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Ofcom and ICO – Research into the effectiveness of the Telephone Preference Service

A randomised control trial
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1 Executive summary

This report summarises the findings of a study designed to look at the effectiveness of the Telephone Preference Service (TPS); specifically, exploring whether signing up to the TPS significantly reduces the number of live marketing / sales calls received. The study was run by Ipsos MORI on behalf of the Office of Communications (Ofcom) and the Information Commissioner’s Office (ICO), and took place between September 2013 and May 2014.

Ofcom and the ICO commissioned Ipsos MORI to conduct research to identify whether:

- Those who were registered to the TPS as part of the research receive a lower number of live marketing / sales calls after they registered.

- Those who were registered to the TPS as part of the research receive a lower number of live marketing / sales calls than those who were not registered with the TPS.

1.1 What is the TPS?

The TPS is a free service which enables consumers to opt-out of receiving unsolicited calls for direct marketing purposes, i.e. live marketing / sales calls. Under the Privacy and Electronic Communications (EC Directive) Regulations 2003 (PECR), Ofcom has a duty to keep and maintain an up-to-date register of telephone numbers of individuals who do not wish to receive such calls. Telephone Preference Service Ltd currently provides this service under a contract with Ofcom in the form of the TPS. It is a legal requirement that all organisations (including charities, voluntary organisations and political parties) do not make unsolicited live calls for direct marketing and sales purposes to telephone numbers which are registered to the TPS, unless they have the individual’s prior consent. The ICO is the lead regulator responsible for taking enforcement action against breaches of the PECR, including against firms suspected of making unsolicited live marketing / sales calls to those registered with the TPS.

TPS registration is not intended to be effective at preventing all types of potential unwanted calls. For example, organisations making calls to carry out genuine market research (as opposed to calls for direct marketing purposes) are not required to screen their call lists against the TPS register. Further, the TPS depends on organisations actively screening numbers they plan to call against the register, and some (such as malicious scammers) are unlikely to do this. Therefore it is likely people who are signed up to the service will still receive some unwanted calls.
1.2 Overview of approach

Ipsos MORI ran a randomised control trial (RCT) to determine the effectiveness of the TPS. The process was as follows:

- A short questionnaire was run on Ipsos MORI’s weekly face-to-face Omnibus to establish the profile of non-TPS registered individuals to set recruitment quotas.

- Telephone recruitment\(^1\) was used to invite landline customers not currently signed up to the TPS to participate in a diary exercise. A nationally representative panel of 2,183 participants was recruited.

- The panel were asked to complete a diary entry every time they received an unwanted/nuisance call\(^2\) on their home landline phone for a four week period throughout November 2013 (wave 1). For each call they recorded the type of nuisance call (as outlined in section 4.2), services being sold, details of the organisation calling and how the call made them feel. In total, 1,092 diaries were returned after wave 1.

- In March 2014, the diary exercise was repeated for another four week period (wave 2) with the sample having been allocated into two groups: one group was registered to the TPS (the TPS group), and the other remaining as a control group (the control group). This was conducted as a blind trial, which meant that members of the panel did not know whether or not they had been registered with TPS as part of the exercise until after their second diary was returned.

- In total, 782 eligible diaries from wave 2 were received, and analysed alongside the corresponding diaries from wave 1.

A full explanation of the methodology can be found at section 4.2.

This report mostly focuses on changes in the mean\(^3\) number of calls recorded over the four week diary period and on percentage changes in different types of calls received by each group overall. A detailed guide to interpreting the findings in this report can be found at section 5.1 in the appendix.

The study was designed to identify whether or not TPS registration was effective, rather than to explore differences at a more granular level. For example, there are sufficient numbers of calls to establish if changes in the number of live marketing / sales calls were significantly different, but not to look at differences within this, such as live

\(^1\) Telephone recruitment was used as it allowed for recruitment of panel members within a relatively short time period and allowed screening of sample against the TPS database, thus ensuring we only called households not already registered with TPS

\(^2\) Throughout this report we refer to ‘nuisance calls’ in line with Ofcom terminology. In the diary, panelists were asked to record all ‘unwanted calls’ as this terminology was considered less technical for a lay audience. A description of the types of unwanted calls we asked panelists to record is set out in Table 4.1, section 4.2.

\(^3\) The mean number of calls is calculated by working out the total number of a certain type of call received, for example, live marketing / sales calls, and dividing this by the number of panelists in that group. When reporting on the impact of TPS, we have used the difference in the means of the TPS registered group, and the control group.
marketing / sales calls from energy companies, for example. Therefore, figures quoted should be regarded as indicative of differences rather than statistically significant. Significance testing has only been applied when looking at the overall changes observed for the TPS and control groups between waves for live marketing / sales calls, and for the overall changes in all nuisance calls. The difference in the call volumes experienced between the TPS group and the control group in wave 2 have also been tested for significance.

1.3 Key findings

TPS registration was effective at reducing the volume of live marketing / sales calls received. It was also effective at reducing the overall volume of nuisance calls received.

Live marketing / sales calls

The research shows registering with TPS was effective at reducing the number of live marketing / sales calls received.

- Both the panellists registered to TPS (the TPS group) and those who were not registered to TPS (the control group) saw a reduction in live marketing / sales call volumes. However, on average, panellists registered to TPS saw a greater drop: they recorded 1.3 fewer live marketing / sales calls on average than the control group over the four weeks of wave 2. The mean number of live marketing / sales calls to the TPS registered group fell from 4.2 calls in the four weeks of wave 1 to 2.5 calls in the four weeks of wave 2, while the mean number of live marketing / sales calls for the control group fell from 4.1 to 3.7 calls.

- Looking at the same data in terms of the percentage decrease in calls: the TPS group experienced a 31% reduction in live marketing/sales calls after taking into account the drop in the control group. The total number of reported live marketing / sales calls for the TPS group was 1,632 calls at wave 1, falling to 962 calls at wave 2; a decrease of 41%. For the control group, the total number of live marketing / sales calls was 1,613 calls at wave 1, compared with 1,449 calls at wave 2; a decrease of 10%.

- TPS registration reduced the number of live marketing / sales calls not only for those who received the highest call volumes, but also for panellists who received low and medium volumes of calls in wave 1.

