COVID-19 VACCINE POLICY SURVEY

October 25, 2021

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INTRODUCTION

METHODOLOGY

- The Institute for Association and Nonprofit Research (IFANR) invited individuals from among the database list of member companies provided by the American Council of Engineering Companies (ACEC) to participate in this survey. One invitation was sent per member company.

  - Data collection occurred on October 22 and 25, 2021.

  - A total of 3,328 invitations were emailed, although 322 bounced and 47 opted-out, resulting in a total of 2,959 potential respondents.

  - Individuals who did not respond to the first email were sent one follow-up reminder.

  - In all, 470 individuals responded to the email invitations for an overall **response rate of 16%**.

- Throughout this report meaningful, statistically significant differences are noted by number of FTEs and U.S. Census Regions.

STATISTICAL NOTES

- Statistically significant differences are evaluated at a 95% confidence interval (for a description of tests used, please see the Appendix).

- There is no margin of sampling error as this was a census of all member firms in the ACEC database.

- Although every effort was taken to minimize survey bias, there is no way to completely eliminate all sources of potential bias. Sources of potential bias include, but are not limited to, the following:
  - Non-response bias
  - Confounding bias
  - Question wording bias
  - Question order bias
  - Habituation
  - Sponsor bias
 - Confirmation bias

RESEARCH SUMMARY

VACCINATION POLICY

- 20% of firms have some requirement regarding Covid-19 vaccines or testing

  - 4% of firms require all workers get vaccinated with no exceptions allowed

  - 10% of firms allow an exception for either medical or religious reasons

  - 6% of firms allow a choice between vaccination and regular testing

- 45% of firms are recommending workers get vaccinated

- 30% of firms have no requirements in place

VACCINATION POLICY (CONT'D)

UNITED STATES CENSUS REGIONS
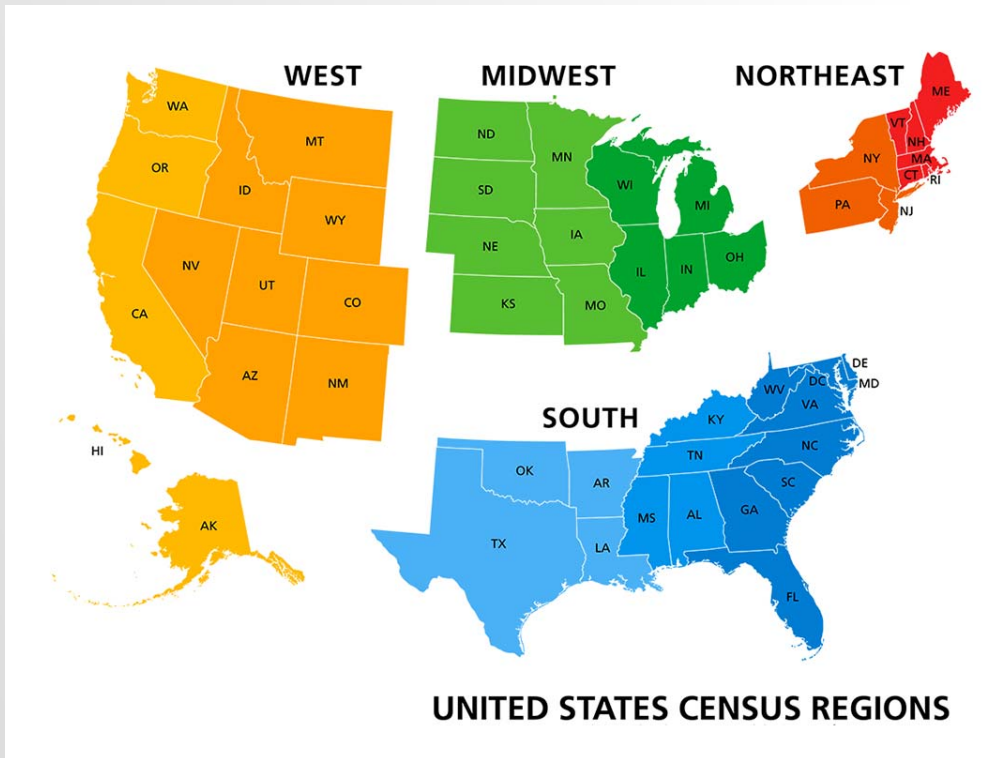
- Requirements vary by geographic location:
  - Northeast – 26%
  - West – 26%
  - South – 18%
  - Midwest - 13%
- Requirements vary by firm size (FTE):
  - 1 to 25 – 18%
  - 26 to 50 – 18%
  - 51 to 200 – 24%
  - 201 to 500 – 21%
  - 501+ - 43%

VACCINATION RATES

- On average, 80% of the workforce is vaccinated. However, it should be noted that about 25% of respondents were unable to answer this question.

