Electricity information to fit the bill: redesigning electricity bills to support consumer engagement – Pre-analysis plan

While we did not publicly pre-register this trial, we did time stamp this pre-analysis plan by emailing it to BETA's Academic Advisory Panel on 7 September 2018. This occurred after the launch of the trial on 29 August 2018, but it was before we had received any data or commenced any analysis.

Policy problem and trial aims

Residential electricity prices have increased by 56 per cent in real terms on average in the past decade, placing increasing cost of living pressure on households, particularly those with low income. Ensuring reliable and affordable energy for households is a major priority for the Australian Government.

The Australian Government is implementing a number of reforms to reduce energy costs for households and businesses. This includes acting on key recommendations from the ACCC's final report on retail electricity pricing, such as implementing a default price to ensure Australians are not paying more than they need to for electricity.

The Department of the Environment and Energy has commissioned BETA to undertake a project to test different versions of electricity bills. The aim is to determine what type of bill content and format helps promote customer engagement in the energy market, with the aim to lower consumers' energy bills.

Outcome measures

There are two *primary outcomes* for this trial. They are

- Self-efficacy beliefs [referred to as 'confidence' in the report] regarding use of the bill to help look into options for switching plans to find a better offer

    o This is a continuous variable based on the average of two items scored on a seven-point Likert scale

    "Would this new bill make you feel more or less able to use your bill to:

    - Help work out whether your household could be on a cheaper electricity plan?
    - Look in to your options for switching to a cheaper electricity plan?

Much less able / moderately less able / slightly less able / about the same / slightly more able / moderately more able / much more able"

- Stated intention to look into options for switching plans to find a better offer

  o This is a binary variable based on a yes/no response

  "In the next year, do you intend to look into options for switching plans to find a cheaper offer?"

  Yes/No

The trial will also include a number of *secondary outcomes*, including:

- Clarity and comprehension of electricity bill content;
- Concerns and expectations about engaging with the electricity market to find a better offer
- Engagement with government electricity market comparator website (click-through rate)

Power

The trial has power to detect a minimum effect size of 0.15 (Cohens h) assuming 80% power and 95% confidence between any two groups.

Sample

Approximately 4,200 survey participants will be recruited through the Online Research Unit recruitment panel. Participants will be representative of the Australian population in deregulated NEM states.

Participant inclusion/exclusion criteria

- Must be the person in household responsible for paying electricity bills
- Must be aged 18+ years old
- Must be residing in SA, NSW, SE-QLD, VIC
- Must not be residing in WA, ACT, TAS, NT, Other-QLD
- Must have agreed to have most recent electricity bill with them when they complete the survey

Randomisation

Randomisation will occur through a computer algorithm embedded in the survey. It will be at the individual level with a 1:1 ratio between groups.

Interventions

1. New bill format design (making more salient and visually appealing important information. Presenting individual energy usage information in dollar terms instead of kWh and making more transparent and salient discount, concession and rebate information)

2. Generic call to action to switch to a cheaper offer (appealing to social comparisons and loss aversion)

3. Personalisation of the call to action to switch to a cheaper offer (appealing to social comparisons, loss aversion and personalisation)

4. Unique code (reduce friction costs by providing unique code to be used at Australian Government comparison website: EnergyMadeEasy.gov.au)

Bills/ Trial conditions

1. Typical bill format (C1)

2. Typical bill format + generic call to action (C2)

3. New format design (T1)

4. New format design + generic call to action (T2)

5. New format design + call to action + personalization (T3)

6. New format design + call to action + personalization + unique code (T4)

Design

This is a six-arm framed-field experimental survey. Within this, there is a 2x2 factorial design across trial conditions C1, C2, T1 and T2. Each respondent be presented with one of the six bills and asked questions in relation to it. Data collection (the survey) will take place over three weeks.

The electricity bills will be embedded mid-way through a survey after a bank of questions regarding the respondent's individual and household characteristics. Survey participants will subsequently be asked a number of questions regarding bill (the primary and secondary outcome measures).

The combination of interventions across the bills will allow us to test the additive effect of each intervention as well as the cumulative effects of some of interventions. In particular – the combined effect of all interventions relative to control, and the effect of a generic call-to-action with and without the new format.

Analysis

Hypotheses

Primary outcomes

H1: Self-efficacy and stated intentions to switch will be higher among respondents who view a bill with a call-to-action intervention than respondents who view the same style bill without a call to action.

- C2 > C1
- T2, T3 and T4 > T1

H2: Self-efficacy and stated intentions to switch will be higher among respondents who view the generic call-to-action on the alternative design bill than the typical design bill.

- T2 > C2

H3: Self-efficacy and stated intentions to switch will increase with the addition of each intervention.

- T4 > T3 > T2 > T1 > C1

Secondary outcomes

H4: Clarity and comprehension will be higher among respondents who view the alternative design bill than the typical design bill

- T1 > C1

Statistical tests

We will test hypotheses H1 and H2 using ordinary least squares regression. For H1, we will conduct both pooled and pairwise comparisons of T2-T4 to T1.

We will test hypothesis H3 using a single model with four dummy variables entered simultaneously representing each of the interventions that build incrementally across the experimental conditions, using ordinary least squares regression. We will also conduct pairwise comparisons between experimental groups.

We will not use statistical corrections for conducting multiple comparisons. Given that the interventions build incrementally across the experimental conditions, we expect outcomes to be highly correlated across groups. In the absence of an overall pattern of results resembling what is set out in our hypotheses, we will have low confidence in any individual statistically significant difference between experimental groups based on the p-value alone[1].

We will test hypothesis H4 using ordinary least squares regression.

All hypotheses will be tested using robust standard errors.

All other analyses will be considered exploratory.

Pre-analysis plan commitments

- We will report the n, group means or proportions for all treatment groups on both primary outcomes.

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[1] We are aware there is a lively academic debate about the merits of testing for 'statistical significance', the appropriateness of conventional thresholds such as p<0.05 (or any thresholds at all), and even the use of p-values generally. See, in particular, the 'The American Statistical Association Statement on Statistical Significance and P-Values' (Wasserstein and Lazar, 2016).

- We will report average treatment effects, 95% CIs and p-values for all comparisons and hypothesis tests specified in this document.
- We will be transparent about, and provide justification for, any deviations (additions or omissions) from this plan.
- We will include the survey questions in the published report