polish sociological review 2(202)'18
ISSN 1231 – 1413
DOI:10.26412/psr202.07

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The Effect of Using Different Types of Survey Sample on Sample Execution in the European Social Survey

Abstract: Existing literature on survey methodology is not particularly saturated with studies of the relationship between the type of survey sample and the quality of their fieldwork execution. This paper focuses on three main types of probability sample, i.e., address, household and individual name sample, and examines whether limited capacity for controlling the process of within-household selection of a target respondent, that is always implemented in address and household samples, results in over-selection of easy-to-reach and cooperative respondents. Based on data from the cross-country European Social Survey project, it is demonstrated that individual name samples are associated with higher quality of fieldwork execution, while address and household samples significantly decrease fieldwork quality by over-selecting individuals more prone to staying at home and more willing to take part in a survey. It is also demonstrated that well-known survey outcome rates (such as response rate, contact rate, cooperation rate and refusal rate) are of little use in detecting fieldwork irregularities.

Keywords: types of survey sample; fieldwork quality; comparability of cross-national surveys; European Social Survey

Introduction

Probabilistic samples utilised in interviewer-administrative face-to-face surveys come in three common varieties: (1) address samples, (2) household samples and (3) individual name samples (see Stoop et al. 2010; Lynn et al. 2007). This distinction is a consequence of the level of aggregation of the target population units within the available sampling frames and has a significant impact on the fieldwork phase of research. While personal registers allow for direct random sampling of individuals identified by name, the application of household frames requires a within-household selection of individuals within the randomly selected households. Furthermore, the use of address frames requires an initial selection of households followed by a within-household selection of particular individuals.

The main challenge for fieldwork execution of address and household samples concerns the limited capacity for effective control over the quality of interviewers' work, especially with respect to the quality of within-household selection of the target person. Back-checking control of the within-household selection process is mainly constrained by the fact that unlike in the case of individual samples, it not only has to be determined whether the respondent exists and whether the interview was conducted with that respondent, but also whether the right respondent has been selected and interviewed. In fact, individual name surveys typically present researchers with informal advantages over interviewers, given that

on top of the target-respondent names and addresses additional register-derived characteristics such as birthdates are typically known prior to fieldwork execution and may readily be used for probing its quality. Address and household samples lack such control-measures, which creates more opportunity for interviewers to replaced hard-to-reach and reluctant respondents by those who are easy-to-reach and cooperative. Given those difficulties, it has been recognised that investigating fieldwork quality in comparative surveys requires going beyond commonly used well-known survey outcome rates (i.e., response rate, contact rate, cooperation rate and refusal rate). This is especially pressing when it comes to the response rate, which sill constitutes a common handbook-involved indicator of survey quality (Singleton et al. 1993), while the actual linkage between nonresponse rate and nonresponse bias has been proved weak (Groves 2006). Moreover, survey outcome rates reflect only the final results of sample execution, without giving information about efforts undertaken to achieve given results, so there is a growing demand for establishing additional indicators of fieldwork quality (Schouten et al. 2009).

This article has two main goals. The first is to analyse the weaknesses of survey outcome rates as indicators of the fieldwork quality. The second is to verify whether the limited capacity for controlling the process of within-household selection that is always implemented in address and household samples results in over-representation of easy-to-reach and cooperative respondents. If the latter is true, then it constitutes a major challenge with respect to international comparative surveys based on probabilistic samples, as one essentially expects their sampling frames and sampling types to imply similar non-random errors (Lynn et al. 2007). It should be stressed, however, that in this paper attention is brought to just one of many potential sources of total error, i.e. on a sampling bias as a combination of nonresponse and interviewer effect. The activities undertaken by a researcher to reduce these specific sources of bias may therefore increase the likelihood of other kinds of random or non-random errors and consequently increase the value of the Total Survey Error (Biemer 2010).

