

Analysis Plan

Project Name: Employee Voice Initiative Pulse 3 Survey Experiment

Project Code: 2203

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Project Description

In October 2021, the Federal Government launched a pilot pulse survey initiative, which invites Federal employees to share their thoughts via 3-4 questions to help inform the Federal Government's actions on how best to support the Federal workforce. This pilot of 3 pulse surveys, conducted over a six-month period is a collaborative effort of the President's Management Council, together with the Office of Management and Budget, the Office of Personnel Management, and the General Services Administration.

During this pilot, we sent three pulse surveys, each approximately two months apart. These surveys were sent to approximately two million civilian employees of the [24 CFO Act agencies](#). The timing of the pulses allowed time to analyze the aggregated data, evaluate government-wide trends, and then adapt future pulse surveys.

Each survey was a short pulse check and contained 3-4 embedded questions that covered one of three themes: employee engagement, equity and inclusion, and the reentry process. The email linked to the survey questions, which only took a few minutes to complete.

Experimental Design

This study involves one experiment embedded in the equity and inclusion survey that was sent as part of the third round of the pilot pulse survey initiative (Pulse 3). Like Pulse 1 (sent in October 2021) and Pulse 2 (sent in January 2022), Pulse 3 was sent to approximately 2 million civilian Federal employees of the 24 CFO Act Agencies. This analysis plan is being posted prior to accessing any outcome data.

Prior to Pulse 1, all employees were randomly assigned to one of the three survey themes: employee engagement, inclusion, or reentry (see pre-registered analysis plan for Pulse 1 [here](#)). All employees receive the same theme for each of the three pulse rounds. Thus, employees who were randomly assigned to the equity and inclusion survey theme prior to Pulse 1 also receive the equity and inclusion Pulse 2 and equity and inclusion

Pulse 3 surveys. New employees are randomized prior to each pulse round. In total, 713,049 employees were assigned to the equity and inclusion survey theme for the third pulse survey.

The equity and inclusion Pulse 3 survey includes an embedded experiment. All respondents who start the survey will be randomized by the survey software (Qualtrics) to see one of the following two questions:

- A. Employees like me are given the support to succeed here.
- B. Employees with different backgrounds are given the support to succeed here.

Preregistration Details

This Analysis Plan will be posted on the [Github repository](#) for oes.gsa.gov before outcome data are analyzed.

Hypotheses

This experiment will assess two research questions. We do not have any *a priori* hypotheses. These are exploratory, and analyses for both will be descriptive in nature.

Research Question 1: Are people more likely to respond to survey questions that ask about their perceptions of employees like themselves or employees of different backgrounds?

Research Question 2: How do people perceive differences in workplace support for employees like themselves versus employees of different backgrounds, and how do these differences vary by demographic characteristics (e.g., race, gender)?

Data and Data Structure

Data Source(s):

OPM maintains an Enterprise Human Resources Integration (EHRI) database of approximately 2 million civilian Federal employees of the 24 CFO Act agencies (see Appendix A), which will comprise our sample universe. This sample does not include Agency staff employed through federal contractors. Outcome data will come from the survey itself, administered via Qualtrics. Covariate data will come from the EHRI database and from OPM.

Outcomes to Be Analyzed:

The first primary outcome of interest will be a binary indicator reflecting response to either of the following questions:

- A. Employees like me are given the support to succeed here.
- B. Employees with different backgrounds are given the support to succeed here.

The second outcome of interest is respondents' recorded response to the two outcome questions. Each question will be measured on a five-point Likert scale in which a 5 reflects "strongly agree."

Imported Variables:

To evaluate the first research question, covariates will include the following:

- Agency
- Pay grade group

To evaluate the second research question, we will also include the following covariates from OPM data:

- Race
- Gender
- Disability Status
- Veteran Status
- Tenure

Transformations of Variables:

The first outcome variable is a binary measure of any response to either outcome question A or B.

The second outcome variable is a continuous measure of agreement with outcome question A or B. Both questions are measured on the same 1-5 scale, which will be treated as continuous and will not require transformation.

We will then construct a "treatment" indicator that reflects which question each respondent saw. Since respondents will be randomly assigned to see only one question, we can then evaluate differences in agreement with the two questions.

Covariate data may be transformed depending on the final format of data available. Wherever possible, transformations will follow the Federal Employee Viewpoint Survey (FEVS) convention. For instance, tenure, if available, will be grouped following the convention included in the FEVS:

- <1 year
- 1-3 years
- 4-5 years
- 6-10 years
- 11-14 years
- 15-20 years
- >20 years

Data Exclusion:

RQ1: The analytic universe for the first research question will consist of all Federal employees who were assigned to the equity survey theme and who were shown the outcome question associated with their condition assignment.

