Personalising text messages to encourage Council Tax payment

*Testing the effects through a Randomised Controlled Trial*

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Executive summary

- Text messages are used to remind people to pay their Council Tax. We set out to test, using a Randomised Controlled Trial, which type of message was most effective at encouraging people to pay.

- Two forms of personalisation were tested – name only and name plus amount owed – along with the standard message that uses amount only.

- In total 26,869 messages were sent out. 8,974 to the control group (amount only), 9,013 to the combined (name+amount) and 8,882 to the name only group.

- We found no statistically significant difference between the control and treatment groups in encouraging people to fully pay their council tax.

- The name only treatment was effective at encouraging people who would otherwise have paid nothing to partially pay the amount owed, at a level that is statistically significant. 3.7 per cent of the control group partially paid, compared with 5 per cent of the name only group. Regression analysis enables us to confirm that this shift is from those who would otherwise not have paid to part paid.

- The effect of using text messages degrades over time as people become more familiar with the format and the form. Over the course of the trial the effectiveness of the intervention declines across both treatment groups and the control group.

- The exception to this trend is the constant effectiveness of the name only treatment on part paid accounts which shows no sign of degradation over time and continues to be more effective than the control group throughout the course of the trial.

- We conclude that text messages should therefore be used in short bursts to be most effective, rather than constantly throughout the year.
Introduction
As part of the debt recovery process for collecting council tax, reminders are sent by Lambeth Council to account holders both in paper form and as text messages to people’s mobile phones. Although there is some variation across the year, approximately 4,000 text message reminders are sent out each month (once a month) to council tax account holders who have missed their monthly instalment.

Through this trial we sought to test what the effects were of making small adjustments to the content of the text message in order to determine the most effective approach.

Our objective with this experiment was to test how personalising text messages affects response rates and revenue collection and whether small adjustments to text message reminders could successfully increase council tax payment.

Experimental design
The system used to send text message reminders makes it problematic to send messages that exceed the 160 character limit for a single SMS. In order to include variables such as people’s names and the amounts they owe, sufficient characters were required to allow for the different lengths of these in designing the text messages.

Since some accounts have more than one name associated with them (eg Mr & Mrs Smith being joint account holders) and individual names are not attached to specific mobile phone numbers relating to particular accounts, we needed to include both names associated with the account in the text message to avoid personalising the message to the wrong person. Allowing for this further reduced the amount of available space within our messages.

A small number of accounts are in multiple names (ie more than two people) or have a company as the account holder rather than a person. Accounts with multiple and corporate accountholders were removed from the RCT sample in order to avoid further complication.

The experiment design draws on a Ministry of Justice RCT which tested the effectiveness of different text messages on fine repayments. In their RCT the MoJ found that including a person’s name, the amount owed and combining them (name + amount) all increased payment compared with their control group who received no text message. However they found that the most effective treatment was including the name but not amount owed. Further details of the MoJ trial are included in the appendix.

Lambeth already sends a standard text message reminder which includes the amount owed. We therefore designed two treatments to test; including the account holder’s name (but not including the amount owed) and a combined treatment (name + amount), along with the control group who received the current standard text message reminder (which includes the amount owed only).

We considered a treatment which removed the amount from the standard text message; however the MoJ’s experiment found this was less effective than including name or amount. Since adding a further treatment would have reduced our sample size for each treatment and our ability to detect smaller effects, we decided not to include this.
The data we hold on account holders’ names varies; some have forename, some just an initial, some have title but all have a surname. To maximise the number of accounts able to be included in the sample, we used forename + surname or initial + surname for the name element of our treatments. Since around 99% of accounts include forename or initial + surname, it was decided to use this format for the name element of the message. This compared favourably with other possibilities: 88% of accounts for which we hold forename + surname and 83% where we have title + forename or initial + surname.

Analysis of around half the Council Tax account holders suggested the longest forename + surname combination was 28 characters long, so the longest text message (the combined treatment) was designed to ensure this could fit within the 160 character limit. We agreed that any account names which did not fit within the 160 character limit would be removed from the sample.