Literature Review: Types of Survey Sample and their Possible Impact on Fieldwork Quality

In the research on survey methodology little attention has been paid so far to the investigation of the relationships between the type of sample and their fieldwork execution. Although considerable attention has been devoted to the so-called within-unit coverage error (Ziniel 2008) as well as to the impact that different procedures of within-household selection procedures in non-personal register samples have on survey outcome rates (Gaziano 2005), relatively little consideration has been given to the ways in which the type of survey sample and their fieldwork execution may influence sample quality.

When it comes to distinguishing between the two main causes of nonresponse, i.e., non-contact and refusal to participate in a survey, some of the characteristics of the different types of sample have recently been accounted for by Stoop et al. (2010). Based on first three rounds of the European Social Survey project the authors point out that address and household samples should be expected to exhibit somewhat lower non-contact rates. This would come about as a simple consequence of the fact that the process of within-house-

hold selection of the target person concerns only those individuals who live in the specified households. Thus, if just one household member has moved, he or she is no longer part of the household and need not to be followed at a new address. This eliminates the problem typical of individual samples whereby selected individuals remain unavailable due to prior change of their place of residence. In individual samples this means, however, that an interviewer has to follow them to their new address (unless it is certain they are not eligible persons), which may increase the number of uncontacted persons or persons with unknown eligibility and decrease the overall indicators of respondents' contactability. In the same vein, the address sample should provide lower non-contact rates, than in the case of the household sample. In the address sample, households are not identified by name in advance, so if the entire household have moved the interviewer does not need to find them at their new address. Excluding, however, this specific type of noncontact one would expect for different sampling frames not to affect significantly the chance of contacting the selected individual. With respect to address and household samples, the selection of respondents is obviously dependent upon making successful contact with a household member, however this does not mean that the particular individual, selected to the sample, is necessarily at home at that point in time.

The analyses of Stoop et al. (2010) also lead to the conclusion that the type of survey sample may significantly affect respondents' willingness to cooperate. The main source of this influence can be attributed to the process of within-household selection of respondents. Excluding the cases of one-person households and a situation when the person providing information on household members is the one with whom the interview is subsequently conducted, interviewers working with address and household samples must initially persuade one person to disclose all the information about household members, necessary to conduct the within-household selection process, and later they have to persuade the target person into participating in the survey. Therefore, the implementation of address and household samples presents an additional problem: a household member, who has been contacted by the interviewer, may refuse to divulge information about other household members or provide access to the target person (Lipps, Kissau 2012). This in itself constitutes an additional hurdle when it comes to conducting surveys on the basis of address and household samples. Moreover, women remain more often available at home (Slauson-Blevins, Johnson 2016) and at the same time more reluctant to take part in surveys (Menold 2014), which may result in lower cooperation rates in address and household samples.

Defining the Problem

The most important requirement one has to meet, in the process of sampling individuals from the target population, is to perform the selection of respondents in a way that is completely independent of the researcher, the interviewers, household members and selected individuals. While the process of selection remains impartial in the case of individual samples, since the researcher, interviewer and the selected person have no influence over the choice of individuals from the population, when it comes to address and household samples, one has to proceed in a way that provides for an impartial selection of particular

individuals, i.e., to make it impossible for any actor of fieldwork process to interfere with the process of selecting or excluding individuals.

When it comes to the fieldwork execution of address samples, one should emphasise the defective nature of all such strategies that give the interviewers opportunity to decide which households to include or exclude. It remains completely unacceptable to select households where someone is simply present during the interviewer's working hours, and the concomitant exclusion of those whose members happen to be absent at that particular point in time. By the same token, the choice of respondents must not be dependent upon which members happened to be at home at the moment. In other words, one must not allow for selecting a different household member than the one, who originally should have been chosen. Any such deviations from random or quasi-random selection of households and individuals, would be essentially the same as 'illegitimate' substituting the selected person with someone else within an individual sample (see Menold 2014).