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4 The figure of a drop of 1.3 calls is obtained by using a simple difference-in-difference approach (i.e. the control group fell by 0.4 and the TPS group fell by 1.7, therefore the net effect was 1.3). The full analysis approach (see section 4.4) also checked for robustness of this method by including a regression-modelling step and a trimming step, where outliers who saw a high drop (of 15 or more calls) were capped to ensure they did not skew the findings. These alternative methods gave the same result for live marketing/sales calls.
• TPS registration increased the proportion that experienced no live marketing/sales calls. Almost half of all panellists in the TPS group (45%) reported receiving zero live marketing/sales calls in wave 2, compared with 26% of the control group.

**Impact of TPS by sector/household**

We asked panellists to report the product/services being sold or discussed in the nuisance calls they received, where possible. The results of the research show that panellists in the TPS group reported a drop in live marketing/sales calls about Payment Protection Insurance (PPI) and a drop in calls about Energy. The TPS group saw a reduction of 0.2 PPI calls more than the control group (which equates to a drop of 45% after taking into account the drop in the control group). Similarly, the TPS group saw a reduction of 0.2 energy calls more than the control group (a drop of 28% after taking into account the drop in the control group).

TPS registration reduced the mean number of live marketing/sales calls across different age groups. Panellists aged 35-55 in the TPS group saw a reduction of 2.0 calls more than people of the same age in the control group (a drop of 41% after taking into account the drop in the control group). Those aged 55+ in the TPS group saw a reduction of 1.7 calls more than the control group (a drop of 32% after taking into account the drop in the control group). Panellists aged 16-34 in the TPS group saw a reduction of 0.9 calls more than the control group (a drop of 6% after taking into account the drop in the control group).

**All unwanted / nuisance calls**

The research shows that registering with the TPS was also effective in reducing the overall number of nuisance calls (of all types) received.

• Both the TPS group and the control group saw a reduction in volumes of nuisance calls. On average, panellists registered to TPS saw a greater drop: they recorded 4.1 fewer nuisance calls than the control group over the four weeks of wave 2. The mean number of all nuisance calls to the TPS registered group fell from 11.9 in wave 1 to 5.8 in wave 2, while the mean number recorded by the control group fell from 11.9 to 10.0.

• Looking at the same data in terms of the percentage decrease in calls: the TPS group experienced a 35% reduction in all nuisance calls after taking into account the drop in the control group. Overall, there was a 51% drop in reported nuisance call volumes for the TPS group (4,649 nuisance calls in total at wave 1, compared with 2,277 at wave 2). The control group saw a decrease of 16% in all nuisance calls between wave 1 and wave 2 (4,668 at wave 1 and 3,911 at wave 2).

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5 This is the panellist’s understanding of the product or service being promoted and may not reflect the actual reason for the call.

6 A description of the types of unwanted calls we asked panellists to record is set out in Table 4.1, section 4.2
• TPS registration reduced the number of nuisance calls not only for those who received the highest call volumes, but also for panellists who received low and medium volumes of calls in wave 1.

• TPS registration increased the proportion that experienced no nuisance calls. Almost a quarter of all panellists in the TPS group (23%) reported receiving zero nuisance calls in wave 2, compared with 9% of the control group.

Throughout the remainder of this report we look in greater detail at the data across both waves and the impact of TPS registration on live marketing / sales calls (chapter 2), and all nuisance calls (chapter 3). We also set out in detail the analysis techniques used, as well as methodology (chapter 4).
2 Impact of TPS registration on live marketing / sales calls

2.1 Does registering to TPS reduce live marketing / sales calls?

As shown in Figure 2.1 below, in wave 2, just over half (55%) of panellists who were registered to TPS received at least one live marketing / sales call, compared with around three quarters (74%) of the control group.

Figure 2.1 — Proportion of panellists who received live marketing / sales calls

Results from the main analysis shows that TPS is effective at reducing live marketing / sales calls. The net effect of TPS registration for reported live marketing / sales calls was an average reduction of 1.3 calls\(^7\) over the four weeks of wave 2. This is shown in Figure 2.2, below.

Panellists registered to TPS saw a 41% decrease in live marketing / sales calls between wave 1 and wave 2, while members of the control group saw a 10% decrease in live marketing / sales calls between wave 1 and wave 2. Therefore, the TPS group experienced a 31% reduction in live marketing / sales calls after taking into account the drop in the control group\(^8\).

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\(^7\) The figure of a drop of 1.3 calls is obtained by using a simple difference-in-difference approach (i.e. the control group fell by 0.4 and the TPS group fell by 1.7, therefore the net effect was 1.3). The full analysis approach (see section 4.4) also checked for robustness of this method by including a regression-modelling step and a trimming step, where outliers who saw a high drop (of 15 or more calls) were capped to ensure they did not skew the findings. These alternative methods gave the same result for live marketing / sales calls.

\(^8\) Percentage change in call volumes are reported rather than percentage change in the mean. Both the percentage change of the overall call volume and the percentage change of the mean call volume will be identical by definition.
Details of the further analysis techniques used to verify the accuracy of these findings can be found in section 4.5.

**Figure 2.2 – Impact of TPS registration on live marketing / sales calls**

Table 2.1 below shows the variation in the volume of live marketing / sales calls received by individuals during wave 2. It specifically shows that registering with the TPS reduces the number of live marketing / sales calls for most people, not just those with the highest call volumes.

Panellists who were registered with the TPS received a median of one live marketing / sales call throughout wave 2, while for the control group the median number of calls received was two. The highest number of live marketing / sales calls received by the TPS group was 23, while for the control group the highest number of calls received was 31. For both groups the lowest number of calls and lower quartile was zero.

---

9 Where there are outliers (i.e. in this case one or two people who received significantly more calls than average) it can be helpful to use quartiles and the median number of calls to describe the data. These are derived by ranking the panellists in order of number of calls received. The median is the number of calls received by the person in the middle (i.e. 50% of people received more calls than them, and 50% received fewer calls than them). If there were 100 people, the median person would be the one ranked 50\(^\text{th}\). Similarly, the lower quartile is the person who would be ranked 25 / 100 (so 25% of panellists received fewer calls, and 75% received more calls) and the upper quartile reflects the call volumes of the person who would be ranked 75 / 100 (so 75% received fewer calls and 25% received more calls).
Table 2.1 – Spread of live marketing / sales calls – wave 2

<table>
<thead>
<tr>
<th></th>
<th>Highest number of calls</th>
<th>Lowest number of calls</th>
<th>Upper quartile</th>
<th>Lower quartile</th>
<th>Median number of calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS</td>
<td>23</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Control</td>
<td>31</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Base: All respondents who completed second diary (TPS: 391, Control: 391), March 2014

Impact of TPS registration at an individual level

As noted in section 1.2 above, most of the analysis in this report is based on panel-level changes. However, it is also instructive to look at key data at the individual panellist level.