Two treatments were therefore designed to personalise text messages: the first treatment combined name and amount and the second treatment included name only (not the amount owed).

Text message reminders used in the experiment
Current (control group) text message
Your Council Tax payment of £xxx.xx for account 99999999 is now overdue. Please call 02082902086 to make a payment by debit/credit card

Combined (name + amount) treatment text message
Dear [insert name(s)] Your Council Tax payment of £xxx.xx for account 99999999 is now overdue. Please call 02082902086 to make a card payment

Name only treatment text message
Dear [insert name(s)] Your Council Tax payment for account 99999999 is now overdue. Please call 02082902086 to make a card payment

Accounts that were due to receive a text message reminder were randomly allocated to one of three groups:

- Control group (amount only)
- Combined (name + amount) [treatment 1]
- Name only [treatment 2]

Accounts were randomised each month at an individual level. Individual records tied to each treatment (or control) were monitored using individual account numbers to measure responses.

Table 1 below shows the distribution of accounts each month across our two treatments and control group.

<table>
<thead>
<tr>
<th>RCT group</th>
<th>1 - Control (amount)</th>
<th>2 - name + amount</th>
<th>3 - name only</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>999</td>
<td>997</td>
<td>937</td>
<td>2,933</td>
</tr>
<tr>
<td>September</td>
<td>759</td>
<td>797</td>
<td>729</td>
<td>2,285</td>
</tr>
<tr>
<td>October</td>
<td>890</td>
<td>891</td>
<td>889</td>
<td>2,670</td>
</tr>
</tbody>
</table>
**Running the experiment**

In order to ensure the experiment had a large enough sample size in order to accurately detect the effects, the trial period was agreed as six months. This was estimated to give us enough statistical power to detect an effect of around 1.5%. However data was inspected at regular monthly intervals to evaluate the progress of the trial and as a result of significantly smaller sample sizes towards the end of the financial year, the trial was extended in order to achieve sample sizes of around 6,000 per group.

Responses were monitored 5 working days after the text message was sent. This was timed to be shortly before the point when a paper reminder is sent out and allowed any effect of the paper reminder to be eliminated from the results. Since the paper reminders have a lead-in time of 5 days – for printing and posting - we were able to monitor both whether a payment was made promptly enough to prevent the paper reminder being sent and after being sent but prior to being received.

In some instances, such as when a person moved house or changed to direct debit, their council tax account would be re-profiled and a payment would no longer be due and no paper reminder sent. Other accounts were marked as ‘recovery suppressed’, where, for example, the account holder had contacted the council with a query, which had not yet been responded to. When an account had been marked as ‘recovery suppressed’ no paper reminder would sent until the outstanding query had been addressed.

In these instances, the records were removed from the sample, since they were no longer within the scope of the experiment. For all eligible accounts that received a text message and which were due to receive a paper reminder (if they did not make a payment of the full amount owed), one of two actions was recorded:

- **Paid** - The relevant month’s instalment was paid in full and no paper reminder was issued
- **Reminded** - The relevant month’s instalment was not paid or only part paid and a paper reminder was issued

As people may receive text message reminders more than once (potentially several times over the course of a year), each intervention was tracked separately. Data was captured each month, prior to text message reminders being sent out for that month, and retained separately to record the effect of different treatments on those receiving more than one reminder.
Analysis of findings
Simple analysis of the treatment effects on full payment (paid) over the 9 months of the trial shows no statistically significant difference to the control group. 44.9 per cent of the control group paid their council tax in full compared with 43.6 per cent of the name only treatment and 45.4 per cent of the combined treatment, neither of these are statistically significant differences.