In order to preclude any such practices, it is necessary to carefully supervise the work of interviewers. In the case of individual samples, it remains reasonably easy to ascertain whether the interview was indeed conducted with the selected person. If all that the interviewer has to do, is to try to contact and interview a person, who is known by name in advance, to cooperate, there is a scant opportunity to do it incorrectly other than by intentional cheating. However, when it comes to household and address samples, performing back-checks control proves much more difficult but not impossible. The challenge then is not only to make sure that the interview was conducted with the selected person, but also to check whether that person had been properly selected (see Table 1). This could be achieved, for example, by back-checks seeking to replicate the selection on the day of the interview with the same person with whom the interviewer collaborated during the within-household selection process. However, such back-checking procedure would be cost-intensive and extremely intrusive both for the target respondent and other household members.

The doubts associated with the impaired capacity for controlling the process of within-household selection, in both address and household samples, lead directly to the main problem discussed in this paper. The aim of this article is to verify whether there is any empirical evidence supporting the supposition that the interviewers' degree of freedom in the process of selecting individuals in address and household samples leads to an over-selection of the individuals more prone to staying at home or more willing to take part in a survey. Such a phenomenon would be very troubling indeed, especially for comparative surveys, as it would point to a limited capacity for comparisons between studies obtained on the basis of different types of sampling frames, since the large cross-survey diversity in the respondents' propensity to participate in survey increase the risk of significant cross-survey diversity in the nonresponse bias.

Methods

The Data from the European Social Survey

The problem stated above will be subjected to an empirical verification on the basis of the data from the last four rounds of the European Social Survey. The ESS project is useful

Table 1

Interviewer Inference Risk in Different Sample Types

Sampling stages	Individual sample	Household sample	Address sample	
Stage 1: Selection of address points	• inapplicable	• inapplicable	• random sampling of address points or address listing and sampling of address points	FIELDWORK AGENCY
Stage 2: Selection of households	• inapplicable	• random sampling of households	• household listing and systematic or random sampling of households	
Stage 3: Selection of population units	• random sampling of individuals	• inapplicable	• inapplicable	
Result	**KNOWN TARGET PERSONS**	**KNOWN ADDRESSES OF TARGET HOUSEHOLD**		
Stage 4: Within-household selection	• inapplicable	• Random or quasi-random selection of a target person by Kish grid or birthday methods		INTERVIEWERS
The risk of illegitimate substitution of target persons	High-risk interviewer strategy: • easily checked against register records and through back-checking; • interviewers directly accountable for incidents; • requires making false statements on respondent identity.	Low-risk interviewer strategy: • difficult to uncover through back-checking, no prior register records to check against; • hard to indisputably blame incidents solely on interviewers; • does not require making false statements on respondent identity.		
Final result	**(1) RESPONDENTS; (2) NON-RESPONDENTS; (3) UKNOWN ELIGIBILITY; (4) NOT ELIGIBLE**			

in this respect for two reasons. Firstly, in the ESS very precise accounts are kept of all the attempts to contact and interview the selected individuals. Such data are recoded by interviewers in specially prepared questionnaires called *Contact Forms* and are published online in separate data sets, after each round of the ESS. Altogether, these datasets, as well as so-called *Technical Reports* (see ESS4-2008; ESS5-2010; ESS6-2012 and ESS7-2014 in Reference section), include information about 108 data sets collected from 35 different countries, participating in the considered rounds of the ESS. In 49 cases the individual sample was utilised, and respectively, in 24 cases—the household sample and in the 35 cases—the address sample was utilised (see Table 2).

