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Transition to digital correspondence in phone- and web surveys *– mail letter versus email*

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Introduction

This paper presents results from two studies investigating the effect of using email and SMS for pre-notice and follow-up in web- and CATI surveys, in contrast to the use of traditional paper letters. The studies were conducted as experiments in a post-election web-survey conducted in 2015, and an "Omnibus" CATI-survey in 2016. We have analyzed the effect of mail letter versus email on response rates in total, and further on various social characteristics. Last we have looked at whether email or mail pre-notice have different impacts on sample bias.

1. Background

Traditionally, written correspondence with respondents in Statistics Norway's (SSB's) surveys have consisted of a pre notice letter sent by mail, and follow-up by SMS, and/or an additional mail letter. However, SSB is currently undergoing a transition from paper-based to digital correspondence with all survey respondents. This transition was initiated by a bill passed by the government in 2014 that subject all state institutions to strive for digital correspondence with individuals, and private institutions. Further the transition is considered as a measure for general cost reduction within the statistical agency. Lastly, a very important prerequisite for this transition is good contact information regarding private email addresses. In 2015, the survey division in SSB started using a national contact register, provided by the Agency for Public Management and eGovernemnt, containing email addresses on approximately 83 per cent of the population.

The use of pre notice letters and follow-up letters is widely acknowledged to have a positive impact on non-response in household surveys in general (Dillman 2007). However, there is limited research on the use of mail letters versus email for different survey types and modes. Regarding web surveys one could expect a mail letter to have less impact on response rate, since the survey itself must be answered on the web – the contact letter follows the mode. Crawford, Mccabe, Saltz, Boyd, Freisthler and Pascall (2004) however, found that mail letters led to significantly higher response rate than an email prenotice in a web survey among students. Further, Tourengeau, Conrad and Couper (2013), by looking at some earlier findings on the use of prenotice in web surveys, suggests that email have a far less positive impact, than mail letters or SMS. This gives reason to believe that the use of mail letters have a more positive effect in web surveys. Regarding phone surveys we have found no literature testing the effect of different pre notice modes.

2. Case 1 – The effect of mail versus email in a web survey

2.1 Background and method

The first experiment was conducted in a post-electoral survey conducted in autumn 2015. The survey was self-administered, mainly done as a web survey, but offering paper to those who preferred non-web. The purpose of the survey is to provide statistics and knowledge about different groups' political participation, party preference, political attitudes and voting behavior. The survey sample consisted of 18,181 respondents. The sample was stratified on immigrant groups, where 85 % of the sample was a random population sample, and the about 15 % was a group consisting of first and second generation immigrants. Altogether the response rate was 35 per cent, where 98 per cent of the net sample did the survey on web, 2 per cent on paper.

The sample of 18 181 respondents was split into five random groups. Group 1-4 received an email pre-notice, and group 5 received the same letter sent by mail. The follow-up was the same for all five groups, after receiving the pre-notice letter, either digitally or sent by mail, they received a follow-up email with link to the web form. A SMS reminder was also sent to all groups. The reason for splitting the email group into 1-4 was due to a different experiment on timeliness of further follow-up, but they all had in common that the pre-notice was the same email letter. Therefore we have treated these groups as one, and compared it with group 5.

2.2 Results

Table 1 shows response rates for the email- and mail groups, broken down on several demographic characteristics. The table shows a clearly higher response rate in the group who received a pre-notice letter by mail. A difference of 11 percentage points gives in this case a 1/3 increase in response rate when a mail letter is sent instead of an email. This is remarkably high. Further the table shows that the effect on response rate is about the same among men and women for both mail and email. Looking at age groups one can see that the positive effect of a mail letter is slightly lower in the youngest and the two oldest age groups. Regarding education level there is as slightly lower effect of sending mail letter versus email among the lowest education group (5,9 percentage points compared to approximately 10 percentage points in the higher education groups). When comparing Norwegians and immigrant groups in the sample the effect of sending mail letter appears to be the same.

Table 1 Response Rate email/mail group by Gender, Age-group, Education level and Origin

	Response rate email group	Response rate mail group	Difference in percentage points
Total	33	44	11
Gender			
Men	33	40,4	10,4
Women	32,8	42,4	9,6
Age-group			
18-24	29,8	33,6	3,8
25-44	33,5	43,4	9,9
45-66	35,5	45,1	9,6
67-79	33	40,9	7,9
80-	12,6	15,7	3,1

Education level			
Low	24,2	30,1	5,9
Middle	32,3	42,5	10,2
High	47,6	58,1	10,5
Origin			
Native	37,5	45,7	8,2
Non-native	31,2	39,9	8,7

Table 2 shows the difference between gross sample and net sample in the two groups, giving an overview of how sample bias varies. Overall the group who received mail letter seems to have a slightly more under-represented among men in lower age groups compared to the email group. Looking at education both groups show a clear under-representation in lower education groups, but the bias differs little between those who received mail and those who received email. The same can be seen in native-Norwegians compared to non-native Norwegians.

