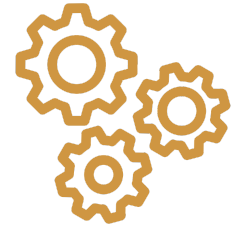


Analysis Plan

Project Name: Increasing Timely Reporting for the State and Local Fiscal Recovery Funds through Peer Comparisons and Encouragements

Project Code: 2112E

Date Finalized: April 14, 2022



Project Description

As part of the American Rescue Plan, the Department of the Treasury (“Treasury”) is administering the State and Local Fiscal Recovery Funds (SLFRF), which provides \$350 billion in funding for eligible state, local, territorial, and Tribal governments (“grantees”) to respond to the COVID-19 emergency and bring back jobs. Grantees have substantial flexibility over how they use funds to meet local needs—including replacing lost fiscal revenue, support for households, small businesses, impacted industries, essential workers, and the communities hardest hit by the crisis. These funds can also be used to make necessary investments in water, sewer, and broadband infrastructure.

A notable feature of SLFRF is that it is the largest transfer of fiscal funds to small cities and towns – referred to as Non-Entitlement Units (NEUs) – in over forty years. NEUs are local governments typically serving a population of 50,000 or less. There are approximately 27,000 NEUs, who have been allocated a total of \$19.5 billion to spend over the next five years.

This transfer represents the potential for a major transformation of local finances. Unlike other levels of state and local government, such as counties, cities and states, it is somewhat rare for NEUs to receive funding directly from federal agencies. As such, these governments have little prior experience working directly with federal funds. As a result, states play a large role in mediating NEUs’ relationship with Treasury. To allocate funds to NEUs, Treasury first developed a list of potentially eligible governments using Census Gazetteer data on the 2019 population count of incorporated places and county subdivisions. States received a lump sum payment for the NEUs in their jurisdiction in an amount proportional to their 2019 population counts, and are responsible for distributing payments to NEUs. In order to receive funding, NEUs need to provide information and documentation to states. However, to account for their use of these funds, NEUs must also send quarterly or annual reports depending on total allocation to Treasury about their spending. We refer to these reports throughout as “spending reports.” The deadline for the first set of spending report submission for all NEUS is April 30 (annual and quarterly filers).

A major question for Treasury, therefore, is how to best incentivize NEUs to accomplish program goals and comply with reporting requirements, given the sheer number of NEUs and their infrequent contact with federal agencies. The purpose of this project is to pilot and test the most

effective way that Treasury can communicate with NEUs to increase their submission of spending reports.

A prior round of email testing was conducted in February and March. It tested the impact of adding an action summary to the email body and / or an action statement to the email subject line on NEU's rate of signing up on Treasury's portal. Pre-registered analyses found statistically significant increases in portal signup, as well as exploratory evidence that they increased the likelihood of submission of a spending report. This study will test new email communication strategies, emphasizing peer comparisons, ease of submission, and the frequency with which reminders are sent.

Preregistration Details

This Analysis Plan will be posted on the OES GitHub before outcome data are analyzed. The plan will be gated while it is reviewed by Treasury.

Hypotheses

We hypothesize that by adding a peer comparison to the email body and subject line, the "peer comparison treatment" we will increase the proportion of NEUs who submit their reports before the deadline.

Similarly, we hypothesize that by adding information about how report submission is easy to the email body and subject line, the "ease of submission treatment," we will increase the proportion of NEUs who submit their reports before the deadline.

Finally, we hypothesize that getting an additional email reminder, the "frequency treatment," the week of the reporting deadline will increase the probability that NEUs submit their spending reports on time.

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):

We expect to receive a dataset at the NEU-contact level that records timestamps for spending report submission.

