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NTS incentive and letter experiment 2018

Interim analysis report

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1 Background

In recent years response rates to major governmental surveys have been falling across the industry. While the National Travel Survey (NTS) response rate¹ remained stable at around 60% until 2015, it dropped to 58% in 2016 and then to 53% in 2017 (Cornick, Byron, Templeton and Hurn, 2018).

The fall in response rate is largely attributable to an increase in refusal rates. Indeed, contact rates have remained stable and the number of calls that interviewers make per case has actually increased in recent years.

As such, NatCen and the DfT have explored ways to encourage participation. In particular, focus has fallen on two areas: respondent materials and incentives. In 2018 two experiments were conducted: one exploring the impact of a redesigned advance letter and one looking at the impact of different incentive strategies.

This paper presents the initial analysis of these two experiments, based on cases issued between January and June 2018. A report for data based on the full survey year will be published later this year.

1.1 The advance letter experiment

Addresses selected to take part in the NTS are sent an advance letter by the interviewer before they start making contact. The purpose of an advance letter is to i) notify the household or respondent that they have been selected for the study; ii) give them information about the study; and iii) encourage them to take part in the study.

In 2017 NatCen redesigned the advance letter based on the EAST (Easy, Attractive, Social and Timely) principles developed by the Behavioural Insights Team, alongside findings from qualitative research run on advance communications for the English Housing Survey and the Health Survey for England. Key changes to the advance letter included:

- Using simpler language
- Clearer use of heading and visual features for key points
- Giving a greater sense of ‘social exchange’ within the text (e.g. ‘by helping us this will benefit you’)
- Making the letter more authoritative by designing it as if it comes from the DfT (using the DfT logo, official colour and a senior signatory).

To explore whether this re-design had an impact on response or sample quality in 2018 half the sample were sent the existing letter and half were sent the re-designed letter. The front page of both advance letters can be found in Appendix A.

¹ In the NTS, fully productive response rates are based on households where all members of the household complete the survey and a 7-day travel diary.

1.2 The incentive experiment

Conditional and unconditional incentives have been used on the National Travel Survey since 2004. The unconditional incentive is currently a book of six first class stamps sent with the advance letter. The conditional incentive is a £5 voucher given to every member of a fully productive household (i.e., a household where all members have completed the interview and travel diary).

As the main driver of the recent fall in response has been an increase in refusals on the doorstep, efforts to improve response focused on the unconditional incentive. As such, an experiment was conducted where the impact of using a monetary unconditional incentive (a £10 Post Office voucher) was trialled (treatment 1), as was the use of 'discretionary' incentives (treatment 2). A discretionary incentive is a monetary voucher which interviewers are able to use at their discretion to encourage response. These two treatments were compared against a control group using the existing design to see if they had any impact on response or sample quality.

2 Methodology

In order to conduct the incentive experiment and the letter experiment simultaneously, while controlling for geographic and seasonal characteristics, sample points were sorted using the standard NTS strata and then split into six groups, as follows:

- Incentive: Control, Letter: Existing
- Incentive: Control, Letter: Re-designed
- Incentive: Treatment 1, Letter: Existing
- Incentive: Treatment 1, Letter: Re-designed
- Incentive: Treatment 2, Letter: Existing
- Incentive: Treatment 2, Letter: Re-designed

This ensured that three equal groups of sample points were created to test the different incentive options and two equal groups were created to test the letter versions.

The analysis in this report is produced using data from the first six months of NTS 2018 (all sample points issued between 1 January and 30 June 2018). In total this covers 6,426 issued cases (or 378 sample points).

Both experiments were analysed based on three main criteria: Firstly, whether the treatments affected response to the survey (i.e., were people more likely to participate in the survey when we changed the incentive given to them or the advance letter sent to them). Secondly, whether the treatments made the sample composition more representative of the target population. Finally, an analysis on the number of calls the interviewer had to make (i.e., the amount of work they had to do) for each incentive group, and on the rate of cases which were returned as non-contact.

This analysis is designed to inform the incentive strategy for the 2019 survey.

All differences discussed in this report are statistically significant, unless stated otherwise. Please note that some differences which are not statistically significant are commented on in the text. This is to highlight differences which may become significant when data for the full year is analysed.

3 Advance letter

In this analysis, our aim is to see if the redesign of the advance letter had any impact on either the response rate, the quality of the achieved sample, or the amount of work the interviewer had to do per case. Please note, the figures in the analysis of sample composition include both fully productive and partially productive cases. This section will outline the key findings from the analysis.

3.1 Analysis

3.1.1 Response rates

We carried out a logistic regression to test whether the response rate (full and partial) and the refusal rate (office refusals and field refusals) are affected by the letter sent to the household.