<table>
<thead>
<tr>
<th></th>
<th>Control (amount only)</th>
<th>Combined (name + amount)</th>
<th>Name only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid</td>
<td>51.4%</td>
<td>50.8%</td>
<td>51.4%</td>
</tr>
<tr>
<td>Part paid</td>
<td>3.7%</td>
<td>3.8%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Unpaid</td>
<td>44.9%</td>
<td>45.4%</td>
<td>43.6%</td>
</tr>
</tbody>
</table>

Figure 2 - response by treatment and control group

Our analysis finds that the name only treatment is effective compared with the control group at increasing partial payments – 5 per cent compared with 3.7 per cent in the control group – which is statistically significant. We can be confident that this a shift from not paying to paying – as opposed to a movement from people paying to only part-paying – because of the absence of a statistically significant negative coefficient on payment in full in our analysis (see appendices for statistical analysis and regressions). We can therefore conclude that the Name-only treatment is encouraging people to ‘pay something’ rather than paying nothing. That the name-only treatment has an effect is consistent with the trial conducted by HM Court Service on fine payments (see appendices for further information).

Perhaps the most striking insight to be derived from our analysis – and one that applies to both to the treatment groups and to the control group – is that the effect of using text messages degrades over time. As people become more familiar with the format and the form, the salience of the message degrades and the intervention loses its effectiveness. We see this across both treatment groups and the control group over the course of the trial. The linear trend lines in figure 3 below illustrate the reduction in the proportion of people paying their council tax in response to receiving a text message each month.
This finding is also consistent with the results from the Ministry of Justice trials on using text messages, which also saw treatment effects reducing over time (see Appendices for further details).

![Figure 3 - Proportion paid by month with linear trend lines](image)

Table 4 - Proportion paid by month

<table>
<thead>
<tr>
<th></th>
<th>Amount only (control)</th>
<th>Name + amount (combined)</th>
<th>Name only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug</td>
<td>54.4%</td>
<td>57.2%</td>
<td>56.4%</td>
</tr>
<tr>
<td>Sept</td>
<td>55.6%</td>
<td>56.0%</td>
<td>55.8%</td>
</tr>
<tr>
<td>Oct</td>
<td>60.8%</td>
<td>63.5%</td>
<td>62.8%</td>
</tr>
<tr>
<td>Nov</td>
<td>60.7%</td>
<td>59.5%</td>
<td>58.4%</td>
</tr>
<tr>
<td>Dec</td>
<td>53.8%</td>
<td>61.9%</td>
<td>56.8%</td>
</tr>
<tr>
<td>Jan</td>
<td>56.3%</td>
<td>49.1%</td>
<td>50.6%</td>
</tr>
<tr>
<td>Feb</td>
<td>43.3%</td>
<td>39.3%</td>
<td>35.4%</td>
</tr>
<tr>
<td>Mar</td>
<td>36.1%</td>
<td>29.9%</td>
<td>27.9%</td>
</tr>
<tr>
<td>Apr</td>
<td>32.5%</td>
<td>32.5%</td>
<td>30.4%</td>
</tr>
</tbody>
</table>

The exception to this trend is the constant effectiveness of name on part paid accounts which shows no sign of degradation over time and continues to be more effective than the control group throughout the course of the trial. This is highlighted in Figure 5 below.
**Conclusions and Recommendations**

Text messages are effective reminders for short bursts of time but their effectiveness degrades when people become accustomed to receiving them. In order to make use of text messages as an efficient means of encouraging people to pay their Council Tax (but also for other behaviour change) they should not be used on an on-going and routine basis.

In relation to Council Tax reminders, we feel there are two ways in which this insight might be applied:

1) It may be sufficient to simply ‘mix up’ the format over the course of the year – to see whether the effect is sustained if they don’t use the same format. e.g. something like: name only for 3 months, combined for 3 months, amount only for 3 months and no text message for 3 months or 3 different formats for 4 months each and no break.

2) The alternative would be to only use text messages for a short period – say four consecutive months - during the course of any given year and then not using them for the remainder of the year. If text messages were used at the beginning of the year (e.g. April-July) when the number of text messages is highest, this might maximise the impact, without significant risk of the effect degrading.

There would be scope to test which of these approaches was most effective through a further trial, or they could simply be adopted based on what we have already learned.

