cooperation. A three-level logistic regression model was used with sample units nested within interviewers nested within countries. Multi-level analysis is now standard good practice for the analysis of interviewer effects on nonresponse (e.g., Hox et al. 1991; Hox 1994; O'Muircheartaigh and Campanelli 1999; Pickery and Loosveldt 2004). Because the number of countries (seven) is relatively small, all models were estimated using Supermix (Hedeker et al. 2008), which has the advantage of using full numerical integration for the estimation procedure. Numerical integration is generally more accurate than the Taylor series expansion used in other software packages, especially with small samples and when estimating the variance components. Regression coefficients were tested using a two-sided Wald test, while variances were tested using the deviance difference test, which is more accurate for variances (Hox 2010).

This approach enables us to answer the following three research questions:

(1)  Are there systematic differences between countries and between interviewers?
(2)  Can these differences be explained by observable characteristics of sample units and interviewer (contact) strategies?
(3)  Can these differences be explained by differences in interviewer characteristics?

In the subsequent sections we describe the available variables on the sample-unit level and interviewer-level, and discuss their relevance for contact and cooperation.

### 3.1.  Sample-Unit Level Variables

All sample-unit level variables are derived from the ESS contact-forms and consist of both call-record data and information on housing and neighborhood. The outcome variables were also derived from the contact-forms. These are contact (i.e., whether in-person contact made or not) and cooperation conditional on contact (i.e., whether the sample unit cooperated or not, once contact had been made). Two groups of sample-unit-level predictor variables can be discerned: those describing the interviewer's contacting and cooperation strategy for the specific sample unit, and those based on the interviewer's observations of the sample unit's environment.

The first group of variables describes the *contacting and cooperation strategies* employed at a sample unit to achieve an interview. These include whether initial contact was made by telephone, whether contact attempts were made outside office hours (i.e., after 5 pm on weekdays or during the weekend), and whether initial contact was achieved outside office hours. Stoop (2005, p. 95) reviews the empirical evidence on the influence of telephone precontact on response in face-to-face surveys and concludes that there is not much evidence regarding the advantages and disadvantages of using the telephone before making home calls to obtain an interview. Lipps and Benson (2005) argue that for certain respondents at certain time points (e.g., for the elderly later in the evening) a telephone contact may be better, and they indeed find some evidence for a curvilinear relationship with response. Timing of contact attempts is generally seen as a major determinant of successful contact, and earlier studies of call-record data for face-to-face interviews provide evidence that contact rates in the evenings and during weekends are higher than during office hours (e.g., Purdon et al. 1999; Stoop 2005, p. 160). Finally, Lipps and

Benson (2005) found a relationship between contact outside office hours and cooperation: initial contact on Saturday afternoon was most likely to lead to a completed interview. Purdon et al. (1999) and Stoop (2005, p. 162), however, did not find a clear relationship between time of first contact and willingness to cooperate.

The second group of variables describes the *housing and neighborhood* situation of the sample unit, based on detailed interviewer observations. These include whether or not the house had an intercom, whether there were any security features at the house, the type of building (single-unit building or not), the state of buildings in the immediate neighborhood, and the state of the sampled house compared to other houses in the neighborhood. Physical impediments, such as an intercom or security features, may obstruct contact with the sample unit (Groves and Couper 1998, p. 88); an intercom system also hampers face-to-face interviewers' ability to tailor and use their full battery of strategies to convince sample units (Stoop 2005, p. 55). Type and state of housing are part of the socio-economic environment of sample units (Groves and Couper 1998, p. 30) and have been associated with cooperation, with those in well-maintained dwellings and neighborhoods and in single houses being less likely to refuse (Stoop 2005, p. 208). Groves and Couper (1998, p. 140) also find significantly higher nonresponse rates for multi-unit housing structures, for both noncontact and refusal, and attribute this to social isolation. Since the ESS housing and neighborhood variables are based on interviewer observations, and therefore also subject to measurement error, we only used the most objective aspects of these observations as described above.