Table 3:1 shows that the re-designed letter had a marginally higher response rate for fully productive interviews compared with the existing letter (1.3 percentage point difference). The logistic regression did not show this difference to be significant and so there is little evidence at this stage to suggest that the lift in response would be sustained over a longer period or repeat trial, although this will be reassessed when data for the full year is available.

There was very little difference between the refusal rates for the existing and the re-designed letter. The re-designed letter shows slightly lower office refusals, but this difference was not significant.

	Existing letter (%)	Re-designed letter (%)
Fully co-operating	51.6	52.9
Partially co-operating	6.3	5.7
Refusal to co-operate and other unproductive	34.5	34.1
Non-contact	7.6	7.3

3.1.2 Sample composition

The sample compositions for the letter groups were tested to see if either produced samples which were more representative of the target population on NTS. Response to the survey was broken down by age, sex, ethnicity, education and working status for both groups. These were then compared to the equivalent demographic breakdowns in the weighted 2017 figures. This allows us to assess whether the incentive experiment treatment groups are associated with a more representative sample.

Table 3:2 shows the breakdown of productive interviews by these demographic variables along with the weighted 2017 figure for each of the groups. An ‘*’ is shown in the table where an estimate is significantly different from the 2017 figure.

Both experiment sample groups tend to over-represent older people and under-represent younger people and, while there is some indication that this is more the case with the re-designed letter, the differences are very small here. Generally speaking, this is to be expected as most surveys under-represent young people.

The results indicate that the letter may under-represent people from black or 'other' ethnic backgrounds. However, these differences are relatively small, and it is difficult to unpick any potential area effects which may also be at play in a relatively small sample. This difference will be tested again when data for the full year is available.

There was some evidence to show that those with A-levels or GCSEs are under-represented in the sample that received the existing letter. There was no evidence to show that either sex or working status were different because of the letter issued.

	Existing letter (%)	Re-designed Letter (%)	Weighted figure from 2017 (%)
Age			
18-24	8.8*	8.3*	10.3
25-34	15.1*	15.6*	17.5
35-44	15.8	15.4*	16.7
45-64	33.7	32.5	33.0
65+	26.6*	28.2*	22.5
Sex			
Male	49.0	48.8	49.3
Female	51.0	51.2	50.7
Ethnicity			
White	84.4	86.3	85.6
Mixed	1.5*	1.7*	1.3
Asian	8.9	8.6	8.7
Black	3.8	2.5*	3.3
Other	1.3	0.8*	1.2
Education			
Uni degree/Higher	37.7	35.6	36.5
A-Level or GCSE	37.4*	40.8	39.7
Other or no formal qualifications	24.9	23.6	23.8
Paid work last 7 days			
Yes	54.8*	55.8*	59.2
No	45.2*	44.2*	40.8

3.1.3 Call analysis

There was very little difference between the mean number of calls interviewers made for each productive case between both letters. The existing advance letter had 5 calls per successful interview whilst the re-designed letter had 4.8 calls.

	Existing letter	Re-designed letter
Mean number of calls	5.0	4.8

However, there was a significant difference between the mean number of calls for refusals between the existing and the re-designed advance letters. The existing advance letter had an average of 5.1 calls per refusal, whilst the re-designed letter had an average of 4.7.

	Existing letter	Re-designed letter
Mean number of calls	5.1	4.7

There was a slightly lower non-contact rate for the re-designed letter (7.3% compared with 7.6% for the existing letter), but the difference is not significant. Taking this into account, the interviewers worked marginally less in the areas which received the re-designed advance letter, but achieved a response rate the same (or higher) as in the areas with the existing letter.

	Existing letter (%)	Re-designed letter (%)
Mean number of calls	7.6	7.3

This suggests that there is no reason why the re-designed letter should not be used across the whole sample in 2019.

4 Incentive experiment

In 2018 an experiment looking at different incentive strategies was introduced. Three strategies for unconditional incentives were used:

- **The control group** used a book of six first class stamps as the unconditional incentive;
- **Treatment group 1** used a £10 Post Office voucher as the unconditional incentive;
- **Treatment group 2** used a book of six first class stamps as the unconditional incentive, but interviewers were also able to use up to 2 x £25 vouchers per sample point.²

All groups used a £5 conditional incentive for all fully productive households.

4.1 Analysis

4.1.1 Response rates

Logistic regression was carried out on the results to test whether the incentive treatments influenced response or refusal rates.

Table 4:1 shows that no significant difference was found in response or refusal rates between the control groups and the two treatment groups.

	Control group (%)	Treatment grp1 - £10 PO voucher (%)	Treatment grp2 - Stamps + discretionary incentive (%)
Fully co-operating	52.8	52.0	51.9
Partially co-operating	5.8	6.4	5.8
Refusal to co-operate and other unproductive	32.9	34.5	35.6
Non-contact	8.5	7.1	6.8

4.1.2 Sample composition

A t-test was carried out comparing the three incentive groups to the weighted 2017 figures. This assessed whether each treatment group is associated with a more representative sample. An “*” is shown in the table where an estimate is significantly different from the 2017 figure.