Overall, as shown in Table 2.2 below, nearly three in five (58%) of the TPS group saw a reduction in the number of live marketing / sales calls between wave 1 and wave 2. A quarter (24%) of the TPS group reported seeing no change in the number of live marketing / sales calls reported, while 18% of TPS registered panellists reported an increase in live marketing / sales calls between wave 1 and wave 2. In comparison, two in five (40%) of the control group received fewer calls and a third (35%) saw an increase in call volumes in wave 2.

Table 2.2 – Comparison between wave 1 and wave 2 live marketing / sales call volumes at individual level

<table>
<thead>
<tr>
<th></th>
<th>More calls received in wave 2</th>
<th>Same number of calls</th>
<th>Fewer calls received in wave 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS</td>
<td>18%</td>
<td>24%</td>
<td>58%</td>
</tr>
<tr>
<td>Control</td>
<td>35%</td>
<td>25%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Base: All respondents who completed second diary (TPS: 391, Control: 391), March 2014

Of particular interest are the people who saw an increase in the number of calls in wave 2. The average increase in call volumes among this group was 2.7 for the TPS group and 3.0 for the control group. However, these means are skewed by outliers, and as shown in Table 2.3 below, the median change in call volumes for those who saw an increase was two in both the TPS and control groups, and less than a quarter (23%) of the TPS group saw an increase of more than 3 calls between wave 1 and 2 (compared with 29% of the control group). Therefore, fewer people in the TPS group saw a call increase than would have if they had not signed up, and of those who saw an increase, on average their increase was lower than for the control group.
Table 2.3 — Descriptive statistics for change in live marketing / sales call volumes for those who saw an increase in volumes between wave 1 and 2

<table>
<thead>
<tr>
<th></th>
<th>Highest increase in calls</th>
<th>Lowest increase in calls</th>
<th>Upper quartile</th>
<th>Lower quartile</th>
<th>Median increase in calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS</td>
<td>11</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Control</td>
<td>17</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Base: All respondents who saw an increase in call volumes between waves (TPS: 71, Control: 136), March 2014

2.2 Impact of TPS registration by call volume

Volume of live marketing / sales calls for TPS and control groups

As shown in Figure 2.3, almost half of all panellists in the TPS group (45%) reported receiving zero live marketing / sales calls in wave 2, compared with 26% of the control group. Nearly two fifths of the TPS group (39%) reported receiving between 1 and 5 calls, compared with half of the control group. The number of panellists in the TPS group who reported receiving between 6 and 10 calls was also lower at 12%, compared with 13% in the control group, and only 5% of panellists in the TPS group received 11 calls or more, compared with 9% of those in the control group.

Figure 2.3 — Context: Reported volumes of live marketing / sales calls

Impact of TPS registration on live marketing / sales calls by call volume

As shown in Figure 2.4, TPS registration reduced the number of live marketing / sales calls for panellists who received low, medium or high volumes of calls in wave 1.
However, it did not eradicate live marketing / sales calls entirely, especially for those who received a “high” number of calls (11+) in wave 1. The TPS group who had received a “high” number of calls in wave 1 recorded a mean of 16.3 live marketing / sales calls in wave 1 and received a mean of 8.2 live marketing / sales calls in wave 2.

Looking at the impact TPS registration has on the mean number of live marketing / sales calls received for those who received low, medium or high volumes of calls in in wave 1, we see that:

- The net impact of TPS registration on those who received a “high” number of live marketing / sales calls (11+ calls) was a reduction in the mean number of live marketing / sales calls of 2.9 calls\(^\text{10}\) (a 17\%\(^\text{11}\) reduction in calls after taking into account the drop in the control group).

- The net impact of TPS registration on those who received a “medium” number of live marketing / sales calls (6 – 10 calls) was a reduction in the mean number of live marketing / sales calls of 2.7 calls (a 35\% reduction in calls after taking into account the drop in the control group).

- For those who received a “low” number of live marketing / sales calls (1-5 calls), the net impact of TPS registration was a reduction in the mean number of live marketing/sales calls of 0.8 calls (a 32\% reduction in calls after taking into account the drop in the control group).

\(^{10}\) The reduction in the mean number of calls is obtained by using a simple difference-in-difference approach (i.e. the control group mean fell by 5.2 calls and the TPS group mean fell by 8.1 calls, therefore the net effect was a reduction of 2.9 calls).

\(^{11}\) The percentage change figure is obtained by looking at the percentage change in call volumes received (i.e. the control group experienced a 33\% drop in calls and the TPS group experienced a 49\% drop in calls, therefore the net effect was a 17\% reduction in calls)
2.3 Impact of TPS registration on live marketing / sales calls by age and working status

As shown in Figure 2.5, the net impact of TPS registration on live marketing / sales calls received was a reduction in the mean number of live marketing / sales calls of 2.0 for panellists aged 35-54 (a 41% reduction of calls after taking into account the drop in the control group), a reduction in the mean number of live marketing / sales calls of 1.7 for panellists aged 55 plus (a 32% reduction in calls after taking into account the drop in the control group), and a reduction in the mean number of live marketing / sales calls of 0.9 for panellists aged 16-34 (a 6% reduction in calls after taking into account the drop in the control group).

Figure 2.5 – live marketing / sales calls by age — impact of TPS registration

Figure 2.6 shows the impact of TPS registration by work status, with the net impact of TPS registration on reducing live marketing / sales calls being similar for panellists working full-time as for those not working full-time. The net impact of TPS registration was a reduction in the mean of 1.2 calls for panellists working full-time, compared with a net impact of a reduction in the mean of 1.2 calls for those not in full-time work (31% and 30% reductions respectively after taking into account the drops in the control group).
2.4 Impact of TPS registration on calls about different sectors

Figure 2.7 shows some of the key products or services which panellists reported\textsuperscript{12} were being sold or discussed in the live marketing / sales calls they reported receiving at wave 2. As can be seen, 12% of the TPS group reported receiving at least one live marketing / sales call about Payment Protection Insurance (PPI) claims, compared with 20% of the control group. Just under one in five (18%) of the TPS group reported receiving at least one live marketing / sales call about an energy company / energy products, compared with just under three in ten (28%) of the control group. One in seven (14%) of the TPS group reported receiving at least one live marketing / sales call about insurance products, compared with one in five (20%) of the control group. Just under one in five (18%) of the TPS group reported receiving at least one live marketing / sales call about market research\textsuperscript{13}, compared with just over a quarter (27%) of the control group.