RQ2: The analytic universe for the second research question will consist of all Federal employees who were assigned to the equity survey theme and who answered the outcome question associated with their condition assignment.

Treatment of Missing Data:

RQ1: The analysis of the first research question will not involve any missing data given that the analytic sample will consist of respondents who were shown the outcome question, and the outcome of interest is a binary indicator of any response.

RQ2: The analysis of the second research question will not involve missing outcome data, given that the analytic universe is defined as all respondents who answered the outcome question. However, if any covariate required for the analysis of RQ2 is missing for over 5% of the sample, we will run two models: (1) one model that excludes that covariate; and (2) one model that includes the covariate, but controls for the missing values by mean imputation. We will report results from both, noting any meaningful differences.

Statistical Models & Hypothesis Tests

Statistical Models:

First, we will evaluate differences in response between the two outcome questions using the following OLS model:¹

$$(1) Y_i = \alpha + \beta_1 question_i + \beta_2 agency_i + \varepsilon_i$$

Where Y_i is a binary indicator of response to either outcome question for employee i ; $question$ is an indicator in which a 1 reflects random assignment to outcome question A, conditional on employee i responding to the survey; and $agency$ is a categorical variable representing the agency to which employee i belongs (on which randomization is stratified).

The coefficient of interest, β_1 , will be interpreted as the average difference in likelihood of responding to outcome question A versus outcome question B among survey respondents.

Second, we will evaluate differences in employees' perceptions of support for similar employees versus employees of different backgrounds, by demographic characteristics via the following model, using inverse probability weights for non-response:²

$$(2) Y_i = \alpha + \beta_1 question_i + \beta_2 group_i + \beta_3 question * group_i + \beta_{4-15} X_i^{4-15} + \varepsilon_i$$

Where Y_i reflects the constructed measure of agreement with the outcome question for employee i ; $question$ is an indicator in which a 1 reflects random assignment to outcome question A; $group$ is a binary indicator for the demographic group of interest (see below); and X is a vector of available covariate data:

- For each unit i , for $j \in \{4, \dots, 15\}$, each X_i^j represents one of the following: pay, age, disability status, education level, tenure, veteran status, locality, agency, telework eligibility, job series, and citizenship. Each β_j represents the coefficient on one such variable.

¹ Note that this model will not be weighted for survey non-response given that the outcome (unit response) is highly correlated with survey response – in prior pulse rounds, over 90% of respondents have answered all questions in the survey.

² Weights will be constructed using a logistic regression model where survey response is the dependent variable and age, gender, race, ethnicity, length of service, education, disability status, and agency are independent variables.

The demographic groups of interest are based race, ethnicity, and gender and include:

- White vs. non-white
- Black vs. non-Black
- Hispanic vs. non-Hispanic
- Male vs. Female

Each of these comparisons will be tested in a separate model, following equation (2). In other words, the first model will evaluate differences between White and non-white employees in their perceptions of support for similar employees versus employees of different backgrounds; the second model will evaluate differences between Black and non-Black employees in their perceptions of support for similar versus different employees; and continuing with each of the demographic groups of interest.

In each model, the coefficient of interest, β_3 , will be interpreted as the average difference in perceptions [of support for employees like oneself versus employees of different backgrounds] by race and gender. Of note, β_1 is not an outcome of interest here.

In each model, we will also check whether equation (2) produces predictions outside of the 1-5 range for any covariate group. If it does, we will report this alongside results.

We will use HC2 standard errors for statistical inferences and reject the null hypothesis if $p < 0.05$ for a two-tailed test.

Limitations:

For RQ2, it is possible that there will be differential non-response to the two questions (A and B). Non-response would arise from individuals completing the survey, but not answering the outcome question. In the analysis of RQ1, we will check for differential non-response between outcome questions A and B. If the difference is greater than 5pp, we will report results of RQ2 with a caveat about the differential response rates. In the prior two pulse rounds, we have not found differential response between questions within any survey track.

Appendix A

The 24 CFO Act agencies participating in the survey experiments:

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Department of Housing and Urban Development
- Department of Interior
- Department of Justice
- Department of Labor
- Department of State
- Department of Transportation
- Department of Treasury
- Department of Veterans Affairs
- Environmental Protection Agency
- National Aeronautics and Space Administration
- Agency for International Development
- Social Security Administration
- General Services Administration
- National Science Foundation
- Nuclear Regulatory Commission
- Office of Personnel Management
- Small Business Administration