



COVID-19 BUSINESS IMPACT SURVEY WRAP-UP

June 9, 2020

TABLE OF CONTENTS

- Executive Summary
- Methodology
- Statistical Notes
- Appendix

EXECUTIVE SUMMARY

THE BEGINNING – WAVE 1

By March 17, confirmed Covid-19 cases were present in every state and the country had begun to shut down. ACEC conducts Wave 1 of the Business Impact Survey on March 17 and 18.

- Most firms had implemented some type of domestic travel restrictions (71%), most notably for training / events / conferences (66%) and air travel (52%).
 - Larger Firms were faster to react than smaller firms. Restrictions on travel to events by firm size:
 - 25 or fewer FTEs – 56%
 - 26 to 50 FTEs – 73%
 - 51 to 200 FTEs – 76%
 - 201 to 500 FTEs – 86%
 - 501 or more FTEs – 90%
- Eight out of ten firms had implemented some type of telework policy. The most common were allowing employees to work from home as needed (34%) or encouraging telework if possible (30%). But only 15% had made it a requirement.
 - Larger firms were again leading the way with requiring telework:
 - 25 or fewer FTEs – 13%
 - 26 to 50 FTEs – 15%
 - 51 to 200 FTEs – 18%
 - 201 to 500 FTEs – 20%
 - 501 or more FTEs – 29%

THE BEGINNING – WAVE 1 (CONT'D)

- Nearly all firms (96%) had implemented changes to the way they were conducting client work. Top among these were social distancing at work sites (77%) and limiting access to offices, project/construction sites and group meetings (52%).
 - Larger Firms were implementing social distancing at a faster pace:
 - 25 or fewer FTEs – 72%
 - 26 to 50 FTEs – 80%
 - 51 to 200 FTEs – 82%
 - 201 to 500 FTEs – 80%
 - 501 or more FTEs – 90%
- Nearly half of organizations (44%) were reporting project delays or cancellations due to COVID-19.
 - The delays/cancellations were hitting all size firms, especially those with more than 500 FTEs:
 - 25 or fewer FTEs – 41%
 - 26 to 50 FTEs – 47%
 - 51 to 200 FTEs – 45%
 - 201 to 500 FTEs – 43%
 - 501 or more FTEs – 71%

THE ECONOMIC TSUNAMI HITS – WAVE 3

By the beginning of April, the economic impact of the Covid-19 shutdowns were being felt across the USA. ACEC conducts Wave 3 of the Business Impact Survey on March 31 and April 1.

- More than nine out of ten firms (93%) felt the condition of the U.S. economy was worse than it was 30 days prior. In addition more than half felt their firm's finances (54%) and cash flow (58%) were worse.
 - The smaller firms were feeling the cash flow squeeze the most:
 - 25 or fewer FTEs – 64% “worse than March 1”
 - 26 to 50 FTEs – 57%
 - 51 to 200 FTEs – 49%
 - 201 to 500 FTEs – 49%
 - 501 or more FTEs – 53%
- Nearly all firms were ensuring social distancing when working with clients (90%) and limiting access to offices, project/construction sites and group meetings (80%).
 - Larger firms were more aggressive in limiting access to offices, project/construction sites and group meetings:
 - 25 or fewer FTEs – 71%
 - 26 to 50 FTEs – 88%
 - 51 to 200 FTEs – 85%
 - 201 to 500 FTEs – 91%
 - 501 or more FTEs – 100%

THE ECONOMIC TSUNAMI HITS – WAVE 3 (CONT'D)

- Project delays/cancellations due to Covid-19 had surged from 44% of firms in Wave 1 to 70% of firms in Wave 3.
 - The delays/cancellations increased among all firm sizes, but particularly among larger firms:
 - 25 or fewer FTEs – 41% in Wave 1 up to 63%
 - 26 to 50 FTEs – 47% up to 74%
 - 51 to 200 FTEs – 45% up to 75%
 - 201 to 500 FTEs – 43% up to 88%
 - 501 or more FTEs – 71% up to 85%
- The CARES Act was signed on March 27 which included a provision for the Paycheck Protection Program (PPP) providing hope to many firms. More than half of firms (51%) indicated the stimulus package will have a positive impact on their firm, but nearly one-third (32%) were not sure yet.
 - Larger firms were more positive about the impact of the CARES Act, while smaller firms were “not sure”:
 - 25 or fewer FTEs – 43% “positive”, 40% “not sure”
 - 26 to 50 FTEs – 55%, 23%
 - 51 to 200 FTEs – 56%, 31%
 - 201 to 500 FTEs – 86%, 9%

STILL STRUGGLING BUT PLANS TO REOPEN BEGIN – WAVE 5

By late April, the economic impact of the Covid-19 shutdowns were in full swing, but firms began to plan for re-opening. ACEC conducts Wave 5 of the Business Impact Survey on April 21 and 22.