\textsuperscript{12} This is the panellist’s understanding of the product or service being promoted and may not reflect the actual reason for the call.

\textsuperscript{13} Genuine market research calls are not marketing and/or sales calls and companies making such calls do not have to screen against the TPS, although marketing/sales calls under the guise of market research (known as ‘sugging’) would be covered by the TPS.
Impact on live marketing / sales calls by type of product/service

The net impact of TPS registration for panellists who reported receiving live marketing / sales calls about different products and services was as follows:

- Calls about PPI claims saw a net reduction in the mean number of live marketing / sales call of 0.2 calls as a result of TPS registration (a 45% reduction in calls taking into account the drop in the control group).

- For calls about energy companies or products, the net impact of TPS registration was also a decrease in the mean number of live marketing / sales calls of 0.2 calls (a 29% reduction in calls after taking into account the drop in the control group).

- For calls related to insurance products, the net impact of TPS registration was no change reporting to one decimal place (although they received a small number of calls to start with, so the very small decrease still reflected a reduction of 8% after taking into account the drop in the control group).

- For calls reported as relating to Market Research, while decreases were seen in both groups, TPS registration did not have an impact (no impact on the mean to one decimal place and 3% net reduction which is negligible).14

14 As noted at footnote [12] above, genuine Market Research calls are not marketing and/or sales calls and companies making such calls do not have to screen against the TPS, although marketing/sales calls under the guise of market research (known as ‘sugging’) would be covered by the TPS.
2.5 Impact of TPS on feeling towards call

Half (50%) of the TPS group received at least one unwanted call that they found annoying, compared with seven in ten (71%) of the control group. Just over one in seven (15%) of panellists registered to TPS reported receiving at least one live marketing / sales call which they found to be "not a problem", compared with 22% of the control group. A small proportion of panellists in the TPS group and the control group reported receiving at least one live marketing / sales call which they found distressing (6%), and additionally 6% of both the TPS and control groups reported receiving at least one call which they found to be useful.

Figure 2.9 – Context: Feeling towards live marketing / sales calls
Impact of TPS registration on feeling towards call

For reported live marketing / sales calls that panellists felt were annoying, the net impact of TPS registration was a reduction in the mean number of live marketing / sales call of 1.0 calls (a 30% net reduction). Other feelings towards calls were much less common, and the average number of live marketing / sales calls recorded by panellists as 'distressing', 'useful' or 'not a problem' in wave 1 and 2 were lower. However, following TPS registration a reduction was seen in the number of live marketing / sales calls that were seen by panellists as being distressing, useful or not a problem (a net impact of 0.1 fewer calls in each case).

Figure 2.10 – Impact of TPS registration — by feeling towards call

**Based on reported Live marketing / sales**

<table>
<thead>
<tr>
<th></th>
<th>Number of Live marketing / sales calls per wave</th>
<th>% change in call volume W1 vs W2</th>
<th>Net impact of TPS on number of calls received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annoying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPS</td>
<td>(2.0)</td>
<td>-41</td>
<td>-1.0</td>
</tr>
<tr>
<td>Control</td>
<td>(2.9)</td>
<td>-11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distressing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPS</td>
<td>(0.2)</td>
<td>-59</td>
<td>-0.1</td>
</tr>
<tr>
<td>Control</td>
<td>(0.1)</td>
<td></td>
<td>+13</td>
</tr>
<tr>
<td></td>
<td>(0.1 w1&amp;w2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Useful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPS</td>
<td>(0.1)</td>
<td>-67</td>
<td>-0.1</td>
</tr>
<tr>
<td>Control</td>
<td>(0.0)</td>
<td></td>
<td>-33</td>
</tr>
<tr>
<td></td>
<td>(0.1 w1&amp;w2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a problem</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPS</td>
<td>(0.5)</td>
<td>-31</td>
<td>-0.1</td>
</tr>
<tr>
<td>Control</td>
<td>(0.3)</td>
<td></td>
<td>-9</td>
</tr>
<tr>
<td></td>
<td>(0.6 w1&amp;w2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Mean number of calls per panellist shown in brackets)

Base: All live sales / marketing calls recorded, November 2013 and March 2014 (TPS: 391, Control: 391)
3 Impact of TPS registration on all nuisance calls

As explained above, the TPS register is designed to allow consumers to opt-out of receiving live marketing / sales calls, and the study was therefore designed to look at the impact of TPS registration on live marketing / sales calls. However, as explained in section 4.2 we also asked panellists to report other types of nuisance/unwanted call they received15.

The randomised control trial shows that registering to the TPS also appeared to have an impact on other types of nuisance calls received by panellists and reduced the overall number of nuisance calls received.

Three quarters (77%) of panellists in the TPS group received at least one nuisance call at wave 2. Among the control group, nine in ten (91%) received at least one nuisance call.

Figure 3.1 Context: Total nuisance calls received

![Panellists receiving nuisance calls at wave 2](image)

Base: All respondents who completed second diary (TPS: 391, Control: 391), March 2014

Results from the main analysis shows that TPS is effective at reducing all nuisance calls. The net effect of TPS registration for reported nuisance calls was an average reduction of 4.1 calls over the four weeks of wave 2, as shown in figure 3.2.

Panellists registered to TPS saw a 51% decrease in nuisance calls between wave 1 and wave 2, while members of the control group saw a 16% decrease in nuisance calls between wave 1 and wave 2. Therefore, the TPS group experienced a 35% reduction in nuisance calls after taking into account the drop in the control group.

---

15 A description of the types of unwanted calls we asked panellists to record is set out in Table 4.1, section 4.2
Table 3.1 below shows the variation in the volume of all nuisance calls received by individuals during wave 2. It specifically shows that TPS reduces the number of all nuisance calls for most people, not just those with the highest call volumes\(^6\).

For the TPS group, the median number of nuisance calls received at wave 2 was three, while for the control group the median number of calls received was seven. The highest number of nuisance calls received by a panel member in the TPS group was 36, while the highest number of nuisance calls for a member of the control group was 55. The upper quartile for the TPS group was 9 calls, compared with 14 calls for the control group.