² Sample points in the NTS consist of 17 addresses.

Those aged 18-34 are under-represented in all groups (as they are in most surveys). However, they are marginally more likely to be under-represented in the control group (where stamps are sent with the advance letter), which also has the highest proportion of adults aged 65+. One hypothesis for this finding is that stamps are more likely to appeal to an older audience.

In contrast, treatment group 2 has the highest representation of 18-34 year olds, which suggests that the discretionary incentive may help to encourage younger people to take part.

The control group also very slightly over-represents those with no formal qualifications or other qualifications, which the treatment groups seem to correct.

	Control (%)	Treatment 1 (%)	Treatment 2 (%)	Weighted figure from 2017 (%)
Age				
18-24	8.2*	8.6	8.7	10.3
25-34	13.7*	16.0	16.5	17.5
35-44	15.8	15.1*	16.0	16.7
45-64	34.0	33.6	31.7	33.0
65+	28.3*	26.8*	27.0*	22.5
Sex				
Male	49.1	48.3	49.3	49.3
Female	50.9	51.7	50.7	50.7
Ethnicity				
White	84.6	84.2	87.3*	85.6
Mixed	1.8*	1.6	1.4	1.3
Asian	8.9	9.6	7.8	8.7
Black	3.7	3.3	2.5*	3.3
Other	1.0	1.2	1.0	1.2
Education				
Uni degree/Higher	35.9	35.5	38.5	36.5
A-Level or GCSE	38.4	40.6	38.4	39.7
Other or no formal qualifications	25.7*	23.9	23.1	23.8
Paid work last 7 days				
Yes	54.4	56.6	54.9	59.2
No	45.6	43.4	45.1	40.8

4.1.3 Call analysis

Again we looked at number of calls and the non-contact rate to get a sense of the amount of work interviewers are required to do in each experimental group. As Table

4:3 shows there is no significant difference between the mean number of calls across the treatment groups for productive cases. The productive cases in the control group (stamps) had an average number of 4.9 calls. Those in treatment group 1 (Post Office voucher) had an average of 4.8 calls. Treatment group 2 (stamps and discretionary incentive) had an average of 4.9.

Table 4:3 Number of calls per productive case, by incentive group			
	Control	Treatment 1	Treatment 2
Mean number of calls	4.9	4.8	4.9

Similarly, Table 4:4 shows there is no significant difference between the mean number of calls across the treatment groups for refusal cases.

Table 4:4 Number of calls per refusal, by incentive group			
	Control	Treatment 1	Treatment 2
Mean number of calls	5.0	4.7	4.9

4.1.4 Cost analysis

Swapping the unconditional incentive from a book of six first class stamps to a £10 Post Office voucher appears to have relatively little impact on either the response rate or the quality of the sample generated. As such, the cost of each approach will have a significant impact on the decision on which to use in 2019.

A book of six first class stamps currently costs £4.02. Therefore, this is the cost per address of administering stamps as the unconditional incentive (the cost of stamps is passed through directly to the DfT).

The cost per address of using Post Office vouchers is more complex to calculate before the end of the fieldwork period. Data from the first half of the year, along with our experience of using Post Office vouchers on other surveys with a similar sample design, suggests that the encashment rate will be around 40%. With a £10 voucher, that equates to a cost of £4 per issued case. The use of Post Office vouchers also incurs an additional administration cost, estimated to be around 63p per address, taking the total estimated cost to £4.63 per issued case. Once all the vouchers have either been cashed or expired we will be able to provide a final cost per issued case.

Evidence from the first half of the 2018 survey year suggests that around 24% of available discretionary incentives are being used by interviewers. At a cost of £25 per voucher, this equates to a cost of around 72p per issued address. However, this figure would obviously rise if use of discretionary incentives increases, or if a higher value voucher is used.

5 Recommendation

Based on analysis of data from the first half of the experiment we make the following recommendations for the 2019 survey:

- The re-designed version of the letter should be used across all addresses.
- There is no compelling reason, at this stage, to change the existing unconditional incentive of a book of first class stamps, which are cheaper to administer, so we recommend using this across all addresses. However, this research has shown that should the cost of stamps outstrip the cost of issuing Post Office vouchers in the future it will be possible to change the unconditional incentive without significantly impacting on the survey response rate or sample quality.
- The results suggest that the discretionary incentive may have a positive impact in improving the quality of the sample, but more information is required to fully understand its impact. As such we recommend continuing with the experiment with discretionary incentives in 2019.

These recommendations will be reviewed once data for the full 2018 survey year is available and are therefore subject to change for the 2020 survey.