Secondly, the ESS puts a strong emphasis on the standardisation of research procedures in such a way that would enable cross-country comparisons of results, in spite of utilising different types of samples. For example, to reduce the possibility of negative impact that the interviewers may have on the sample selection, in countries where a list of addresses is unavailable, the listing of addresses must be performed by someone different that the final interviewer. Moreover, the final selection of a target person is always performed by strictly random (Kish grid) or quasi-random (last / next birthday) procedure of

Table 2

Classification of the ESS Participating Countries[i] With Respect to the Different Types of Sample

ESS round[ii]	Individual sample	Household sample	Address sample
ESS4-2008	BE, DE, DK, EE, ES, FI, HU, NO, PL, SE, SI	AT, CH, CY, FR, GR, IL, LT, PT, RO, TR	BG, CZ, GB, HR, IE, LV, NL, RU, SK, UA
ESS5-2010	BE, CH, DK, DE, EE, ES, FI, HU, NO, PL, SE, SI	AT, CY, FR, GR, HR, PT	BG, CZ, GB, IE, IL, LT, NL, RU, SK, UA
ESS6-2012	BE, CH, DE, DK, EE, ES, FI, HU, IS, IT, NO, PL, SE, SI	AL, CY, CZ, FR, NL, PT, XK	BG, GB, IE, IL, LT, RU, SK, UA
ESS7-2014	AT, BE, CH, DE, DK, EE, ES, FI, NO, PL, SE, SI	PT	CZ, FR, GB, IE, IL, LT, NL

Note:

[i] Countries are labelled according to ISO31166-1.

[ii] The data from the first three rounds of the ESS project had to be excluded from the analysis. Even if more than 10 contact attempts were undertaken in the first three rounds of the ESS, only the first 10 attempts were registered in the data files. In case there were more than 10 contact attempts, the last one was recorded as the attempt number 10. In turn, in rounds 4, 5, 6 and 7 all attempts were registered. This means, however, that the Contact Form data from the first three and the last four rounds of the ESS are not comparable.

within-household selection. Thirdly, each of the ESS National Coordination (NC) teams is supported by a member of the ESS Sampling Expert Panel in a process of choosing a sampling frame and establishing a sample design suitable for implementation in each country. Finally, in each country the sampling process must be approved by the whole ESS Sampling Expert Panel, before fieldwork starts, to ensure it is comparable to those utilised in the other countries (Stoop et al. 2010).

Why do We Need to go Beyond the Traditional Survey Outcome Rates in Detecting Fieldwork Irregularities?

According to the previously presented findings of Stoop et al. (2010), address and household samples should yield higher refusal rates, lower cooperation rates as well as roughly similar contact rates, in comparison with individual name samples. However, such a relation between the values of survey outcome rates and the types of samples, as were presented by Stoop et al. (2010), are based on the strong assumption that irrespective of the survey sample's type the researchers take on a uniformed or highly similar efforts, aimed at their fieldwork execution. In fact, when interviewers are allowed, for instance, no more than four attempts at establishing contact and conducting the successful interview, then the refusal rates should indeed be lower in address samples as well as household samples. A more difficult fieldwork execution of both these types of samples, translates into an urge for greater efforts in order to achieve similar results to those in individual samples. One should bear in mind that within the ESS project the target level of response rates, with a maximal level of non-contact rate are also specified. Noting this fact is crucial in the context of exploring fieldwork quality on a basis of the values of survey outcome rates. While response rates, contact rates, refusal rates and cooperation rates are indicative of the final effect of survey fieldwork execution, to some extent they also reflect the sample frame quality, e.g. the number of sample units of unknown eligibility. However, they do not indicate what efforts

must have been taken in order to achieve the fieldwork results. This is the reason why other characteristics of the ESS fieldwork execution need to be investigated—especially those indicators, that describe the level of difficulty of reaching the target persons and persuading them to take part in the interview. In this empirical analysis, the following indicators of the respondent's availability and his or her willingness to cooperate have been considered:

(I1) The indicator of high availability of selected individuals (the so-called *easy-to-reach respondents*), e.g. the percentage of units who require one or two visits to be reached. The fraction of *easy-to-reach respondents* is the opposite of the so-called *hard-to-reach respondents*, who have been defined by Stoop (2005) as individuals who require at least three visits to be reached. Thus, what is meant here by establishing contact is the fact of reaching the target person selected for the sample directly, i.e., from an individual sampling frame, or indirectly, i.e., from address or household sampling frames. It is worth mentioning, that reaching any person living in the selected household counts as having established contact in the AAPOR (2015) standards, specifying the norms of determining the values of survey outcome rates as well as within some of the studies devoted to address and household samples (see Stoop et al. 2010; Groves 1989);

(I2) The indicator of high readiness for cooperation, i.e., the percentage of respondents with whom it was possible to conduct the interview during the initial visit establishing contact (the so-called *ready-to-cooperate* respondents);

(I3) The indicator of high readiness for cooperation (I1) accompanied by high availability (I2). This category is coterminous with those variously called in the literature as *easy respondents* (Stoop 2004) or *willing respondents* (Lynn et al. 2002);

(I4) The indicator of low availability (I1) as well as low readiness for cooperation (I2)—the so-called *difficult respondents*, i.e., the percentage of respondents who required at least three visits to establish contact, while at least one additional visit proved necessary to conduct the interview. This fraction is also meant to comprise all those persons who are known in the literature as *converted refusals* or *reluctant respondents* (e.g. Jäckle et al. 2013; Sakshaug, Kreuter 2012; Kaminska et al. 2010; Billiet et al. 2009; Schouten et al. 2009; Smith 1983; Robins 1963);

(I5) The percentage of refusals expressed directly by the target person;

(I6) The percentage of refusals expressed before target person was selected (this indicator is calculated only with respect to address and household samples).

In line with the findings of Stoop et al. (2010), it can also be deduced that if the type of survey sample is meant not to have a significant impact on a chance to establish contact with the target person then the values of the indicator (I1) should be similar in individual samples, address samples and household samples. In an analogous manner, if the individual samples should feature higher cooperation rates, then the indicators (I2) as well as (I3) would have to assume higher values in individual samples, while the indicator (I4) should have a higher value in cases of address and household samples. The type of sample should have no bearing on the value of (I5), even though the sum of (I5) and (I6) should be significantly lower in the case of address and individual samples. On the other hand, if the address and household samples were to feature systematic and frequent irregularities in target person's selection, through making more frequent choice of persons more likely to be at home or more willing to take part in the interview, then it would be in such sample

types, as opposed to the individual samples, that the indicators (I1), (I2), (I3) would assume much higher values, while the (I4) and (I5) would have much lower values.

The Limitations of Presented Analysis

The construction of the above indicators of respondent's availability and willingness to cooperate, requires some additional commentary before the results of calculations are discussed. Firstly, the assumed way of defining availability indicators, i.e., pertaining to the possibility of contacting the respondent, remains consistent with the position of those researchers for whom the best measure of availability consists of the number of visits required in order to establish the first contact with the selected person (Hall et al. 2013; Stoop et al. 2010; Stoop 2005; Lynn, Clarke 2002). In order for the interview to be conducted, multiple subsequent visits may be required, and these efforts will not always be successful. Those additional actions reflect the respondent's willingness to cooperate rather than problematic availability. Therefore, one can construe the measure of willingness to cooperate as the number of visits required for the interview to be conducted, counting from the one when the first contact with the target person has been made. While the availability indicators characterise the set of all selected persons ever contacted, irrespective of the fact whether the interview has in fact been conducted, the cooperation indicators refer only to the set of respondents.

Secondly, the comparison between refusals by the target person, selected in address and household samples, and refusals by people selected directly from personal registers, ignores the possibility that if everyone in the household has a similar view about the desirability of taking part in a survey, then by the time all the anti-survey households have refused at the screening stage, the households that complete the within-household selection stage may comprise of members that are less likely to refuse. If those anti-survey households are not fully reported in the contact form data, then the quality of such data is poor.