- Firms in the South report slightly fewer workers vaccinated than other regions (75%).

- Firms that have some type of requirement in place have a higher vaccination rate (92%) than those who have only recommendations in place (81%) and those who have no requirement/recommendation (61%).

EXEMPTION REQUESTS

- Among the 10% of firms that allow for medical/religious exemptions to their vaccine requirement, only 2% of their workforce has requested an exemption.
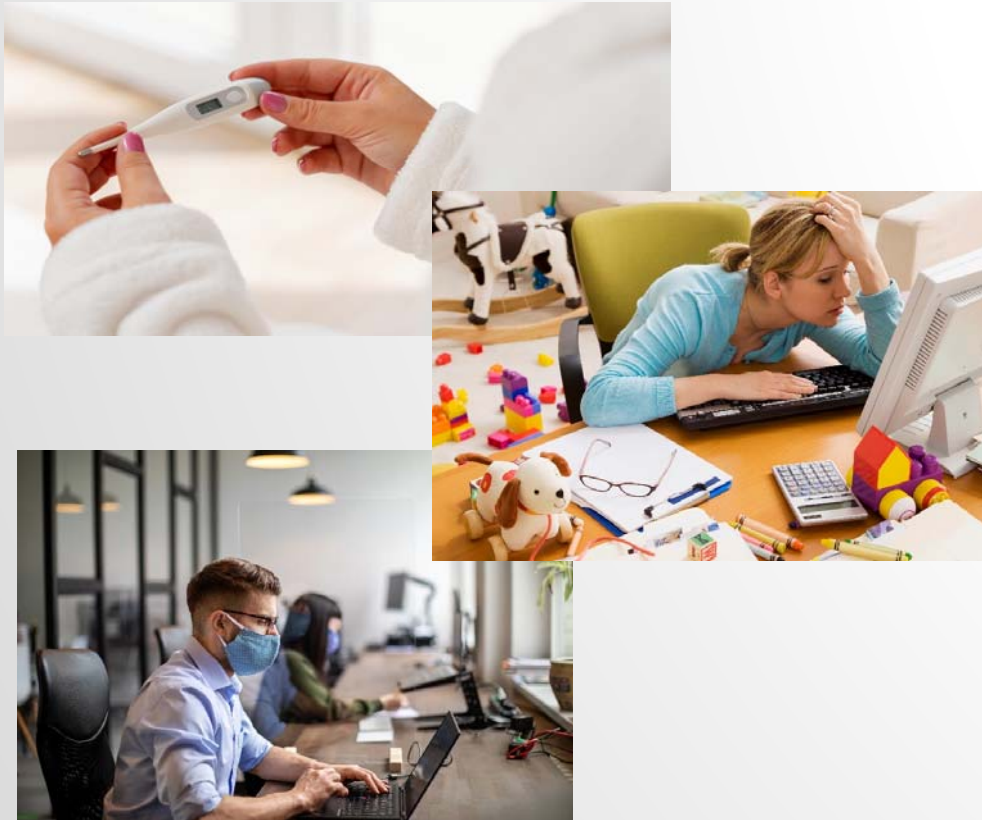
WORKERS LEAVING DUE TO VACCINE POLICY

- Very few firms (3%) report any workers leaving voluntarily due to their vaccination policy (or lack thereof).

- Of the fourteen firms that report voluntary resignations, ten have some type of requirement in place.

POLICY FOR UNVACCINATED WORKERS

- 39% of firms have requirements in place for unvaccinated workers including:
  - Daily temperature checks (10%)
  - Regular Covid-19 testing (8%)
  - Other (26%) including wearing a mask when in the office, working from home, self-monitoring, social distancing, etc.
- Requirements vary by region:
  - Northeast – 58%
  - West – 44%
  - South – 36%
  - Midwest – 28%
- Firms with 25 or fewer FTE are less likely to have requirements in place (30%) compared to all other firms (~55%).

CONCERN ABOUT WORKERS LEAVING DUE TO VACCINE POLICY

- Thirty-six percent of firms are concerned about workers leaving due to their vaccine policy.

