

NTS incentive and letter experiment 2018

Analysis report

NatCen

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NatCen Social Research
35 Northampton Square
London EC1V 0AX
T 020 7250 1866
www.natcen.ac.uk

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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 and 2018 (Cornick, Cant, Byron, Templeton and Hurn, 2019).

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 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 analysis of these two experiments and provides an update to the interim incentive experiment report published earlier in 2019, based on cases issued between across the whole of the 2018.

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 whole year data NTS 2018. In total this covers 12,852 issued cases (or 756 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 future surveys.

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 were close to being statistically significant and could become significant with a larger sample size.

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 very similar response rate for fully productive interviews compared with the existing letter (0.1 percentage point difference). Based on the full year results it is clear the re-designed letter had no impact on response rates.

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.

Table 3:1 Key outcomes by letter, Standard Response Rate

	Existing letter (%)	Re-designed letter (%)
Fully co-operating	52.6	52.5
Partially co-operating	6.0	5.6
Refusal to co-operate and other unproductive	34.3	34.8
Non-contact	7.1	7.1

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 of the population under-represent young people.

The results indicate that the re-designed letter may under-represent people from Black or Asian ethnic backgrounds and slightly over-represent those from White and those from Mixed backgrounds. However, these differences are relatively small, and it is difficult to unpick any potential area effects which may also be at play in relatively small samples when looking at sub-sectional analysis.

The interim report suggested there was some evidence to show that those with A-levels or GCSEs are under-represented in the sample that received the existing letter. On the whole year sample, A-levels and GCSE's were not significantly under-represented. There is some indication the redesigned letter is better at representing those who have qualifications under degree or higher education level (though these differences are not statistically significant). There was no evidence to show that either sex or working status were different because of the letter issued.

Table 3:2 Demographic profile breakdown by letter

	Existing letter (%)	Re-designed Letter (%)	Weighted figure from 2017 (%)
Age			
18-24	7.6*	7.1*	10.3
25-34	15.1*	15.5*	17.5
35-44	15.8	15.4	16.7
45-64	33.7	34.5*	33.0
65+	27.4*	27.2*	22.5
Sex			
Male	48.3	49.1	48.7
Female	51.7	50.9	51.3
Ethnicity			
White	85.2	86.9*	86.0
Mixed	1.5*	1.6*	1.6
Asian	8.1	7.6*	8.6
Black	4.0*	2.7*	3.3
Other	1.3	1.1	1.2
Education			
Uni degree/Higher	36.5	37.6	36.5
A-Level or GCSE	38.6	39.0	39.7
Other or no formal qualifications	24.9	23.5	23.8
Paid work last 7 days			
Yes	55.4*	56.8*	59.2
No	44.2*	43.2*	40.8

3.1.3 Call analysis

Interviewers made the same number of calls for productive cases for both the existing letter and the re-designed letter. Interviewers made an average of 4.9 calls per successful interview.

Table 3:3 Number of calls per productive case, by letter

	Existing letter	Re-designed letter
Mean number of calls	4.9	4.9

Whilst there was a slight difference between the mean number of calls for refusals between the existing and the re-designed advance letters the difference was not significant. The existing advance letter had an average of 4.7 calls per refusal, whilst the re-designed letter had an average of 4.9.

Table 3:4 Number of calls per refusal, by letter

	Existing letter	Re-designed letter
Mean number of calls	4.7	4.9

There was no statistically significant difference in the non-contact rate between letters (7.8 calls for the re-designed letter compared with 7.7 for the existing letter), and, as such, the letter used does not seem to make a difference to interviewer workload overall. There is not much difference in interviewer workload between the two letters.

Table 3:5 Non-contact rate, by letter

	Existing letter (%)	Re-designed letter (%)
Mean number of calls	7.7	7.8

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 whilst treatment group 2 had the highest response rate and lowest refusal rate, these were not significantly different to the control group or treatment group 1.

