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Effects of telephone reminders on survey response rates in the SOM-surveys

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ABSTRACT

In the fall 2017, a large-scale experiment on the effects of telephone reminders was embedded in the regional and local SOM-surveys. In this report, we study the effect of reminders by telephone with participants who were yet to respond in the middle stages of data collection. We find mixed support for the effectiveness of telephone reminders. Our analysis shows that reminders by telephone led to significantly higher response rates in the regional survey (3.8 per cent difference) but no significant difference in the local survey. We were able to obtain phone number to 64 and 70 percent of the samples in the local and regional surveys respectively. We conclude that telephone reminders in the early stages of phone number retrieval primarily targets the elderly. Our main conclusion is that telephone reminders have a small potential to increase survey response rates considerably.

Introduction

Many surveys today are struggling with the effects of lower contact- and response rates. In an international comparison, Swedish surveys in the social sciences have had impressive response rates in the past. However, in the last 10-15 years, the response rates have gone down in Sweden too. In the case of the annual SOM-surveys they have decreased from around 60-65 percent to closer to 50 percent. The primary concern of the SOM Institute is that the response rates among the younger cohorts of the population is plummeting to levels close to 30 percent while the response rates for older cohorts are unaffected (Arkhede et al. 2017).

We already know that there are several methods to increase responses to postal surveys. There is empirical evidence of a positive impact on response rates on follow-up surveys and material incentives (Edwards et al. 2002). Telephone reminders, i.e. follow-up contacts by telephone, have effects that are more ambiguous. Previous research provide mixed answers to the question if reminders by telephone is an effective way to improve survey response rates (Tai et al 1999; Edwards et al. 2002).

The annual SOM-surveys have used telephone reminders for several years as a method to increase contact and survey response rates. In this report, we analyze the effect of telephone reminders after 36 field days. The experiment consisted of two random subsamples of two large-scale surveys of the Swedish population conducted in 2017 by the SOM Institute at the University of Gothenburg. The experiment aimed at providing evidence to establish the efficiency of telephone reminders and to know how far we can get if we rely on mail reminders only.

Building on previous findings on the positive effects of repeated contact attempts by phone or otherwise (Dillman 2009), we hypothesize that contacts by telephone will lead to a significantly higher response rate. This report is structured as follows. We begin with a description of the data we use and the experimental design. Second, we analyze the main experimental effects and differential effects in age groups. Lastly, we examine the telephone follow-ups in detail and provide descriptive statistics on how many we actually reach in a telephone effort, who we reach at what they respond.

Data

This study examines the effects of telephone prompts to two random samples of the Swedish population. The SOM Institute at the University of Gothenburg conducted the surveys. The samples were drawn from the national population register and later randomized into two groups, respectively. The experiment was part of two large-scale studies with a total sample size of 15,000 individuals.

The two surveys differed in terms of targeted population. While the local survey targeted residents in Gothenburg, the regional survey targeted residents in West Sweden. However, the populations overlap as Gothenburg is the by far biggest city in West Sweden. In the total survey sample for the regional survey, 951 individuals resided in Gothenburg. The two surveys somewhat differed in terms of substance and the regional survey was four pages longer than the local survey.