Our findings that Name-only has a consistent effect in encouraging part-paid accounts – where they would otherwise have paid nothing – suggests this format might be usefully used to target those...
least likely to pay. For example, targeting those with poor payment history or persistent ‘non-payers’ might be an effective strategy for increasing the chances of increasing revenue collection.

Other services and business areas that use text messages should also be conscious of the insight derived from this trial in the way they use text messages. Although clearly different contexts and applications may have different results, the evidence from this trial suggests the effectiveness of using personalised text messages may degrade if they are used over a prolonged period of time.

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## Appendices

### Statistical analysis

**Table 1a: Regression of paid in full and paid in part with interactions over time**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paid in full</strong></td>
<td>(0.0125)</td>
<td>0.0605</td>
<td>0.0116</td>
<td>-0.0597</td>
</tr>
<tr>
<td><strong>Paid in full</strong></td>
<td>(0.0187)</td>
<td>(0.0413)</td>
<td>(0.0347)</td>
<td>(0.0601)</td>
</tr>
<tr>
<td><strong>Paid in part</strong></td>
<td>-0.0333</td>
<td>0.0587</td>
<td>0.146***</td>
<td>0.123*</td>
</tr>
<tr>
<td><strong>Paid in part</strong></td>
<td>(0.0188)</td>
<td>(0.0417)</td>
<td>(0.0333)</td>
<td>(0.0558)</td>
</tr>
<tr>
<td><strong>Month</strong></td>
<td>-0.0907***</td>
<td>0.0116</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Month</strong></td>
<td>(0.00433)</td>
<td>(0.00792)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Name and Amount*month</strong></td>
<td>-0.00823</td>
<td>0.0116</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Name and Amount*month</strong></td>
<td>(0.00613)</td>
<td>(0.00792)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Name only*month</strong></td>
<td>-0.0148*</td>
<td>0.00371</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Name only*month</strong></td>
<td>(0.00619)</td>
<td>(0.00729)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>-0.129***</td>
<td>0.415***</td>
<td>-1.787***</td>
<td>-1.787***</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>(0.0133)</td>
<td>(0.0292)</td>
<td>(0.0246)</td>
<td>(0.0246)</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>26,869</td>
<td>26,869</td>
<td>26,869</td>
<td>26,869</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

The regression analysis in table 1a shows that there is no impact overall of the treatments, though with a declining effect of the treatment over time, which is negative and statistically significant. There is an effect for part payment, with name being significant for these kinds of payers or that the treatment attracts people to part pay, perhaps to give the council some payment. There is no effect over time of the part-payment treatment.
**Literature review**

In designing our trial we drew heavily on the evidence from a recent trial on that had been conducted by the Ministry of Justice to test the effectiveness of various text messages at encouraging fine repayments.

**HM Courts Service RCT testing the effectiveness of text messages on fine repayments**

The Ministry of Justice ran an RCT, working with the Behavioural Insights Team testing the effect of different text messages on fine repayments. The experiment was run twice – the blue bars on the 2nd diagram are the results of the second experiment. The found that text messages reminders increased payment, and that personalising the messages - with the accountholders name and amount owed – further increased payments.

Figure 8 shows the responses rates from the first trial, showing the proportion of responses for each treatment group. We see that including people’s names was the most effective (more effective than amount and the combination of name + amount).

![Figure 8 – response rate by treatment and control](image)

The second chart (figure 9) presents the amounts paid for the first trial and the subsequent follow up (2nd trial). The results are shown in the average amount paid for each treatment and control group for the first trial and the follow up trial.

They found that including a person’s name was the most effective treatment, but that including the amount also had an effect. The trial showed that the effect of the text messages degrades over time – with a smaller effect for all treatments being observed in the second trial.
Figure 9 – results from second trial in pounds paid by treatment and control group

Source
Original trial quoted in: Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials, Behavioural Insights Team (2013)
Follow-up trial quoted in: EAST: Four Simple Ways to Apply Behavioural Insights, Behavioural Insights Team (2014)
Both available on the Behavioural Insights Team website:
http://www.behaviouralinsights.co.uk/publications