Thirdly, in the presented analysis the type of sample frame was not randomly assigned to the countries. For example, individual samples were used in the ESS in all Nordic countries, some countries of Western Europe, e.g. Austria, Belgium, Germany, Switzerland, as well as some of the CEE countries, e.g. Hungary, Poland, Slovakia and Slovenia. In turn, address and household samples were used mostly in the countries of Southern and Eastern Europe, as well as in Israel and Turkey. This increases the likelihood of reporting a partly spurious effect of the type of sample frame. Moreover, each of the country-level samples are assumed within this analysis to represent a certain type of sample. In fact, many other factors may contribute to such differentiation. From a practical point of view, the most interesting are the factors which remain under the control of the researcher. Apart from sampling frames and types of sample, these are typically considered to include modes of data collection, the number of attempts made at establishing contact and conducting the interview, rules of converting refusals, the presence of incentives, interviewer training and supervision (de Heer 1999). Nonetheless, the differentiation between the respondent's availability and willingness to cooperate can also result from factors remaining outside of the scope of the researcher's control, such as survey climate (see Bethlehem et al. 2011; Smith 2007; Groves, Couper 1998).

Finally, the indicators (I1), (I2), (I3), (I4), (I5) and (I6) rely only on *Contact Forms*, which were developed by the ESS specifically for the purpose of this project (see Stoop et al. 2003). It must be noted that each of the NC Teams can choose either to use the contact forms provided by the ESS or to use their own forms that comply with the requirements of the ESS. The use of other forms than those provided by the ESS involves the risk that the data can be less standardized and that the forms have not been filled out as meticulously as in other countries, e.g. by underreporting non-successful contact attempts, in particular noncontact. For example, Billiet and Pleysier (2007) described several problems concerning the quality and cross country-comparability of ESS contact forms data, while Blom et al. (2008) found a large amount of missing data and a considerable number of mistakes in the number of eligible cases and valid interviews noted in the ESS contact forms. Thus, even call-record data as detailed as those in the ESS give only a general view of the interaction between the target respondent and the interviewer, providing only a partial insight into the respondent's decision to cooperate or not (see Stoop et al. 2010).