## 3.2. Interviewer-Level Variables

The available interviewer-level variables can be classified in five groups. The first are *interviewer background* variables collected in the interviewer questionnaire: age, sex, education, and experience. Based on the literature (Durban and Stuart 1951; Groves and Fultz 1985; Couper and Groves 1992; Hox et al. 1996; Pickery and Loosveldt 2002; Singer et al. 1983), we expect experienced interviewers to perform better in achieving contact and gaining cooperation with sample units, because they have acquired more professional, cultural, and local knowledge relevant in this process (Groves and Couper 1998, pp. 201–205).

The second group concerns *work-related variables*. These are the ESS workload, the urbanicity of the region worked in, and the interviewer's individual ESS contact and cooperation rate, all derived from the contact-form data. The workload of interviewers is generally seen as a negative influence on performance (see Japec 2008), and Bottman and Thornberry (1992) argue that increased workload give interviewers less time to attempt contact during the most productive times. Urbanicity is a strong correlate of nonresponse, both for contact and for cooperation (Groves 1989, pp. 233–234; Campanelli et al. 1997; Groves and Couper 1998, Chapters 4 and 5). Based on the findings of O'Muircheartaigh and Campanelli (1999), who found that interviewers who are good at gaining cooperation are also good at making contact, we added the interviewer's ESS cooperation rate as predictor in the model for contact, and the interviewer's ESS contact rate as predictor in the model for cooperation.

The third group of interviewer-level variables refers to *contacting and cooperation strategies*. These are the percentage of cases ever attempted by phone (based on the contact-form data), and reported interviewer behavior regarding asking neighbors for information when a sample unit could not be contacted and regarding leaving a message (e.g., a calling card) when nobody was at home at the sampled address (both based on the interviewer questionnaire). In a study of cross-national contact strategies from the Survey of Health, Ageing, and Retirement (SHARE), Lipps and Benson (2005) found that although generally in-person contact attempts were positively related to successful contact, whether initial in-person or telephone attempts were more successful depended on the situation: well-performing interviewers were able to apply the most appropriate mode of initial contact. Morton-Williams (1993) and Groves and Couper (1998) both emphasize that good interviewers gather information about the sampled household to guide further calls leading to successful contact. Social exchange theory (see Dillman 1978) suggests that leaving a calling card when nobody is at home enhances cooperation and conveys the sincerity of the survey purpose.

The fourth group contains measures of *interviewer attitudes* regarding persuading reluctant respondents, the voluntary nature of surveys, the importance of the interviewer's image, and the importance of tailoring interviewer approaches. These indices and the indices in the fifth group are based on questions from the interviewer questionnaire. The indices were constructed using multigroup exploratory and confirmatory factor analysis, which is described in detail in De Leeuw and Hox (2009). The variables in groups four and five are all calculated using the "item mean scores" method with imputation. Questions were appropriately rescored so that a high score on an index indicates a high level of the measured characteristic. All computed indices have a theoretical minimum of 1 and a maximum of 5.

A positive attitude towards persuasion indicates that an interviewer is persuasion-oriented and is convinced that most people are willing to respond, and can and should be persuaded when approached at the right time. Voluntariness indicates that interviewers have a high respect for sample units' privacy and believe in the voluntary nature of survey cooperation. These interviewer attitudes were first described by Lehtonen (1996). Research (e.g., Lehtonen 1996; De Leeuw et al. 1998; Hox and De Leeuw 2002) has shown that persuasion is positively related to cooperation, while voluntariness is negatively related to cooperation. Interviewer image, which is also positively related to cooperation (Snijkers et al. 1999), describes the interviewer's belief in the importance of projecting a positive and professional image and refers to social skills and self-presentation necessary for successful interviewers (Morton-Williams 1993). Interviewers who assign high importance to tailoring think that each sample unit is different and needs a unique approach; tailoring is seen as an important concept in nonresponse reduction (Morton-Williams 1993; Groves and Couper 1998).