Outcomes to Be Analyzed:

For the messaging treatments, we will measure report submission on two dates: April 24, 2022, the day prior to the email reminder (the frequency treatment), and May 1, 2022, the day after reports are due (April 30, 2022). We test impacts on two measurement dates to avoid the potential for ceiling effects arising from the reminder email, that is sent only one week after the messaging treatments, and the week that the spending reports are due. As the frequency

treatment is sent the week the reports are due, we will estimate the effect only on the day after reports are due (May 1, 2022). Our confirmatory analyses will focus on whether the NEUs submitted their reports before the measurement dates.

In exploratory analyses, we also plan to measure whether NEUs signed up on the portal by the measurement dates. Signing up on Treasury's portal is a necessary step that must be taken prior to submitting their spending reports.

Imported Variables:

We expect to merge two datasets. We will start with the randomization dataset, which will contain primary and secondary email addresses, the randomization ID used to randomize, the treatment conditions, as well as other information on the NEUs in the study (state, name, etc.). Into this dataset, we will merge two variables from the portal data: first, whether the NEU has signed up on the portal and whether they submitted their report by the measurement dates.

Transformations of Variables:

From the raw data above, we will construct two versions of the following variables:

1. **signed_up** - a binary variable indicating whether the NEU has signed up for the portal by the measurement dates.
2. **submit_report** - a binary variable indicating whether the NEU submitted their report by the measurement dates.

We will also construct baseline versions of each of these variables, namely:

3. **signed_up_baseline** - a binary variable indicating whether the NEU has signed up for the portal by the day before the messaging email was sent.
4. **submit_report_baseline** - a binary variable indicating whether the NEU submitted their report by the day before the messaging email was sent.

Transformations of Data Structure:

We will create a panel version of the data for graphing purposes. Specifically, we will track rates of signup and report submission by treatment status.

Data Exclusion:

NEUs for whom no valid primary or secondary email address was listed were dropped.

Treatment of Missing Data:

We do not anticipate any missing data for portal signup or report submission outcomes.

Descriptive Statistics, Tables, & Graphs

We will create a time series plot tracking rates of signup and submission by treatment status.

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:

In generic terms, the main specification will be a linear regression of the outcome on binary treatment indicators for each treatment, fixed effects for blocks, and the baseline measure corresponding to that outcome (see above for coding).¹ Note: the probability of assignment is homogeneous across blocks, so we do not anticipate any bias from this approach. We will estimate coefficient standard errors using a cluster-robust, CR2, estimator clustered at the randomization ID level. We plan to use the `lm_robust` function from the `estimatr` package for R.

Confirmatory Analyses:

We will conduct 5 analyses in total using the linear regression estimator described above to target the following estimands:

- The ITT of the email peer comparison treatment on the proportion of NEUs who submit their reports by the two measurement dates (April 24, 2022 and May 1, 2022).
- The ITT of the ease of submission treatment on the proportion of NEUs who submit their reports by the two measurement dates (April 24, 2022 and May 1, 2022).
- The ITT of the frequency treatment on the proportion of NEUs who submit their reports by the measurement date (May 1, 2022).

Exploratory Analysis:

We will use the same 5 regressions specifications as above with an outcome of portal signup, as exploratory analyses.

As an additional exploratory analysis, we will analyze heterogeneity in treatment effects by whether the NEU has already signed up on the portal, population size, rurality, and NEU type (incorporated place or MCD).

Inference Criteria, Including Any Adjustments for Multiple Comparisons:

¹ To select this specification, we used the previous study on email submission rates to compare a) different approaches to coding the outcome (either submission at any time before the measurement date or submission between the email and measurement date) and b) including or not including a control for baseline submission rates. The two approaches controlling for the baseline are equivalent and produce smaller standard errors, so we opt for the outcome coding that is consistent with the prior round of email testing and control for baseline submission.

We will calculate two tailed p-values using randomization inference with 10,000 draws from the sampling distribution of the estimators under the sharp null of no effect for any unit.

We will follow the OES SOP for multiple comparisons, and report the testwise alpha that would need to be applied in order to achieve a family-wise error rate of 5% under the global sharp null. The family of tests will include all confirmatory analyses.