Table 3.1 – Spread of all nuisance calls—wave 2

<table>
<thead>
<tr>
<th></th>
<th>Highest number of calls</th>
<th>Lowest number of calls</th>
<th>Upper quartile</th>
<th>Lower quartile</th>
<th>Median number of calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS</td>
<td>36</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Control</td>
<td>55</td>
<td>0</td>
<td>14</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

Base: All respondents who completed second diary (TPS: 391, Control: 391), March 2014

---

\(^6\) Where there are outliers (i.e. in this case one or two people who received significantly more calls than average) it can be helpful to use quartiles and the median number of calls to describe the data. These are derived by ranking the panellists in order of number of calls received. The median is the number of calls received by the person in the middle (i.e. 50% of people received more calls than them, and 50% received fewer calls than them). If there were 100 people, the median person would be the one ranked 50\(^{th}\). Similarly, the lower quartile is the person who would be ranked 25 / 100 (so 25% of panellists received fewer calls, and 75% received more calls) and the upper quartile reflects the call volumes of the person who would be ranked 75 / 100 (so 75% received fewer calls and 25% received more calls).
3.1 Types of nuisance calls received

Figure 3.3 below shows the proportion of panellists who reported receiving at least one nuisance call, broken down by the types of call asked about during wave 2. As seen in section 2.1, just over half (55%) of panellists in the TPS group reported receiving at least one live marketing / sales call, compared with three quarters (74%) of the control group. Two in five (40%) panellists in the TPS group reported receiving at least one recorded message promoting a product or service, compared with 70% of the control group.

Just under half (46%) of panellists in the TPS group reported receiving at least one silent call at wave 2 (compared with 51% in the control group) and one in ten (9%) received an abandoned call (compared with 15% of the control group). The chart also shows little impact on Market Research calls as outlined in section 1.1, legitimate Market Research companies are not required to screen against TPS.

Figure 3.3 – Context: Main types of nuisance calls received at wave 2

---

17 See section 4, table 4.1 for a list and description of all types of nuisance calls panellists were asked to record.

18 This is where there seems to be no one on the line, although you may hear someone in the background (but they are not talking to you).

19 A recorded message saying that a business or organisation had tried to contact them, but that when the call was put through, no one was available to speak to them. These normally happen when a call centre dialling system automatically rings but when the call is answered there is no operator available to take the call. There is nothing being sold or offered in this message.

20 This does not include live marketing/sales calls which panellists went on to describe as market research—see section 4.2 and 4.3 for a full explanation.
3.2 Does registering to TPS reduce other types of calls?

Figure 3.4 shows the frequency of different types of nuisance call received by the TPS and control groups. The TPS group received fewer of each type of nuisance call compared with the control group, with the exception of Market Research calls\(^{21}\).

**Figure 3.4 — Impact of TPS registration across different call types**

As seen in Figure 3.2, for all nuisance calls the TPS group saw a reduction of 51% between wave 1 and wave 2, compared to 16% for the control group. For recorded messages, the TPS group saw a reduction in the number of calls of 75%, compared with 16% for the control group. For abandoned calls, the TPS group experience a reduction in call volumes of 52% between waves, compared with 3% for the control group. For silent calls, there was a reduction of 42% for the TPS group between waves, compared with 24% for the control group.

**Impact of TPS registration on all nuisance calls by number of calls**

As shown in Figure 3.5 overleaf, just under a quarter (23%) of the TPS group reported receiving no nuisance calls in wave 2 (compared with 9% of the control group). Two in five (41%) of panellists in the TPS group reported receiving a "low" number (between 1-5) of nuisance calls in total in wave 2, compared with 33% of the control group. Almost a fifth (19%) of panellists in the TPS group reported receiving a high number (11+) of nuisance calls, compared with 37% of the control group.

---

\(^{21}\) Genuine Market Research calls are not marketing and/or sales calls and are therefore not covered by TPS registration.

---

13-066334 | Final | This work was carried out in accordance with the requirements of the international quality standard for Market Research, ISO 20252:2012
Figure 3.5 – Context: Reported volumes of all nuisance calls

Similar to the changes in live marketing/sales calls, there were large decreases in the total number of all nuisance calls among the TPS group compared with the control group.

Figure 3.6 overleaf shows the impact of TPS registration on all nuisance calls received.

- The impact of TPS registration on panellists who received “high” volumes of all nuisance calls types in wave 1 was a net reduction in the mean of 6.0 nuisance calls (after taking into account the drop observed in the control group). This was a 28% net reduction in calls after taking into account the drop in the control group.

- The impact of TPS registration on panellists who received a “medium” number of nuisance calls was a net reduction in the mean of 4.1 calls. This was a 50% net reduction in calls after taking into account the drop in the control group.

- The impact of TPS registration on panellists who received a “low” number of nuisance calls was a net reduction in the mean of 2.0 calls. This was a net reduction in calls of 68% taking into account the increase seen in the control group.
3.3 Impact of TPS on calls made between 6pm and 6am

Throughout wave 2, most panellists received nuisance calls at all times of the day, with 50% of panellists in the TPS group reporting receiving at least one nuisance call between 6am and midday (compared with 70% for the control group).

- Over two-thirds (69%) of panellists in the TPS group reported receiving at least one nuisance call between midday and 6pm (compared with 85% for the control group).
- Just under half (45%) of panellists in the TPS group reported receiving at least one nuisance call between 6pm and 6am, compared with 62% for the control group.

Figure 3.7 looks at the impact of TPS registration specifically on all nuisance calls made between 6pm and 6am. As shown, the net impact of TPS registration on calls between 6pm and 6am was a reduction in the mean of 0.5 calls. This was a net reduction in calls of 22% after taking into account the decrease seen in the control group.
The number of ‘anti-social’ hour calls reduced by half amongst TPS group

Base: All respondents who completed both diary stages, November 2013 and March 2014 (TPS: 391, Control: 391)

**Figure 3.7 – Impact of TPS registration on calls between 6pm and 6am**

<table>
<thead>
<tr>
<th>Calls between 6pm – 6am</th>
<th>TPS</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of nuisance calls per wave</td>
<td>(1.1)</td>
<td>(1.6)</td>
</tr>
<tr>
<td>Mean number of calls per panelist shown in brackets</td>
<td>(2.1)</td>
<td>(2.2)</td>
</tr>
<tr>
<td>% change in call volume W1 vs W2</td>
<td>-49</td>
<td>-27</td>
</tr>
<tr>
<td>Net impact of TPS on number of calls received</td>
<td>-0.5</td>
<td></td>
</tr>
</tbody>
</table>

Based on ALL reported nuisance calls

(Base: All respondents who completed both diary stages. November 2013 and March 2014 (TPS: 391, Control: 391))
4 Research Approach

4.1 Overview

Below we outline each individual stage of this research project:

1. **Omnibus survey**: a short questionnaire was run on Ipsos MORI’s weekly face-to-face Omnibus to establish the profile on non-TPS registered individuals, as well as to test whether or not people are aware of if they are registered to the TPS.