The last group of interviewer-level variables describes *self-reported doorstep-behavior*. This includes a competent start of the introduction, tailoring the introduction, selling the survey, using social validation arguments, dealing with reluctance, and respondent-oriented behavior. A competent start of introduction describes the interviewers' repertoire during initial contact, such as, introducing themselves, naming the survey agency they represent, and introducing the topic. A tailored introduction refers to the strategy of

adapting to the (doorstep) situation and varying the introduction, emphasizing specific elements. Selling the survey indicates that interviewers do a good job at explaining the importance of the survey, using practical arguments and compliance principles, whilst linking the topic of the survey with its usefulness for the respondent. Social validation describes interviewers that use person-oriented arguments and social validation principles in their introduction to elicit a positive response (examples include statements such as "most people enjoy this," "most people participate"). Dealing with reluctance indicates a positive way of reacting to refusals, such as, never repeating the arguments for refusal, but giving positive, relevant information instead. Finally, respondent-oriented behavior describes interviewer behavior and orientation necessary for good tailoring in the introduction. Important aspects of respondent orientation include trying to understand differences between sample units and adjusting language and arguments to the sample unit's characteristics and initial reactions. These six indices all refer to important concepts discussed in the literature on interviewer behavior and nonresponse as described by Cialdini et al. (1992), Morton-Williams (1993), Couper and Groves (1992), Hox et al. (1996), Groves and Couper (1998), Pondman (1998), Snijkers et al. (1999), Hox and De Leeuw (2002), and Stoop (2005).

## 4. Results

Both for contact and for cooperation three models were analyzed. The first model is the intercept-only model, containing no predictor variables. This model estimates the variance at the respondent, the interviewer and the country level, and provides an answer to the first question:

*(1) Are there systematic differences between countries and between interviewers?*

Ideally, an interpenetrated design is employed, where interviewers are allocated at random to sample units (Schnell and Kreuter 2005). In an international comparative survey, allocating interviewers across countries is impossible, and in the context of the ESS interviewers are also not allocated at random within countries. Therefore, we have to rely on statistical control to distinguish between sample unit and interviewer effects. To accomplish this, sample unit and interviewer variables are added in two separate steps. The second model adds to the intercept-only model those sample unit variables that explain significant variation. The third model then adds those interviewer variables that explain significant variation. Thus, the effect of the interviewer variables is analyzed conditional on the effect of the sample unit variables. This provides a conservative answer to the second and the third question:

*(2) Can the differences be explained by observable characteristics of sample units and interviewer (contact) strategies?*
*(3) Can the differences be explained by differences in interviewer characteristics?*

We analyzed the data by means of a multilevel logistic regression. In logistic regression, multilevel or otherwise, the scale of the outcome variable changes when predictors are added to the model. This makes it difficult to compare regression coefficients and variance components across different models. We used McKelvey and Zavoina's (1975) method to

rescale the second and third models to the metric of the empty model. In addition, we calculated their pseudo R-square for logistic regression at all available levels. In a review of several pseudo R-square measures, Long (1997) concludes that the McKelvey and Zavoine pseudo R-square is to be preferred; Hox (2010) describes the multilevel extension of their approach.

### 4.1.  Predictors of Successful Contact

The intercept-only model estimates the variance at the three levels. The intraclass correlations in the intercept-only model show that there are systematic differences in contact rates between countries and between interviewers within countries; thereby answering research question one with a firm yes. Sixty-three percent of the variance is at the sample unit level, 27% is at the interviewer-level, and 10% is at the country level. All variance components presented in Table 3 are significant based on the deviance difference test (see Hox 2010).

Table 3 shows the results for the intercept-only model and the models with the significant sample unit variables and the significant interviewer variables added; each regression coefficient is given with its accompanying standard error in parentheses.

The pseudo R-squares at the interviewer and the country level indicate that the sample unit variables explain approximately 44% of the interviewer variance, and 47% of the country variance. Adding interviewer variables increases the explained interviewer variance to 56%, and the explained country variance to 77%. In addition, after incorporating sample unit and interviewer variables, the intraclass correlation for the interviewers is reduced from 0.27 to 0.19, and the intraclass correlation for countries is reduced from 0.10 to 0.04.