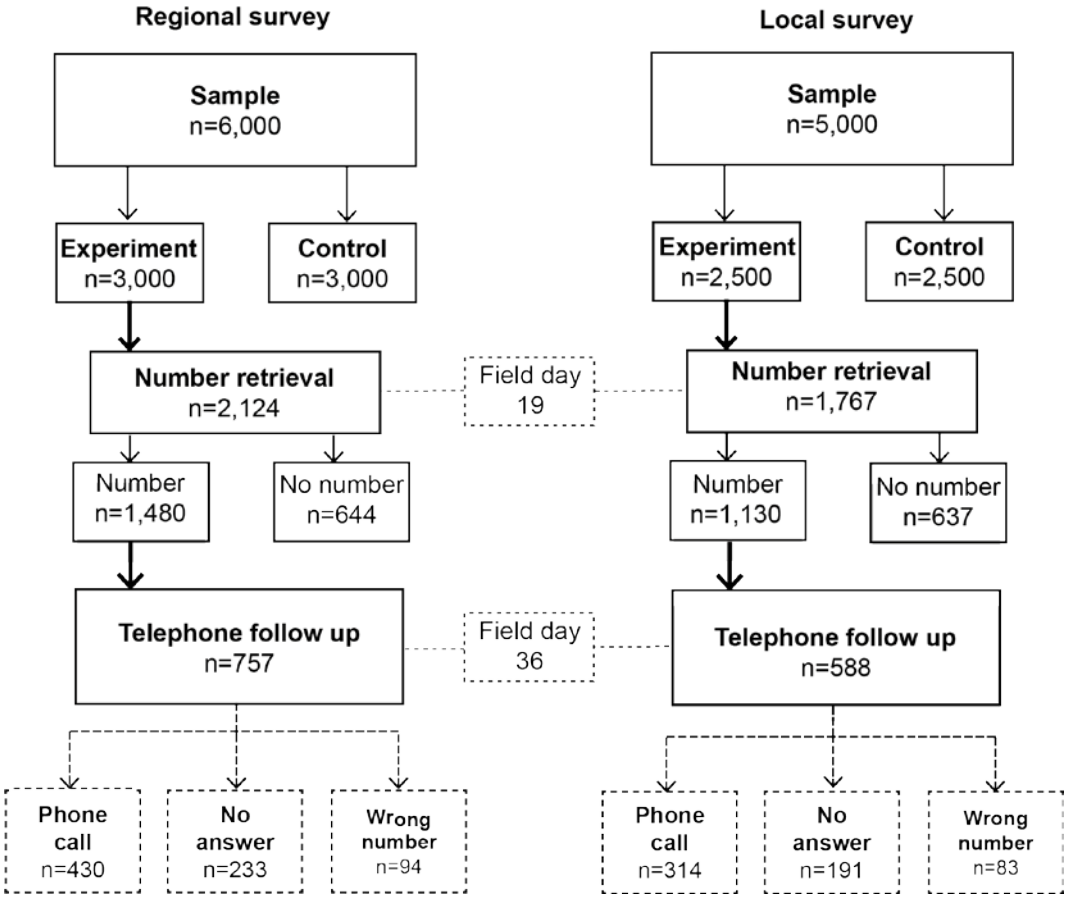
All aspects of survey administration were identical for both surveys. All participants were given a pre-notification, received up to five postal follow-ups and were offered an incentive upon survey completion (a 3€ lottery ticket). The surveys were dispatched by postal agencies on Thursday 14th of September 2017.

Experimental design

Figure 1 lays out the experimental setup. The local and regional survey each randomized the total survey sample into two equally sized experimental and control groups (n=3,000/3,000 in the regional survey, 2,500/2,500 in the local survey). See Appendix 1 for descriptive statistics on the randomized samples. On Day 19 (i.e. 4th of October), a company sought for phone numbers in available registers to all non-responders. The provision of phone numbers happened early in the field period because of text-reminders we dispatched to mobile numbers on field day 21. We were able to obtain telephone numbers to 67 and 70 percent of the respondents in the regional and local survey, respectively (figure 1).

The reminders by telephone started on Day 36 (i.e. 25th of October) and ended 19 days later. Several individuals had already returned a completed questionnaire when the telephone efforts began and the gross response rate was 44.4 percent in the regional survey and 45.4 in the local survey at Day 36. A low share of obtained phone numbers combined with an introduction of telephone reminders in the middle stages of data collection gave us 757/588 individuals to contact in the regional and local survey respectively. The efforts by telephone included a total number of seven contact attempts. The callers provided information to the participants about the surveys. They also registered refusals.

