Analysis Plan
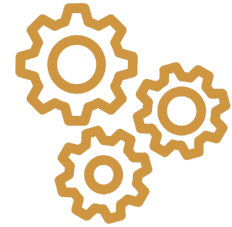
Project Name: Learning about Transparent Defaults for Opt Out Text Messages

Project Code: 2209-A

Date Finalized: February 17, 2023

Project Description

This evaluation is part of the Office of Evaluation Sciences (OES) American Rescue Plan Act of 2021 (ARP) portfolio. The ARP was designed to address immediate needs related to the pandemic, with a specific focus on addressing historically disparate outcomes across race, class, and geography that were further exacerbated by the pandemic. As federal programs are innovating and finding new ways to achieve these goals, the OES portfolio of evaluations will measure whether ARP-funded interventions are working as intended and share lessons learned.

In support of the ARP Equity Learning Agenda, OES is working with agency partners to better understand how to improve awareness, access, and allocation of ARP programs and resources, focusing on ARP programs with equity goals. This set of evaluations will be intentional and strategic in building evidence to understand the role of ARP programs and supported interventions in improving outcomes for historically underserved populations.

OES is working with Minnesota's Department of Human Services (DHS) to evaluate what works to increase uptake of Minnesota's Child Care Stabilization Base Grants (CCSBG). As part of that evaluation, DHS will send text messages to make it easier to sign up for the CCSBG. Prior to the CCSBG take-up evaluation, DHS will send all providers in the take-up evaluation a text message informing them about the new mode of communication and an opportunity to opt out of being sent these text messages. The evaluation described in this analysis plan will compare the effectiveness of two different opt out text variations sent to eligible Minnesota child care providers, informing them that they have the ability to opt out of future text messages about provider benefits.

Hypothesis

The primary hypothesis is that providing a message explaining the behavior targeted by a default will increase the default's effectiveness. In this case, we expect providers to be less likely to opt out of future text communications when they receive a message explaining why they have been enrolled to receive text communications as compared to when they receive a basic opt-out message.

Data and Data Structure

This section describes variables that will be analyzed, as well as changes that will be made to the raw data with respect to data structure and variables.

Data Source(s):
- Child care provider licensing, CCSBG application history, and contact information data; and
- Text message data that captures message delivery and opt out response, among other measures.

Outcomes to Be Analyzed:

A given phone number may have more than one license ID. Since the text messages have no unique/identifying information about a given license ID/center, DHS will deduplicate the data so that every provider/phone number only receives one text message. Thus the data will be at the provider/phone number level.

The primary outcome is:
- A dichotomous indicator for opting out of text message services by the time the main-study text message is sent that takes the value 1 if opted out (provider responded "STOP"); and, 0 otherwise (no response).

Exploratory outcomes are:
- A dichotomous indicator for the text message being successfully delivered (0/1);
- A dichotomous indicator for clicking on a terms and conditional link included in the text message (0/1);
- A dichotomous indicator for being subscribed (i.e., valid number and not having opted out) when the text communication of the take-up evaluation starts (0/1); and
- Signing up for the CCSBG during the February 2023 application period (0/1).

Imported Variables:
In addition to the text message opt out responses we will include baseline data on provider characteristics used to create randomization blocks and random assignment to text message variation.

Transformations of Variables:
Our randomization blocks are created from the combination of two variables:
- A categorical measure for the number of times a program has applied for CCSBG in the six application windows between August 2022 and January 2023. This measure includes three (3) categories:
    - Applied 0 times;
    - Applied 1-4 times; and
    - Applied 5 times.
- A categorical measure for provider type. This measure includes two categories:
    - Family child care center; and
    - Child care center or certified child care center.

Thus, we randomize within 6 block combinations (3 application count categories x 2 provider types).

Transformations of Data Structure:
DHS will aggregate the data so that every provider/phone number only receives one text message.

Data Exclusion:
No observations will be excluded from the sample.

Treatment of Missing Data:
Anyone who does not respond to the text message by the time DHS sends the main study text message will be considered to have opted in.

In the event that text messages are undeliverable (for example, because a phone number is not valid), we will drop those observations from our sample. We do not expect invalid numbers to be correlated with treatment assignment as invalid phone numbers pre-exist the randomization, and therefore this form of attrition should not introduce bias.

Descriptive Statistics, Tables, & Graphs

We will create the standard OES bar chart showing the share of providers in each condition who opted out of being sent additional messages, with 95% confidence intervals for both bars.

Statistical Models & Hypothesis Tests

This section describes the statistical models and hypothesis tests that will make up the analysis — including any follow-ups on effects in the main statistical model and any exploratory analyses that can be anticipated prior to analysis.

Statistical Models:

Our estimating model is an ordinary least squares regression of the opt out measure on the transparent-default treatment indicator and randomization block fixed effects. β_1 is the coefficient of interest in the model below:

$$y_i = \beta_0 + \beta_1\, transparentdefault_i + X_i + e_i$$

where i indexes phone number, and:

- y_i is a binary indicator for opting out of the CCSBG text message communications for the CCSBG take-up evaluation;
- $transparentdefault_i$ is a binary indicator for assigned to the transparent-default text variation;
- X_i is block fixed effects; and
- e_i is the idiosyncratic error term.

 We will use Lin-adjustments for the block fixed effects and Heteroskedasticity-consistent standard errors (HC2).[1]

Confirmatory Analyses:
The confirmatory analysis will test the null hypothesis that the transparent default variation does not affect the likelihood of opting out, or:

$$H_0: \beta_1 = 0$$

Exploratory Analysis:

Exploratory analysis will use the same estimation approach to examine the effects of the transparent-default text message variation on the secondary outcomes outlined above.

Inference Criteria, Including Any Adjustments for Multiple Comparisons:
We will use a t-test to create p-values for a two-sided test with an alpha=0.05.

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[1] See Winston Lin. 2013. Agnostic Notes on Regression Adjustment to Experimental Data: Reexamining Freedman's Critique. *The Annals of Applied Statistics* 7(1): 295-318.

Limitations:

Our analysis may be limited by statistical power to detect differences between text message variations. We do not have strong priors on the baseline opt out rate or share of phone numbers that are able to receive text messages for this sample of child care providers.