*Table 3.  Successful contact, three-level logistic regression; regression coefficients with accompanying standard errors in parentheses*

| Model: | Intercept-only | Sample unit | Interviewer |
|---|---|---|---|
| Intercept | 2.99 (.31) | 3.41 (.24) | 1.75 (.85) |
| Urbanicity | | −0.53 (.09) | −0.54 (.10) |
| State of neighborhood | | 0.23 (.07) | 0.26 (.08) |
| State of house | | 0.19 (.09) | 0.21 (.10) |
| Initial contact by phone | | −2.96 (.11) | −3.27 (.12) |
| Outside office hours | | −0.69 (.05) | −0.77 (.06) |
| Int. cooperation rate | | | 2.29 (.40) |
| Social validation | | | −0.26 (.09) |
| Int. image | | | 0.39 (.18) |
| $\sigma^2_{\text{sample unit}}$ | 3.29[a] | 2.60 | 2.60 |
| $\sigma^2_{\text{interviewer}}$ | 1.40 (.13) | 0.79 (.08) | 0.62 (.06) |
| $\sigma^2_{\text{country}}$ | 0.53 (.32) | 0.28 (.17) | 0.12 (.08)[b] |
| Pseudo $R^2$ sample unit | | 0.21 | 0.21 |
| Pseudo $R^2$ interviewer | | 0.44 | 0.56 |
| Pseudo $R^2$ country | | 0.47 | 0.77 |

[a] Fixed at distributional value.
[b] Significant by deviance difference test.

Regarding research question two, the differences in contact rates can indeed be partly explained by observable sample-unit characteristics and interviewer strategies. Significant predictors are urbanicity, the state of the buildings in the immediate neighborhood, the state of the sampled house compared to other buildings in the neighborhood, whether initial contact is made by telephone, and whether contact attempts are made outside office hours. All associations are in the expected direction, except for making calls outside office hours, which has a negative regression coefficient. We come back to this in the Discussion.

Regarding research question three about successful interviewer characteristics for contact, we find that interviewers who value a positive and professional interviewer image achieve higher contact rates. However, using social validation arguments by the interviewer is negatively related to successful contact. Finally, interviewers who are good at gaining cooperation (after contact) are also good at making contact.

### 4.2. Predictors of Cooperation Conditional on Contact

The intraclass correlations in the intercept-only model show that there are systematic differences in cooperation rates between countries and between interviewers within countries. Again research question one can be answered in the affirmative: there are systematic differences in cooperation after contact between countries and between interviewers. Sixty-two percent of the variance is at the sample unit level, 8% is at the interviewer-level, and 30% is at the country level. All variance components in Table 4 are significant (using the deviance difference test, Hox 2010). Comparing the variances in the intercept-only model in Table 4 and Table 3, it is interesting to note that systematic country differences account for a much greater part of variability in cooperation than in contacts.

Table 4 shows the results for the intercept-only model and the models with the significant sample unit and the interviewer variables added; each regression coefficient is given with its accompanying standard error in parentheses.

*Table 4. Cooperation conditional on contact, three-level logistic regression; regression coefficients with accompanying standard errors in parentheses*

| Model: | Intercept-only | Sample unit | Interviewer |
|---|---|---|---|
| Intercept | 1.27 (.90) | 0.50 (.45) | $-2.56$ (.78) |
| Intercom | | $-0.56$ (.16) | $-0.56$ (.16) |
| State of neighborhood | | 0.36 (.13) | 0.33 (.13) |
| State of house | | 0.32 (.15) | 0.34 (.15) |
| Initial contact by phone | | 1.87 (.19) | 1.88 (.18) |
| Dealing with reluctance | | | 0.38 (.15) |
| Age | | | 0.04 (.01) |
| $\sigma^2_{\text{sample unit}}$ | 3.29[a] | 3.75 | 3.75 |
| $\sigma^2_{\text{interviewer}}$ | 0.44 (.03) | 0.52 (.03) | 0.43 (.02) |
| $\sigma^2_{\text{country}}$ | 1.59 (.85) | 0.34 (.19) | 0.06 (.03) |
| Pseudo $R^2$ sample unit | | 0.00 | 0.00 |
| Pseudo $R^2$ interviewer | | 0.00 | 0.17 |
| Pseudo $R^2$ country | | 0.79 | 0.82 |

[a] Fixed at distributional value.