Figure 1 Samples and fielding of experiment

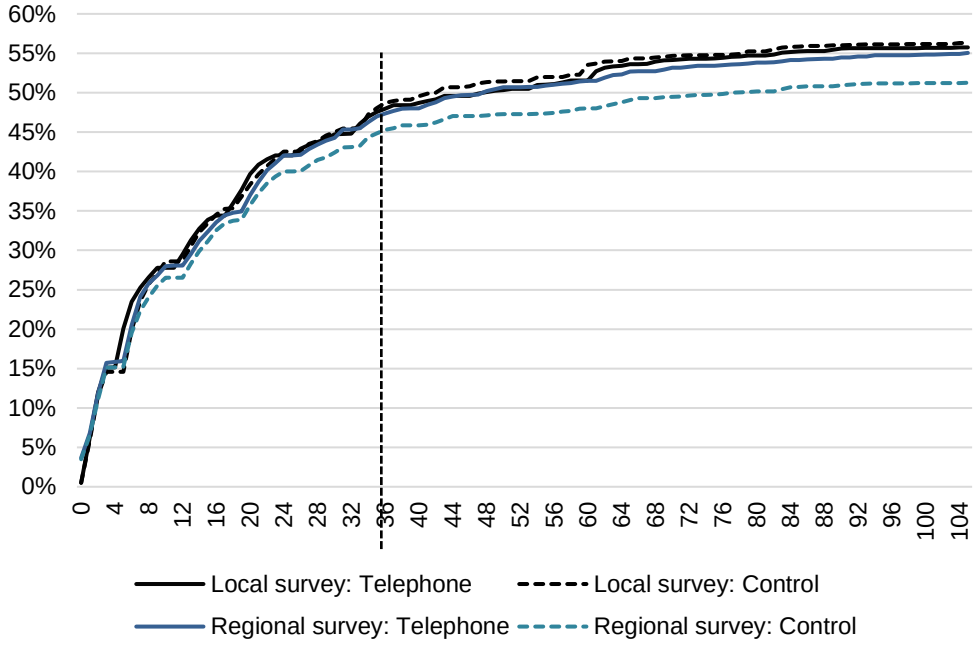


Results

In the result section, we first perform the hypothesis tests of the main experimental effects. Secondly, we investigate heterogeneous affect in age groups. Thirdly, we provide a detailed analysis of the experimental group (i.e. phone call reminder).

Figure 1 show the cumulative gross response rates in our experimental- and control groups. The figure clearly demonstrates how a considerable share of the surveys already was mailed back at the time of the start of our telephone efforts.

Figure 2 Cumulative response rates (percent, RR5)



Note: The dotted line represent the start of the telephone reminders (Day 36).

Table 1 presents the results of two-sided t-tests. In the regional survey, the experimental group was statistically significantly (p=0.004) more likely to return a completed survey. Those included for telephone follow-ups had a final net response rate of 55.0 percent whilst the control group had 51.3 percent. In the local survey, the experimental group had a non-significant (p=0.697) 0.5 percentage point lower response rate.

However, when looking more closely at the regional survey cumulative response rates as shown in Figure 2, we note that the control group was already behind by 2.1 percentage points at day 36 when telephone reminders were introduced. This head start for the experimental group was found to be statistically insignificant (p=0.309), yet eventually grew into the aforementioned significant 3.8 percentage point difference between the groups at the time of closing the survey. If we discount the difference between the control group and the telephone reminder treatment group that existed before the treatment started from the observed effect size we would instead be left with a hypothetical effect size of 1.6 percentage points. With the same sample size such an effect size would not have been statistically significant (based on simply increasing the observed response rate in the control group or decreasing the observed response rate in the treatment group by 2.1 percentage points and using the "prtesti" command in Stata 14).

Lastly, we also test the main effects in the total survey sample where we include both surveys and treat them as one. As previously noted, the survey differs in terms of geographical scope, topics and lengths. We argue that there is no theoretically informed reasoning to

believe that this would affect our experimental results as each observation was randomly assigned to the treatment condition. The effect of telephone reminders on survey response rates fails to reach statistical significance at the 95 percent confidence level when we analyze the combined sample of the two surveys (p=0.058).

Table 1 Response rates (RR5) in local and regional SOM-survey 2017 (per cent)

	Telephone reminder	Control group	Δ	t	p	n
Regional survey	55.0	51.2	+3.8	2.906	0.004	5,758
Local survey	55.7	56.3	-0.5	0.389	0.697	4,773
Regional and local survey	55.3	53.5	+1.8	1.893	0.058	10,531

Note: Results are from the Local and Regional SOM-surveys 2017.

Another interest lies in whether the effects differ between groups. Age has become the most problematic category in terms of representativity in the SOM-surveys; while response rates in the older age cohorts have remained unaffected, the response rates amongst younger age cohorts have plummeted down to 30 percent (Arkhede, Bove, Jansson and Wärnlöf Bové, 2017).