Table 4:1 Key outcomes by incentive group, standard response rate

	Control group - stamps (%)	Treatment grp1 - £10 PO voucher (%)	Treatment grp2 - Stamps + discretionary incentive (%)
Fully co-operating	51.8	52.7	53.1
Partially co-operating	6.0	5.9	5.4
Refusal to co-operate and other unproductive	35.3	34.1	33.3
Non-contact	6.9	7.2	7.2

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.

Those aged 18-34 are under-represented across all groups (as they are in most surveys). However, treatment group 2 (discretionary incentive) did marginally better at representing the youngest age groups than the control group and treatment group 1.

² Sample points in the NTS consist of 17 addresses.

The oldest age group (over 65) were over represented in all treatment groups. The control group (stamps) and treatment group 2 (stamps and discretionary incentive) over represented the oldest group more than treatment group 1 (post office voucher).

One hypothesis for this finding is that stamps are more likely to appeal to an older audience. Treatment group 2 has the highest representation of 18-34 year olds, which may indicate that the discretionary incentive can help to encourage younger people to take part.

All treatment groups produced a varied picture of ethnicity. The control group slightly over-represented those from Black and Mixed backgrounds. Similarly, treatment group 1 slightly over-represented those from Mixed or other backgrounds.

Treatment group 2 over-represented those from White backgrounds whilst under-representing those from Black and Asian backgrounds. The discretionary nature of treatment group 2 could be impacting this. However, relatively small sample sizes amongst groups from non-White ethnicities make the results prone to large variations and other factors such as areas effects could play a role.

In terms of educational qualifications, treatment group 2 slightly overrepresented those with a degree or higher qualifications whilst under representing those with a-levels or GCSE.

Table 4:2 Demographic profile breakdown by incentive group

	Control (%)	Treatment 1 (%)	Treatment 2 (%)	Weighted figure from 2017 (%)
Age				
18-24	7.0*	7.4*	7.7*	10.3
25-34	14.6*	15.5*	15.8*	17.5
35-44	15.6	15.8	16.0	16.7
45-64	35.2*	34.6*	32.9	33.0
65+	27.7*	26.6*	27.7*	22.5
Sex				
Male	49.3	48.3	48.4	49.3
Female	50.7	51.7	51.6	50.7
Ethnicity				
White	84.2*	85.7	88.1*	85.6
Mixed	1.6*	1.8*	1.2	1.3
Asian	9.0	7.7*	6.9*	8.7
Black	4.1*	3.2	2.8*	3.3
Other	1.1	1.6*	1.0	1.2
Education				
Uni degree/Higher	36.0	36.9	38.2*	36.5
A-Level or GCSE	39.0	39.6	37.8*	39.7
Other or no formal qualifications	25.0	23.5	24.0	23.8
Paid work last 7 days				
Yes	55.0*	57.1*	56.1*	59.2
No	45.0*	42.9*	43.9*	40.8

4.1.3 Call analysis

Again, we looked at the 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 had an average number of 4.8 calls and treatment group 1 also had an average of 4.8 calls. Treatment group 2 had an average of 4.9 calls per productive case.

Table 4:3 Number of calls per productive case, by incentive group

	Control	Treatment 1	Treatment 2
Mean number of calls	4.8	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	4.9	4.7	4.8

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 2020 and future years.

At the time of this experiment, a book of six first class stamps cost £4.02. The cost rose to £4.20 in March 2019. This is the cost per address of administering stamps as the unconditional incentive (the cost of stamps is passed directly to the DfT).

The cost per address of using Post Office vouchers is more variable as it depends on the encashment rate – that is, what proportion of vouchers are cashed. In the 2018 experiment, 42.8% of vouchers were cashed, which equates to a cost of £4.28 per issued case. In addition, the use of Post Office vouchers incurs an additional administration cost, estimated to be around 63p per address (although there would likely be economies of scale if this was increased to the whole sample), taking the total estimated cost to £4.91 per issued case.