- Firms with a requirement in place (40%) and those who are recommending vaccination (41%) are more likely to be concerned than those who have no requirement/ recommendation (26%).

- Firms in the Northeast (48%) are more concerned than others, while those in the West are the least concerned (30%).

- Concern increases as firm size increases:
  - 1 to 25 – 18%
  - 26 to 50 – 29%
  - 51 to 200 – 53%
  - 201+ – 67%

APPENDIX

TESTS OF SIGNIFICANCE FOR MEANS

F-test
When the mean is displayed for a row variable, MarketSight first runs an Analysis of Variance (ANOVA) using an F-test. Doing so tests the hypothesis that the means of multiple normally distributed populations, all having the same variance, are equal.

MarketSight tests whether or not the row variable's means are equal to one another for all columns in the crosstab. Rejecting the test hypothesis implies that at least one of the column means is significantly different from the others.

Fisher's Least Significant Difference (LSD) test
If the statistics option to "Correct for Type I errors in all comparisons" is disabled, MarketSight will run Fisher's LSD test for both Pairwise tests and Contrast tests of means. MarketSight only runs Fisher's LSD test if the ANOVA F-test first rejects the null hypothesis that all column means are equal to one another.

Fisher's LSD test is a relatively powerful test because it uses the pooled variance estimate from the F-test, thus taking advantage of the increased sample size of all columns in the crosstab. Pooling the variance is valid because MarketSight explicitly tests for equality of variance among all columns prior to running the associated F-test.

Although the test is more powerful than either the Tukey HSD or Scheffé tests, it is more susceptible to Type I error when running multiple simultaneous tests.

TESTS OF SIGNIFICANCE FOR MEANS (CONT'D)

Scheffé test

If the statistics option to "Correct for Type I errors in all comparisons" is enabled, MarketSight will run the Scheffé test for Contrast tests of means. MarketSight only runs the Scheffé test if the ANOVA F-test first rejects the null hypothesis that all column means are equal to one another.

The Scheffé test is a conservative test for running multiple Contrast tests of Means which controls the overall Type I error rate for all possible contrasts based on the selected Confidence Level.

Tukey-Kramer tests

MarketSight will run Tukey-Kramer test for Pairwise tests of means. MarketSight only runs Tukey-Kramer test if the ANOVA F-test first rejects the null hypothesis that all column means are equal to one another.

Tukey-Kramer test is a conservative test for running multiple Pairwise comparisons of Means. It controls the overall Type I error rate across a number of related Pairwise tests based on the selected Confidence Level.

TESTS OF SIGNIFICANCE FOR PROPORTIONS

Chi-squared

When a Row Variable displays the Column % or Count option for individual Values, MarketSight runs a Chi-squared test. This test examines whether there is a relationship between the Column Variable(s) and the Row Variable.

Chi-squared tests involve a comparison of "actual" cell counts to "expected" cell counts in a crosstab.

The expected count for each cell is derived from a Row Variable's actual counts as follows: multiply the cell's row total by its column total, then divide by the sum total of all observations.

If the actual cell counts for one or more cells differ materially from their expected counts, the Chi-squared test may produce a statistically significant result which implies there is a relationship between the Column Variable(s) and the Row Variable.

A modified version of a Chi-Squared test is run for Multiple Response Variables.

TESTS OF SIGNIFICANCE FOR PROPORTIONS (CONT'D)

Fisher's Exact
For 2x2 crosstabs with small sample sizes, the Chi-squared test may be unreliable. Therefore, MarketSight runs an alternate test, Fisher's Exact Test, if more than 20% of the cells in a 2x2 crosstab have an expected cell count less than 5, or if any cells in a 2x2 cross-tab have an expected cell count less than 1.

Fisher's Exact Test calculates the true probability of observing a particular set of actual cell counts in a 2 x 2 crosstab, assuming that row and column totals are held constant.

Fisher's Exact Test is not run for Multiple Response Variables.

z-test
MarketSight runs Z-tests for both Contrast and Pairwise tests of Column Proportions. A Z-test is used to test for a difference between two column proportions. The column proportions involved in the test are the cell counts divided by their respective column totals.

A Z-test is only run when the cells being compared have actual counts greater or equal to 5 and the column sample size minus the actual cell counts is greater than or equal to 5. If these data sufficiency conditions are not met, MarketSight runs Fisher's Exact Test instead.

A modified version of a Z-test is run for Multiple Response Variables.

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