As table 2 shows, there is a significant positive effect of telephone reminders for those who are 50-64 years old in the regional survey. When the samples are divided in age cohorts, there are no other significant differences.

Table 2 Response rates and age

	Telephone reminder	Control group	Δ	t	p	n
Regional survey						
16–29	40.5	37.4	+3.1	1.141	0.254	1,250
30–49	46.8	44.5	+2.2	0.975	0.329	1,836
50–64	59.1	53.1	+2.8	2.196	0.028	1,323
65–85	75.2	71.7	+3.5	1.463	0.143	1,349
Local survey						
16–29	45.3	45.4	-0.1	0.027	0.997	1.228
30–49	49.6	50.8	-1.2	0.481	0.629	1,722
50–64	62.7	66.1	-3.4	1.120	0.262	1,004
65–85	75.2	72.7	+2.4	0.813	0.416	819

Analysis of the experimental group

The aim of this report is to provide a comprehensive evaluation of the impact of telephone reminders in the SOM-surveys. In this final part, we take a closer look at the experimental group. Telephone follow-ups is a costly business for any survey practitioner as you most often pay for telephone number retrieval and outsource the labor of the actual phone calls. The question of how many we actually are able to contact is therefore important as we seek to evaluate the effort in relation to its costs.

Figure 1 shows the setup of the telephone reminders. The experimental groups were assigned to receive telephone prompts on field day 36. As previously mentioned we sought for telephone numbers early in the field period in order to meet a text-reminder on field day 20. We were able to provide a phone number (landline or cell phone) to 70 percent of the experimental group in the regional survey and 63 percent in the local survey.

Table 3 shows the outcome of telephone number retrieval. It is noticeable how the local survey, with respondents from a large city, has a smaller share of obtained phone numbers compared to the regional survey with respondents from cities and areas that are more rural. Those who live in a bigger city (Gothenburg municipality) are more difficult to reach, and not surprisingly, younger people under the age of 30 are extensively more difficult to reach. We therefore conclude that telephone reminders in the early stages of phone number retrieval primarily targets the elderly.

Table 3 Telephone number retrieval (percent of retrieved numbers)

		Regional survey (n=2,124)	Local survey (n=1,767)
	Total	70.1	63.1
Gender	Male	69.2	64.8
	Female	70.7	63.4
Age	16-19	53.4	45.2
	20-29	62.0	61.3
	30-49	67.4	64.5
	50-64	75.8	67.0
	65-85	80.2	70.5
Residential area	Gothenburg municipality (GM)	64.9	63.1
	Gothenburg region (GR),	70.8	-
	West Sweden, not GR/GM	72.7	-

We began calling out to people on field day 36. As shown in Figure 1, 757 and 588 individuals in the regional and local survey respectively were subject for telephone reminders (i.e. had not yet responded on field day 36 and had a valid phone number). The callers tracked the status for each respondent. If they were able to speak to a respondent, the callers answered questions about the survey and asked for their participation. The callers also collected refusals and reasons for refusal. Table 4 shows the outcome of the telephone reminders in both surveys.

Table 4 Telephone contact rates after age cohorts

Regional survey	16-29 (n=199)	30-49 (n=280)	50-64 (n=155)	65-85 (n123=)	Total (n=757)
Willing to answer	33.7	31.0	21.9	13.8	27.1
Already sent in questionnaire	1.0	2.1	1.3	3.3	1.8
Refusal	17.1	19.3	34.2	56.9	27.9
No answer	33.7	34.6	31.9	17.1	30.8
Wrong number	14.6	12.9	11.6	8.9	12.4
Local survey	16-29 (n=168)	30-49 (n=238)	50-64 (n=120)	65-85 (n=62)	Total (n=588)
Willing to answer	24.4	23.5	20.0	19.3	22.6
Already sent in questionnaire	2.4	1.7	4.2	4.8	2.7
Refusal	20.8	27.3	29.2	48.4	28.1
No answer	36.9	32.8	35.8	12.9	32.5
Wrong number	15.5	14.7	10.8	14.5	14.1

Close to a third did not answer any of the seven phone call attempts. There are large differences between the youngest and the eldest: 33 (regional) or 36 (local) percent of the youngest age cohort did not answer any of the seven phone calls. The corresponding figures in the oldest age cohort were 13 (regional) and 17 (local) percent.