Table 2 Difference between gross sample and net sample in mail/email group

	Difference gross - net digital group	Difference gross - net mail group
Gender		
Men	0,2	-1,6
Women	-0,2	1,6
Age-group		
18-24	-1,3	-3,6
25-44	0,6	2,4
45-66	2,4	3,2
67-79	0	-0,3
80-	-1,7	-1,7
Education level		
Low	-8,6	-9,1
Middle	-0,4	0,1
High	12,3	13,3
Origin		
Native	4,4	3
Non-native	-4,5	-3

3. Case 2 – the effect of mail versus email in a phone survey

3.1 Background and method

The second experiment was conducted in Statitics Norway's travel and Holiday Survey (Omnibus survey). The survey is conducted every quarter with a sample of 2000 respondents. In Q1 2016, we

conducted an experiment where one half of the survey sample received the normal mail letter, while the other half received a pre notice email. The mail letter and email were equally written, with the same information and the same font.

The 1,000 who received email was drawn randomly among those with registered email address from the register (75% of the gross sample). The rest, including the 250 that had no registered email address, ended up in the group receiving mail letters. We have chosen to keep the 250 with no registered email outside analyzes. That means the group receiving mail letter consists of 750 people.

3.2 Results

Table 3 shows the response rate in the two groups. The response rate is overall slightly higher in the group receiving letters by mail (4 percentage points). Looking at the response rate by gender, age and education, we find a few major differences between the groups. Among men, there are over 7 percentage-points difference between those who received a letter by mail opposed to those who received email. Almost 8 percentage points more aged 16-25 responded when they received a letter in the mail than when they received email. For people with lower education, sending a paper letter increased response rate with 9.3 percentage points. All these discrepancies are significant at the 5 percent level.

Table 3 Response Rate email/mail group by Gender, Age-group, Education level

	Response rate Email group	Response rate mail group
Total	61,7	65,9
Gender		
Men	60,6*	68*
Women	62,9	63,9
Age groups		
16-25	62,4*	71,2*
26-44	55,3	59,1
45-66	64,2	69,9
67-79	75	72,6
Education level		
Low	49,8*	59,1*
Middle	63,7	67,9
High	71,2	73

*significant at 5 per cent level

Table 4 shows the share of refusals and non-contacts in the sample. In total we see that the refusal rate is higher in the group receiving email, while the non-contact rate is somewhat lower. This may be because receiving an email makes it easier for the respondents to re-contact SSB to let us know that they do not wish to participate. Parts of the non-contact share will then transfer into refusals.

Similar pattern can be seen when looking at the distribution in to subgroups by gender, age and education. In the youngest and oldest age groups we see that both the refusal rate and non-contact rate is lower in the mail group than in the email group.

Table 4 Share of refusals and non-contacts in email-/mail group

	Email group	Mail group	Email group	Mail group
	Refusal rate	**Refusal rate**	**Non-contact rate**	**Non-contact rate**
Total	16,1	10,4	16,4	18,1
Gender				
Men	16,2	9,1	16,2	18,2
Women	15,8	11,7		17,9
Age groups				
16-25	12,9	9,1	19,4	16,7
26-44	17,9	10,1	19	23,1
45-66	16,7	11,3	14,6	15,2
67-79	12	11,8	8,7	5,9
Education level				
Low	19,2	12,2	24,7	24,3
Middle	18,8	12	13,8	17,5
High	10,4	9,4	14,2	13,7

Table 5 shows the differences between the gross sample and net sample in the two groups. We see a tendency for increased bias in education when we use email instead of letters. Fewer with low education and more with higher education responds when they get email instead of mail letters. For the other variables we see no clear differences.

	Difference gross - net email group	Difference gross - net mail group
Gender		
Men	-1	1,5
Women	1	-1,5
Age groups		
16-25	0	1,5
26-44	-3,7	-4,2
45-66	1,6	2,1
67-79	2	0,6
Education level		
Low	-4,9	-3,2
Middle	0,5	0,4

High	4,4	2,8

4. Conclusion

Looking at the web survey case, we found a considerably higher response rate when sending a mail letter in advance. Further, the difference in response rates varies little between the two groups when broken down on the subgroups; gender, age groups and education. Further we see that sending mail or email as a pre notice has little effect on sample bias.

Regarding the phone survey case we found a higher response rate among those receiving mail letters compared to those receiving email, but not as high as in the web survey case. The positive effect of sending a mail letter was strongest for men in the youngest and oldest age groups, and for those with low education. We also see a tendency that non-contact rate is reduced and the percentage of refusals increases when we use email, which may be because it is easier for respondents to re-contact the statistical agency by email, telling they do not wish to attend than by mail. Looking at sample bias, there is no major differences, but we observe that fewer with low education and more with higher education responds when they get email instead of mail.

The transition to digital correspondence with respondents in household surveys needs to be further tested. In this paper we see a clear positive effect when using mail letters, especially in the web survey case. This gives us reason to reconsider the cost-benefit of moving away from paper letters, and solemnly correspond digitally. There is a considerable cost associated with printing, packaging and sending letters by mail in household surveys, but if the effect on response rate is as strong as shown in these two cases the benefit might outperform the cost. On the other hand, the decrease in response rate appears to have little effect on sample bias when looking at gender, age and education. Based on that observation one can argue whether the positive effect of using mail letters actually have a big effect on data quality.

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