In contrast to the contact rate, interviewer-level variance in cooperation cannot be explained very well by the available variables. Country level variance can be explained well. As Table 4 shows, adding sample-unit variables to the model actually increases the variances at the sample unit and the interviewer-level, resulting in a negative pseudo R-square, which is constrained to zero in Table 4. This indicates that in the intercept-only model differences between interviewers are obscured, most likely because the ESS does not use an interpenetrated design where interviewers are randomly assigned to respondents. This reflects the common strategy that more successful and experienced interviewers are assigned to the more difficult cases. After including the sample unit characteristics, adding additional interviewer variables explains 17% of the interviewer variance, and hardly changes the explained country variance. In addition, after incorporating sample unit and interviewer variables, the intraclass correlation for the interviewers remains relatively constant, but the intraclass correlation for countries is dramatically reduced from 0.30 to 0.01.

Regarding research question two, the differences in cooperation rate after contact can partly be explained by observable sample-unit characteristics and interviewer strategies. The differences in cooperation rates are partly explained by impediments to communication such as an intercom system, by the state of the buildings in the immediate neighborhood, the state of the house compared to other buildings in the neighborhood, and by initial contact made by phone. All relations are in the expected direction. It should be noted that an initial contact by telephone has a positive relationship, contrary to its effect on contact; we come back to this in the Discussion.

Regarding research question three, interviewers who are able to deal positively with reluctance achieve higher cooperation rates, as do older interviewers.

## 5.   Conclusion and Discussion

In this study we investigated whether there are systematic differences between countries and interviewers in contact and cooperation rates in the ESS, and whether these differences can be explained by observable characteristics of sample units, by interviewer (contact) strategies, and by differences in interviewer characteristics.

Differences in contact and cooperation rates are observed at the level of the sample unit. This is where we find the largest variance components (over 60% of the variance is at sample unit level). But we also find substantial variance at the interviewer and country levels, and we can answer our first research question in the affirmative. Yes, there are systematic differences between countries and between interviewers within countries both in contact and in cooperation rates. For contact we find sizeable variance at the interviewer-level (27%) and less but still substantial variance at the country level (10%). For cooperation more variance is found at the country level (30%) but far less at the interviewer-level (8%). Therefore, while we find stronger interviewer effects on contact, for cooperation there is evidence for a country effect supporting theories of differential survey climates across countries (see Lyberg and Dean 1992). Alternatively, this country effect may also be partly due to an agency effect. The ESS employs *one* carefully selected survey agency per country, therefore country and agency effects cannot be statistically disentangled. Thus, the country effect on cooperation may also be due to potential

differences in survey management or differential interviewer training of the agencies, which are not all captured in our data.

The usefulness of paradata for analyzing and adjusting for nonresponse is currently well-discussed amongst survey methodologists (e.g., Kreuter et al. 2010; Kreuter and Kohler 2009). We find that paradata are effective in explaining some of the differences between countries and between interviewers within countries. For contact rate almost half of the variance on the interviewer-level and the country level could be explained by the paradata; for cooperation we can explain country differences well with paradata, but not interviewer differences. Still, we must realize that the paradata we used are based on contact-data recorded by interviewers and on interviewer observations of neighborhoods and housing units, and are not perfectly measured but contain measurement error. Although interviewers did receive instructions on the use of all instruments, a rigorous training of field staff on the use of contact forms cannot be assumed for all countries. In our study we focused on paradata that had, a priori, the best reliability and only considered the most objective aspects of interviewer observations. For instance, interviewer ratings on the amount of litter and graffiti in the neighborhood were not included in the analyses. Nevertheless, there is a possibility that the information used is not completely reliable, and that thus sample-unit effects are underestimated.

When taking interviewer and country effects into account, we find that various indicators derived from the contact-forms predict contact and cooperation. Most of these indicators relate to interviewer observations of the house and neighborhood. The state of the neighborhood and the state of the house compared to the rest of the neighborhood predict both contact and cooperation. Interestingly, the presence of an intercom, which is usually regarded an access impediment and thus as being negatively related to contact and cooperation, only has a significant effect in the cooperation model. This may well be due to the presence of an intercom being related to socio-economic characteristics of the sample units, because intercoms are often found at large apartment blocks. Furthermore, when sample units are at home, they usually check through the intercom system who is there, so contact is made. But the intercom system will hamper communication and a successful introduction, resulting in a refusal.

Urbanicity on the other hand is only significantly related to contact, where we find that sample units living in urban areas are more difficult to contact; after initial contact has been established urbanicity has no relationship with cooperation itself.