Between 12 and 14 percent in the regional and local survey said the number was registered to someone else. In the regional survey, 27 percent said they were willing to answer the survey (n=205). The corresponding figure in the local survey was 22 percent (n=133). A close to equal share voiced an unwillingness to participate. Here, we conclude that telephone reminders late in the fieldwork period only reached a small share of the sample. Only a small share expressed a willingness to participate out of those we were able to contact.

Table 5 provides a final analysis of the outcomes in the experimental group. The table demonstrate the response rates for those who remained to answer on Day 36 and thus were subject to telephone reminders within the experimental group. Here, we differentiate between those who we were not able to contact (i.e. did not have a phone number), those who had a phone number but did not answer or wrong number, and those who received a phone call.

The response rates are generally low in the group we analyze; as Figure 2 show, most people take the survey in the beginning of the fielding period. Table 5 also makes it possible to nuance our results from the t-tests and again demonstrate the small potential effects. Despite large samples, we were only able to reach very few individuals and an even smaller share of those sent in a complete questionnaire following the telephone reminder. The response rates were 21.9 and 20.9 percent in the local and regional survey respectively for those who answered the phone call and gave a positive response, refused or already had sent in.

Table 5 Response rates in experimental group after Day 36 (per cent)

	Regional survey	Local survey
No phone number	10.1	11.7
No answer/wrong number	7.9	7.9
Answered[1]	21.9	20.9

Note: [1]Includes willing to answer, already sent in questionnaire and refusal (see table 4).

Summary

Telephone follow-ups is a costly business for any survey practitioner, both in terms of costs and from a respondent perspective. For several years of practice, the SOM Institute has used telephone prompts as a means to increase contact and response rates. In the fall 2017, we powered a large-scale experiment in two of our surveys in order to evaluate the effect comprehensively. In this study, we found mixed effects of telephone reminders. We found a significantly positive effect on response rates in the regional survey in West Sweden but no significant difference in the local survey in Gothenburg. We found weak support for heterogeneity in the effects of telephone reminders between age groups,: there was a positive effect in the middle-aged category, 50-64 years of age, in the regional survey but no additional significant differences. The more detailed analysis of the experimental groups reveals a difficulty to reach enough individuals. First, we lose 30 percentage of the experimental sample in the phase of phone number retrieval. Secondly, telephone reminders rules out the younger share of the sample and targets the elderly that already have a high degree of response- and contact rates. Thirdly, out of those we were able to contact, only around a third expressed a willingness to participate in the survey. The results of the use of telephone reminders on Day 36 therefore suggest that telephone reminders have a small potential to, at least considerably, increase survey response rates.

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Appendix 1. Sample composition

Local survey	Experimental group	Control group	Population
16-19	5,4%	5,0%	5,4%
20-29	16,3%	17,3%	17,4%
30-39	15,4%	15,6%	16,0%
40-49	15,6%	16,8%	16,5%
50-59	15,9%	15,6%	15,9%
60-69	14,9%	14,8%	14,2%
70-79	12,0%	11,1%	11,0%
80-85	4,4%	3,7%	3,6%
Female	49,4%	48,8%	49,7%
Male	50,6%	51,2%	50,3%
Lives in Gothenburg	31,7	31,4	32,3

Note: The population in the local survey is residents of Gothenburg city between 16 and 85 years of age.

Local survey	Experimental group	Control group	Population
16-19	4,8%	4,5%	4,8%
20-29	21,8%	21,0%	21,7%
30-39	20,0%	20,6%	20,0%
40-49	16,4%	15,4%	15,9%
50-59	14,4%	14,1%	14,5%
60-69	10,9%	12,7%	12,1%
70-79	9,0%	8,6%	8,3%
80-85	2,9%	3,0%	2,7%
Female	49,8%	48,9%	50,1%
Male	50,2%	51,1%	49,9%

Note: The population in the regional survey is residents in West Sweden (Region West and Kungsbacka municipality) between 16 and 85 years of age.