2. **Recruitment**: 2,183 panel members were recruited by telephone. The sample was screened to avoid recruiting consumers already registered with TPS.

3. **First diary**: paper diary packs were sent to panel members. For each nuisance call received they are asked to provide some basic information on the calls, including for example the type of call, services being sold, information about the contacting organisation and how the call made them feel.

4. **Sample was split for randomised control trial**: The sample was split using a stratified approach based on the amount of time the respondent spent at home and the frequency of nuisance calls. Half of the sample was signed up to the TPS, while the other half was not.

5. **Second diary**: diaries were re-issued to all panel members who completed the first diary stage to enable assessment of effectiveness of the TPS.

4.2 Methodology

**Stage 1 – Omnibus**

The first stage of this study included carrying out face-to-face interviews using Ipsos MORI’s weekly Omnibus. As part of this, we spoke to a representative sample of 1,982 adults in Great Britain aged 15 or over. The purpose of this stage of the study was to establish the profile of people who are not registered with the TPS, and also to find out if people are aware of if they are actually registered with the TPS or not. As part of this, we asked respondents to provide us with their landline telephone number so that we could verify whether or not they were actually registered with the TPS.

The results from this initial Omnibus study found that there were no significant differences between the profile of people not registered to TPS compared with the general population. For this reason, it was decided that in the next telephone recruitment phase, we would look to recruit panel members who were representative of the general population.

The second key finding from the Omnibus study was around awareness of being registered with TPS. Of the 1,982 respondents who were interviewed, 27% said they thought they were registered with the TPS, while 46% said they were not registered.
remaining respondents either did not have a landline telephone number (12%), or did not know if they were registered with TPS (14%). Of those who gave a landline for us to check against the TPS database, among those who were verified as being registered with TPS (386 participants in total), 30% thought they were not registered with the service. Conversely, of the 225 respondents who gave their landline number for checking and who were verified as not being on the TPS database, 24% thought they were registered to TPS. It is however worth mentioning that the majority (69%) of respondents did not disclose their landline number for us to verify against the TPS database, and so the actual proportions may differ.

**Stage 2 – Telephone Recruitment**

The next stage of the project involved the telephone recruitment of panel members to take part in the two stages of the diary exercise. Telephone was chosen as the method for recruitment as it allowed for recruitment to take place within a relatively short time period, as well as having the benefit of allowing us to screen the sample against the TPS database before any recruitment calls were made. This meant that we only called people not already registered with the TPS.

Telephone recruitment took place between 4th and 22nd October 2013. A Random Digit Dial (RDD) methodology was used to ensure that we spoke to a random sample of respondents. Having established through the Omnibus stage that the profile of non-TPS registered individuals was very similar to the general population, we set nationally representative quotas on age, gender, socioeconomic grade, region and work-status in order to recruit a representative sample of individuals to take part in the diary exercise. In total, 2,183 respondents agreed to take part in the exercise.

Within the recruitment questionnaire, we asked a number of questions aimed at understanding certain behavioural characteristics of panel members. The purpose of these was to allow us to help explain results later on in the study, such as why certain groups receive more nuisance calls than others. Examples of these types of questions included asking respondents how frequently they use the internet, whether or not they tend to opt-out of receiving Marketing information, through to if they use the internet to enter competitions, to buy things online, as well as to use price comparison websites, where their personal details such as their telephone numbers might be recorded. The full recruitment questionnaire can also be found in the appendix.

Overleaf we look at the profile of those recruited to take part in both stages of the diary exercise. Compared with the national profile, there are some slight differences, for example, the proportion of men who agreed to take part in the study was 47%, slightly below the national average of 49%. Alongside these figures, we have shown how the profile of panellists changed at each stage of the exercise. As can be see, there was relatively little fluctuation in the profile of panel members throughout the course of the exercise, although the proportion of young people staying to the end of the research fell.
Figure 4.1 – Panel member profile

As shown below, the regional spread of panel members at the end of the second diary stage was very close to the profile of the original panel members recruited to take part in the exercise, meaning a good geographical representation of panel members was achieved.

Figure 4.2 – Panel member profile by region

Base: All respondents (2,183), 04 October – 22 October 2013/ All respondents who completed first diary (1,092) November 2013 / All respondents who completed second diary (782), March 2014  
Ipsos MORI
Finally, as shown below, the profile of panel members by social grade remained fairly consistent throughout the stages of the exercise.

Figure 4.3 — Panel member profile by socio-economic grade

![Social Grade Chart]

**Key**
- Telephone recruitment
- wave 1 Diary Completes
- wave 2 Diary Completes

Base: All respondents (2,183), 04 October – 22 October 2013 / All respondents who completed first diary (1,092) November 2013 / All respondents who completed second diary (782), March 2014

Ipsos MORI
Stage 3 – Diary exercise (1)

The diary was created in a booklet format in order to provide as many diary pages as possible for the panellists to fill in. An example of the diaries sent out can be found below.

The diaries contained 64 diary pages in total, with a reminder after 54 pages providing contact information in order to order more diary pages. In case panellists requested more diary pages they were sent a booklet containing a second set of 64 diary pages, numbered from 65 to 128.

The front cover of the diary is shown overleaf. Panellists were prompted to record as many details about each call as possible, including the type of call (live marketing / sales, recorded marketing / sales message promoting a product / service etc.), the date and time of the call, what product or service, if any, was being sold, the name and telephone number of the organisation, through to whether or not they had dealt with the organisation before, and how the call made them feel.

The front cover also went through the step-by-step process of how to fill in the diary. One thing that was important to check with the panellist was whether they had dealt with the company calling before. This is because they might have given the company permission to contact them again through purchasing one of their services, or through ticking a box giving them permission when buying something online. We also asked how the panellists felt about the call, whether it was annoying, stressful, useful or not a problem. The front cover included an example of how to fill out the diary (by putting crosses in the relevant boxes).