Results

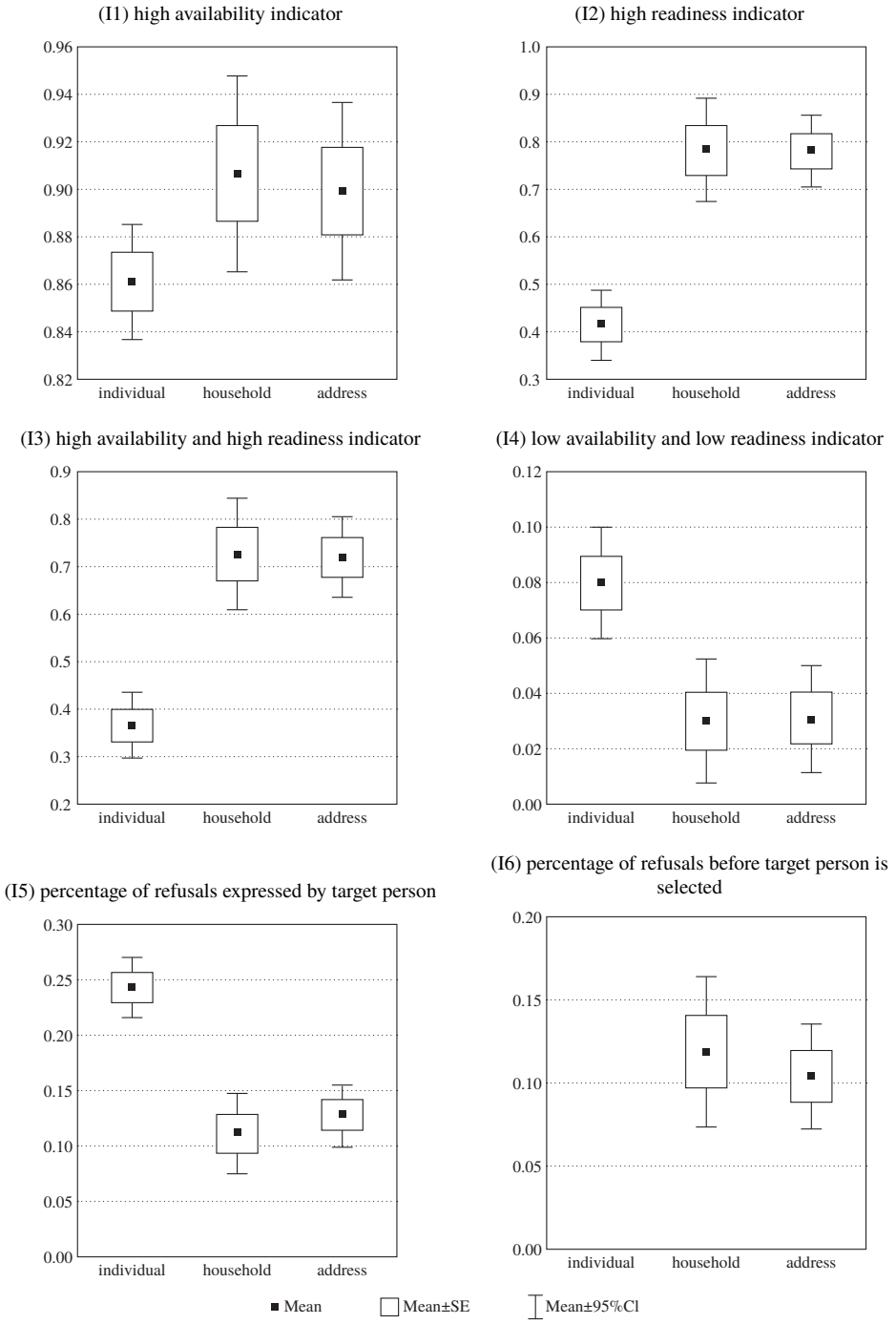
The values of (I1), (I2), (I3), (I4), (I5) and (I6) were calculated for each country, participating in the considered rounds of the ESS project. If a country participated in two or more rounds of the ESS, then the indicators were calculated separately for each round of the ESS. Every single sample / country was then assigned to one of three categories (see Table 1. in Section 4.1.), i.e., (1) address sample, (2) household sample and (3) individual sample, and within each such category, the arithmetic means of all country-level values of (I1), (I2), (I3), (I4), (I5) and (I6) were calculated. In Figure 1 one can find information about the mean value of these indicators within each type of sample, as well as respective values of standard error and 95% confidence interval of such mean.

It can be observed now that in the ESS project the type of sample differentiates to a small extend the overall chances of establishing a successful contact in the first or second visit (see chart I1). However, the type of sampling frames significantly differentiates the percentage of refusals (I5) and the readiness to participate in the survey (I2), (I3), (I4). It is important to point out that the patterns of fieldwork execution of address and household samples turned out to be very similar, and at the same time totally different from those of individual samples. This bear out the supposition that within-household selection of target persons, which constitutes an inherent feature of both household and address samples, differentiates the patterns of fieldwork execution of survey samples. The analysis was not merely conducted to corroborate or falsify this supposition, and the more important task consisted in checking, whether within-household selection is amenable to distortions of the selection process by selecting individuals with higher levels of availability and readiness to corporate. Depending on whether such a situation is indeed the case, one would expect to find different relationships between the values of defined indicators, both in address and household samples and in individual samples.

Making another approach to the data presented in Figure 1, one needs to observe that the significant number of nonresponse cases in address and household samples, was a con-

Figure 1

Boxplots of the Differences Between the Values of Respondent's Availability and Willingness to Cooperate Indicators According to the Type of Sample



sequence of the refusals expressed in the early stages of contact, i.e., before the within-household selection was done and before the target person was selected (see chart I6). It remains of much higher importance at this point, however, that the percentage of refusals expressed directly by target persons, proved much lower in address and household samples (see I5). Obviously, in address and household samples, this percentage may be underestimated, due to the fact that households completing the within-household selection stage may contain more people with a lower propensity to refuse. Nevertheless, even if one adds up the percentages of refusals expressed by the values of indicators (I5) and (I6), then in individual samples a sum of both percentages is still higher.