As mentioned, sample units that were attempted outside office hours (i.e., on a weekday evening or during the weekend) were less likely to be successfully contacted. While this is counterintuitive, it corresponds to earlier findings in the ESS. When restricted to the initial contact attempt, the timing of the contact is not correlated with ultimately successful contact. The first contact might be at any time of day or week. But if the first attempt is unsuccessful it is likely that for subsequent calls alternative times would be attempted. Thus most homes that were never successfully contacted were attempted at least once outside of office hours, while some successful contacts never required these visits. Thus the negative association between successful contact and outside office hours is likely a reflection of attempting all contact options. Moreover, since first and subsequent contact attempts in the ESS were not randomly assigned, interviewers chose to call at times and on days that they felt might be most productive and that suited them. Thus, interviewers

develop their own calling strategies, based on their local knowledge and reacting to the situation, and call patterns may reflect perceived difficulties in making contact (see Stoop 2005, p. 54).

We further find that sample units that were first contacted by phone were more likely to cooperate with the survey request. This is an interesting finding; however, again one should be careful with its interpretation, since phone attempts were not randomly allocated to sample units, interviewers or countries. It could reflect that a first contact by phone is only successful in specific situations (see also Lipps and Benson 2005). Finally, the ESS interviewer cooperation rate, which was also derived from the contact-form data, is positively related to gaining contact. Therefore, interviewers who are good at gaining cooperation are also good at contacting, as O'Muirchertaigh and Campanelli (1999) found previously in the UK.

It is remarkable that interviewer's workload did not have an effect in this study, as is often hypothesized. This may be the result of the well-conducted fieldwork in the ESS; workloads were not excessive and it is feasible that with heavier workloads interviewers have less time to work the field and therefore achieve lower contact rates.

The interviewer questionnaire gathered rich information on the attitudes and self-reported doorstep behavior of the ESS interviewers. These variables were especially successful in explaining differences in contact rates between countries, reflecting differences between countries on interviewer variables. Interviewer variables were also moderately successful in explaining differences in cooperation between countries and between interviewers within countries.

While most of the questions in the interviewer questionnaire concerned typical interviewer strategies for gaining cooperation, we also find associations with contact. For instance, interviewers who believe in the importance of projecting a positive and professional image are also more likely to gain contact. This might be because of an association between interviewers' professionalism and how carefully they try to gain contact with sample units. Thus the interviewer image scale might well reflect a more general professionalism and self-confidence, as was found by Durrant et al. (2010).

However, in our analyses we do not find any additional effect of interviewer image on cooperation after contact is established. Similarly, the use of social validation arguments on the doorstep is related to achieving contact, but this factor is not related to cooperation in our analyses. Apparently, we are picking up an underlying trait of these interviewers which is mostly related to contact rates. The only interviewer behavior significantly related to cooperation is a positive way of reacting to refusals. Interviewers who report that they try to avoid refusals on the doorstep by actively providing positive information, do achieve higher actual cooperation rates. These interviewers also report that they never repeat the arguments for refusal, but try to give relevant information instead. For instance by never repeating "you think you are too old?" but saying instead that this survey is of particular interest to older people (see also Pondman 1998; Hox et al. 1998). Finally, interviewer age is related to cooperation, older interviewers are more likely to gain cooperation than younger ones; this may partly reflect differences in experience.

Our results are in line with those well-controlled recent studies. Interviewers' attitudes and avowed behavior have limited predictive power and explain only a part of the variance (e.g., Durrant et al. 2010; Hox and De Leeuw 2002). Still, several interviewer-level

variables were able to explain differences between countries and between interviewers within countries. Interviewers with a professional self-image and of great confidence do better, and more senior interviewers do better. Also interviewers do better if they know how to deal with reluctance, react positively to refusals, avoid repeating negatively formulated arguments and provide positively formulated information instead. These are important elements that should be emphasized in country-specific training sessions and during fieldwork and may well contribute to better interviewer-respondent interactions. The bad news is that although the paradata explained a relatively large proportion of interviewer and country differences in nonresponse, most of these variables are beyond the control of the researchers (e.g., urbanization, state of housing). Nevertheless, registering and investigating these variables may be useful, as they help us to understand the nonresponse processes, and suggest adjustment models.

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