The first diary stage took place between 4th November and 1st December 2013.
The second page of the diary contained a list of the possible nuisance calls a respondent might receive and how to record these in the diary. The list included the following types of calls, with the descriptions of the nature of the call provided for the respondents:
Table 4.1 — List of different nuisance calls and description of these in diary

<table>
<thead>
<tr>
<th>Description of the nature of the call provided for the respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A live Marketing/Sales call from a business or organisation</td>
</tr>
<tr>
<td>There is a real person trying to sell you something, sign you</td>
</tr>
<tr>
<td>up to something (including charitable donations) or promoting</td>
</tr>
<tr>
<td>a product or service.</td>
</tr>
<tr>
<td>2. A recorded Marketing/Sales message promoting a product /</td>
</tr>
<tr>
<td>service</td>
</tr>
<tr>
<td>When you answer you hear a recorded message (rather than a real</td>
</tr>
<tr>
<td>person) trying to sell you something or promoting a product or</td>
</tr>
<tr>
<td>a service. The message may also ask you to press a button to</td>
</tr>
<tr>
<td>speak to someone.</td>
</tr>
<tr>
<td>3. A recorded message saying that a business or organisation</td>
</tr>
<tr>
<td>has tried to contact you</td>
</tr>
<tr>
<td>When you answer you will hear a recorded message saying that</td>
</tr>
<tr>
<td>an organisation has tried to contact you, but that when the call</td>
</tr>
<tr>
<td>was put through there was noone available to speak to you.</td>
</tr>
<tr>
<td>These normally happen when a call centre dialling system</td>
</tr>
<tr>
<td>automatically rings you but when you answer there is no operator</td>
</tr>
<tr>
<td>available to take the call. There is nothing being sold or</td>
</tr>
<tr>
<td>offered in this message. Please make sure you listen to the</td>
</tr>
<tr>
<td>whole of the message to check whether the name of the</td>
</tr>
<tr>
<td>organisation is given.</td>
</tr>
<tr>
<td>4. Silent calls: this is where there seems to be no one on the</td>
</tr>
<tr>
<td>line, although you may hear someone talking in the background</td>
</tr>
<tr>
<td>(but they are not talking to you).</td>
</tr>
<tr>
<td>If you get a silent call where there seems to be no-one on the</td>
</tr>
<tr>
<td>line, it is important that you do not put the phone down</td>
</tr>
<tr>
<td>straight away. Please say something (for example, ‘Hello’) and</td>
</tr>
<tr>
<td>then hold on for at least 5 seconds to see if a recorded</td>
</tr>
<tr>
<td>message or person comes on the line. If this doesn’t happen</td>
</tr>
<tr>
<td>please record it as a silent call.</td>
</tr>
<tr>
<td>5. Some other type of call that you do not want from a business</td>
</tr>
<tr>
<td>or organisation</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

The third introductory page of the diary contained a calendar, in which the respondent was asked to mark with a cross the days they were away from home for a whole day during the period of the diary exercise. There was also a grid in which respondents were asked to mark with a cross if they were regularly out in either the morning, afternoon or evening on any of the days of the week.

Overleaf a diary page is shown. Because of the booklet format, there are two diary pages per spread.
Stage 4 – Random Control Trial (RCT)

The research used a Randomised Control Trial methodology; this is the gold standard in experimental research. The RCT approach makes sure that the two samples are similar in terms of things that may have an impact on the number of calls they receive a week. This facilitated the use of a difference in difference approach during the analysis which has had a stronger ability to detect change than would be the case otherwise.

The specification required that half the wave 1 responders should be assigned to the treatment (TPS) group and half to the control group. Assignment used the following method. First, wave 1 cases were stratified using three stratafiers:

1. It is likely that people spending a large amount of time at home will receive a larger number of calls, so the first stratifier was a five-category variable which took into account both the amount of time a respondent spent at home in wave 1 and the total number of calls they received. One category contained all respondents who had received 26 or more nuisance calls in wave 1. The rest of the sample was put into one of four categories based on the number of weekday morning and afternoons they were at home in wave 1. (The four categories were: always at home; away between 1 and 5 times; away between 6 and 9 times; and away 10 times).

2. Within each category of the first stratifier, a second stratifier was created. This was the total number of nuisance calls (made into a categorical variable).
3 The third stratifier was the number of live calls received in wave 1. (This was not made into a categorical variable, the exact numbers were used).

The data were ordered by the three stratifiers and then split into two groups by taking a random list sample: every second observation was put into one group and a random number generator was used to decide if this group should be the treatment or control group.

The result was that the two groups would be well matched on these three variables (amount of time spent at home, total number of calls, and number of live calls). This was checked by looking at simple tables, and some basic checks were also made to check the match on the variables not used in the stratification was also adequate.

This assignment was completed on 24th December 2013. An additional 45 cases were received in early January 2014, and these were assigned in the same manner. The final result was that 530 cases were assigned to the treatment group and 529 to control.

Stage 5 – Diary exercise (2)

Apart from the dates in the description on the diary front page, the diary from the second diary exercise was identical to that of the first diary exercise. Again, we provided 64 diary pages in total, with a reminder after 54 pages that if the respondent was running out of diary pages they would be able to order more pages.

The detail about the different types of calls was identical to the first diary exercise and, apart from the dates, the calendar and the grid where respondents could cross a box in case they were not at home regularly at a particular time of day or day of the week was also identical.

The second diary stage took place between 3rd March and 30th March 2014.

4.3 Data processing

At the end of each diary stage, several steps were taken to prepare the data for analysis. Notably, this included the coding of any ‘Other’ mentions at question three (type of call) and question four (type of product or service being discussed or sold). As a result of this coding exercise, several new call type categories were created, including for example Market Research / Surveys, and International Calls.

Another key step taken at the data processing stage was to ensure that any diary entries where a legitimate Market Research company name or number had been recorded at Q5 or Q6 had been appropriately coded as ‘Market Research’ at Q3. After both diary stages, this meant re-coding a small number of diary entries where something other than ‘market research’ had been selected at Q3. At diary stage one, 103 calls were matched to the list of market research companies at Q5, the number of matches at stage two was 40. The number of matches by telephone number (Q6) was 45 at stage one and 20 at stage two.
Other key steps taken at the data processing stage were to remove any diary entries recorded from outside of the legitimate diary period to ensure that these were not included in the final data.

Finally, 12 respondents from the control group were removed from the final data as these had registered with TPS on their own accord in-between diary stage one and diary stage two.

This final ‘clean’ data set was used for all stages of analysis. The total number of respondents within this final data set was 782, with an even split between the TPS group and the control group.

4.4 Analysis techniques used

A total of 794 respondents returned wave 2 diaries. However, twelve people in the control group had independently signed up for TPS, so their diaries were excluded from the analysis, leaving 782 diaries to analyse. These were evenly distributed: 391 in the TPS group and 391 in the control group.