The analysis of other indicators leads to similarly disturbing conclusions confirming the significant differences in the quality of fieldwork by sample's type. As it turns out, in address and household samples, the fraction of respondents comprises of much more individuals of high availability and readiness to cooperate, than it is in cases of individual samples (see I2, I3). For example, the so-called *easy respondents* (I3) comprise roughly of 72% of all respondents in address and household samples, while this category amounts only to about 37% in individual samples. Conversely, both address and household samples contain much fewer individuals of low availability and readiness to cooperate with the interviewer; the so-called *difficult respondents*, i.e. individuals, who are hard-to-reach and reluctant-to-cooperate, amount to roughly 8% in individual samples, while in household and address samples this category constitutes 3% (see I4).

Conclusions

Analysis presented in this paper confirmed that the use of different types of sample in the ESS project, have a significant impact on the indicators of respondents' availability and their willingness to cooperate. In fact, it was demonstrated that the use of address and household samples is associated with a higher risk of over-selecting individuals more prone to staying at home and more willing to take part in a survey. This is very troubling, as it decreases comparability of cross-country surveys by increasing the selection bias in surveys based on household and address samples. This means, however, that the ability to compare the results of surveys based on address, household and individual name samples in cross-country comparative studies, requires a scrupulous control over the process of within-household selection of the target person in address and household samples. Both household and address samples give the interviewers an advantage over the researchers: the target respondent is not known prior to the fieldwork process, which creates more opportunities for interviewers to replace hard-to-reach and reluctant respondents with those who are easy-to-reach and cooperative.

The results of analysis also indicate, that there are substantial differences in the usefulness of different indicators of survey quality. On one hand, standard survey outcome rates such as response, contact, cooperation and refusal rate have been found to be of little use, in comparing the quality of fieldwork execution in different types of survey samples. These outcome rates reflect only the final result of the sample execution, without indicating what efforts have been taken by research agencies or interviewers to achieve the results. On the

other hand, it has been demonstrated that indicators of respondents' availability and their willingness to cooperate are very useful in detecting fieldwork irregularities. In particular, they can be determined regardless of the type of sample and they do not require any complex call-record data to compute their values. However, since collecting call-record data is not the main purpose of a survey, relevant information is usually not included in databases and sometimes not even jotted down in fieldwork notes (see Stoop et al. 2003). Nevertheless, survey agencies have recently started to collect contact data in interviewer-administrative surveys (Durrant, D'Arrigo 2013), which means that the possibility to assess the quality of fieldwork on the basis of the indicators of respondents' availability and readiness to cooperate will increase. Of course, each survey agency collects contact data according to their own needs; however, such data frequently contains relevant information allowing us to compute the indicators defined in this paper. Considering the growing interest in using para-data in assessing and improving survey quality (Kreuter 2013), it is imperative that the indicators of respondents' availability and readiness to cooperate are employed in future studies, in view of their advantages and usefulness over traditional survey outcome rates.

Acknowledgements

The author thanks two anonymous reviewers for their comments that substantially improved the paper.

Funding

This research is supported by a grant of the National Science Centre Poland: *Porównawcza analiza jakości prób sondażowych w badaniach międzykrajowych z wykorzystaniem wewnętrznych i zewnętrznych kryteriów oceny: inwentaryzacja projektów oraz meta-baza danych wynikowych* [Comparative analysis of the quality of survey samples in the cross-national studies on the basis of external and internal criteria of representativeness: survey archivisation and meta-bases of results] within the framework of the Miniatura competition (No. 2017/01/X/HS6/01304).

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