As such, at the time of the experiment it was around 89p cheaper per address to administer stamps as the unconditional incentive. With the March 2019 increase in stamp prices, it remains around 71p cheaper per address to issue stamps. As the price of stamps rises it will be important to reassess if they remain the most cost-effective approach to unconditional incentives.

Evidence from the 2018 survey year suggests that around 24% of available discretionary incentives were 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 NTS 2018 incentive experiment we make the following recommendations for future years of the survey:

- There was no difference in response rate or sample quality between the two versions of the letters tested. As the newly-designed letter is generally regarded to be clearer and to have a design more in keeping with the Department's branding, we recommend using the redesigned letter for all addresses.
- There is no compelling reason, at this stage, to change the existing unconditional incentive of a book of first-class stamps. Using Post Office vouchers did not improve response or sample quality, and as stamps are cheaper to administer, we recommend continuing to use stamps 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.
- Whilst the differences were not significant, there are indications that discretionary incentives could help to increase response rates if they are used more widely by interviewers. However there seem to be a mixed impact sample quality. Based on this, a further experiment on the use of discretionary incentives was administered in the first quarter of the 2019 NTS. Results from that experiment are published separately.

Appendix A. Advance letter

Existing advance letter (at time of experiment)



NatCen
Social Research

The Resident
123 Main Street
London
E20 8HP

Ref: P12285

Your interviewer on this study will be

Dear Sir or Madam,

NATIONAL TRAVEL SURVEY

Your address has been selected for this study and we are writing to ask for your help. It is about your daily experience of travelling and is used by the Department for Transport to shape travel policy.

Most people who take part find it interesting and are pleased to have their views and experience taken into account by the Government. We rely on the voluntary cooperation of everyone we approach. **To show our appreciation, if everyone in your household completes the study, each person will receive a £5 gift card that can be used at many High Street stores.**

The research is being carried out by an independent research organisation, NatCen Social Research. One of our interviewers will visit you in the next few days to arrange a convenient time for an interview. They will show you their official identification card which includes their photograph and the NatCen logo shown at the top of this letter.

Your answers will be treated in strict confidence in accordance with the Data Protection Act, and the information will only be used for statistical purposes.

You can find more information on the back of this letter but if you have any questions please call NatCen on 0800 652 4568. We thank you in advance for your help.

Yours faithfully,

Darren Stillwell
National Travel Survey Statistician
Department for Transport

Peter Cornick
Research Director
National Centre for Social Research

NatCen Social Research
Kings House
101-135 Kings Road
Brentwood
Essex CM14 4LX

T 0800 652 4568 (9.00am – 5.00pm, Mon – Fri)
E nts@natcen.ac.uk
W www.natcen.ac.uk/travel
Company limited by guarantee. Reg No. 4392418.
A Charity registered in England and Wales (1091768) and in Scotland (SC038454)

Re-designed letter



Department
for Transport

The Resident
123 Main Street
London
E20 8HP

Your interviewer will be:

Ref: P12285

National Travel Survey

Tell us about your travel habits

Dear Sir or Madam,

Your address has been selected to take part in the National Travel Survey. The Department for Transport uses the study to help improve travel policy in England. If you would like to see improvements to transport, you can help us understand the current situation.

Last year more than 6,000 helpful households took part. Most people find taking part an interesting experience and are pleased to have their views taken into account by government.



What's next?

An interviewer from the National Centre for Social Research (NatCen) will call at your house in the next week or so to explain more. Obviously, we all lead busy lives, so they will arrange a convenient time for your interview. So you know who they are, they all carry a photo ID.



Thank you

When everyone in your household takes part, each person will also receive a £5 shopping voucher to spend at shops like Argos, Marks and Spencer and WHSmiths.



Any questions?

You can find out more about the survey on the reverse of this letter. If you have any further questions, please visit www.natcen.ac.uk/travel, email nts@natcen.ac.uk or call free on **0800 652 4568**.

Darren Stillwell
National Travel Survey Statistician
Department for Transport