Exploratory analysis is reported elsewhere in this report as it is easier for the lay reader to understand. We also conducted regression analysis to ensure that the findings were robust.

4.5 Results of statistical analysis

We completed a difference-in-difference analysis, so for each individual two “differencing” variables were derived (the difference in the number of wave 1 and wave 2 live marketing / sales calls, and the difference in the total number of wave 1 and wave 2 calls). In order to ensure that outliers (such as single individuals experiencing a large drop or increase in calls) would not could have too great an effect on the results, differences were trimmed at -15 and +15, though further analysis showed the same conclusions would have been reached without any trimming.

Two regression analyses were then performed, one for live marketing / sales calls, and one for the total number of nuisance calls. In each case two explanatory variables were included in the model: the first stratifier defined above (which took into account both the amount of time a respondent spent at home in wave 1 and the total number of calls they received at wave 1), and the group indicator. For both analyses the coefficient of the group indicator showed that the TPS group received fewer calls than the control group and the p-value was less than 0.1%, indicating overwhelming evidence of a difference.

It is possible that the conclusions could be sensitive to some analysis decisions (such as how much trimming should be used), so robustness was checked by re-rerunning the analysis using different decisions (for example with no trimming, and with trimming levels set at 5, 10 and 20). These all gave the same conclusion. Robustness was also checked by looking at subgroup analysis. In each case the result was the same: the TPS group had fewer calls than the control group and the result was always statistically significant. This suggests our conclusions are not sensitive to the choice of the method of analysis.
5 Appendix

5.1 Guide to interpreting the results

The overall assessment of whether TPS is effective was established using a range of statistical techniques outlined elsewhere, including an analysis of individual level data. However, the majority of calculations in this report are all done at the aggregate level – i.e. they don’t go back to individual level data. This is because doing so for the changes in different subgroups would have been out of scope for the project.

The implication of this is how the findings should be understood – namely, what we present is the overall change in numbers of calls for those on the TPS panel compared with those on the control panel. The percentages quoted in the report do not represent the average percentage change in call volumes for individuals in each of these groups. The reason for this relates to the way that percentages and averages are calculated and is best illustrated through examples.

Taking a simplified example, below is some mock data.

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Wave 1 Calls</th>
<th>Wave 2 Calls</th>
<th>% decrease</th>
<th>Drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>10</td>
<td>10</td>
<td>0%</td>
<td>0 calls</td>
</tr>
<tr>
<td>002</td>
<td>20</td>
<td>10</td>
<td>50%</td>
<td>10 calls</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>20</td>
<td>33%</td>
<td>10 calls</td>
</tr>
<tr>
<td>Average</td>
<td>15</td>
<td>10</td>
<td>33%</td>
<td>5 calls</td>
</tr>
</tbody>
</table>

There are four different change metrics we could potentially report on:

- **Panel level percentage change** - this is the figure in the blue boxes above.
- **Average individual percentage change** - this is a figure you can only work out using the green boxes.
- **Average Panel level drop in call numbers** – this is calculated using the figure in the yellow box above.
- **Individual level average drop in call numbers** – This is worked out using the

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22 This measure also has some key limitations – if the Wave 1 figure is zero then it is not possible to calculate a % decrease (you would need to divide by 0). Also, if the number of calls goes up (e.g. from 1 to 3) this would be a 300% rise, whereas a drop from 3 to 1 would only be a 66% fall.
Below are a couple more examples

### Data for example 2

In this example, the overall drop of calls at the panel level is the same as example 1, but the story if you look at the average drops for individuals is quite different. This nuance isn’t picked up if we only report on aggregate data.

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Wave 1 Calls</th>
<th>Wave 2 Calls</th>
<th>% decrease</th>
<th>Drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>10</td>
<td>1</td>
<td>-90%</td>
<td>9</td>
</tr>
<tr>
<td>002</td>
<td>20</td>
<td>19</td>
<td>-5%</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>20</td>
<td>-33%</td>
<td>10</td>
</tr>
<tr>
<td>Average</td>
<td>15</td>
<td>10</td>
<td>-33%</td>
<td>5</td>
</tr>
</tbody>
</table>

### Data for example 3

In this example the average individual percentage change is the same as example 1, but the overall number of calls reduced is much lower – it’s just that someone who didn’t get many calls last time got half as many this time.

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Wave 1 Calls</th>
<th>Wave 2 Calls</th>
<th>% decrease</th>
<th>Drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>10</td>
<td>5</td>
<td>-50%</td>
<td>5</td>
</tr>
<tr>
<td>002</td>
<td>20</td>
<td>20</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>25</td>
<td>-17%</td>
<td>5</td>
</tr>
<tr>
<td>Average</td>
<td>15</td>
<td>12.5</td>
<td>-17%</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Results for examples 2 and 3

<table>
<thead>
<tr>
<th>Example</th>
<th>1 (from above)</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel level percentage change</td>
<td>33% drop</td>
<td>33% drop</td>
<td>17% drop</td>
</tr>
<tr>
<td>Average individual percentage change</td>
<td>(50+0)/2 = 25% drop</td>
<td>(90 + 5) / 2 = 47.5% drop</td>
<td>(50+0)/2 = 25% drop</td>
</tr>
<tr>
<td>Average Panel level drop in call numbers</td>
<td>(30-20)/2 = 5 calls</td>
<td>(30-20)/2 = 5 calls</td>
<td>(30-25)/2 = 2.5 calls</td>
</tr>
<tr>
<td>Individual level average drop in call numbers</td>
<td>(0+10)/2 = 5 calls</td>
<td>(9+1)/2 = 5 calls</td>
<td>(5+0)/2 = 2.5 calls</td>
</tr>
</tbody>
</table>

In the report we mainly use the drop in mean call volumes in our descriptive text. We also reference Panel level percentage changes. We do not report on average individual level changes. Therefore it would not be correct to take any figure in our report and say “This shows that on average TPS cut calls for Panellists by xx%”. But you could say “This shows that on average TPS cut calls for Panellists by xx calls” or “This shows that overall the panel signed up to TPS saw a reduction in call volumes of xx%”.

The use of aggregate level data also means that traditional significance testing is not appropriate. Approximations of the confidence intervals are possible but indicative rather than conclusive. This is why for the overall finding we have conducted additional analysis at the individual level that allows for full significance testing. The sample sizes did not justify this for the other hypotheses tested and therefore the findings should be considered indicative as they have not been tested for significance.
For more information

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