- Although the vast majority of firms (87%) still felt the condition of the US Economy was worse compared to March 1, firms were less negative regarding their own finances and cash flow compared to previous waves. Forty-five percent of firms reported their cash flow was worse, down from 54% in Wave 3.
 - The smaller firms were still feeling the cash flow squeeze the most:
 - 25 or fewer FTEs – 53% “worse than March 1”
 - 26 to 50 FTEs – 38%
 - 51 to 200 FTEs – 38%
 - 201 to 500 FTEs – 30%
 - 501 or more FTEs – 45%
 - The top actions firms had taken to shore up their finances since March 1 were freezing non-essential purchases (50%), speeding up collections (38%) and freezing salary/pay increases (30%).
 - Larger firms were more likely to have taken all actions. The percentages of firms speeding up collection of accounts receivable is illustrative of this:
 - 25 or fewer FTEs – 30%
 - 26 to 50 FTEs – 37%
 - 51 to 200 FTEs – 46%
 - 201 to 500 FTEs – 53%
 - 501 or more FTEs – 70%

STILL STRUGGLING BUT PLANS TO RE-OPEN BEGIN – WAVE 5 (CONT'D)

- After enthusiasm towards the CARES Act in Wave 4 surged (74% up from 51% in Wave 3), fewer firms now felt the federal stimulus package had a positive impact on their firm (back down to 55%). In addition, many more said it had no impact (33% vs. 10%). This was due to inadequate funding and the nearly immediate depletion of the Paycheck Protection Program in less than one week.
 - Smaller firms were much less positive about the CARES Act than larger firms:
 - 25 or fewer FTEs – 44% “positive”
 - 26 to 50 FTEs – 64%
 - 51 to 200 FTEs – 74%
 - 201 to 500 FTEs – 77%
- Although more than eight out of ten firms (84%) had applied for the PPP, only three-fourths of those firms (74%) received approval before funding ran out.
 - Smaller firms were disproportionately left out in the cold:
 - 25 or fewer FTEs – 64% “PPP application was accepted and approved”
 - 26 to 50 FTEs – 80%
 - 51 to 200 FTEs – 85%
 - 201 to 500 FTEs – 90%
- Fortunately, Congress was making plans to replenish the PPP and two-thirds of firms (66%) that had not received a PPP loan were already making plans to apply/re-apply.

STILL STRUGGLING BUT PLANS TO RE-OPEN BEGIN – WAVE 5 (CONT'D)

Despite financial struggles, firms were beginning to look ahead to re-opening.

- Although firms that had closed their offices were split on when they would re-open (some said they would wait for the governor to give the go-ahead and others said they would wait until they felt it was safe), firms began making plans to ensure a safe re-opening. At this time, 20% of firms said they had a worker safety plan for re-opening and 41% were working on one.
 - Larger firms were ahead of smaller firms in this area:
 - 25 or fewer FTEs – 73% “have or working on plan”
 - 26 to 50 FTEs – 87%
 - 51 to 200 FTEs – 94%
 - 201 to 500 FTEs – 100%
 - 501 or more FTEs – 100%
- The vast majority of firms planned to implement a large number of safety measures once they re-opened their offices. Top among these were maintaining social distancing (87%) and allowing staff to work remotely to care for others (84%).
- Some firms showed optimism that things would begin to return to normal soon, while others were less optimistic. Although more than one-third (37%) of firms thought business would return to normal within six months, Another 35% thought it would take one or two years. One-fifth (21%) were either not sure or didn't think things would ever be the same again.

SOBERING ECONOMIC REALITY AND THE BIG PUSH TO RE-OPEN – WAVE 7

By the end of May, all states had begun to re-open and many felt the worst was in the rear-view mirror. But the reality of the long road to getting back to normal was settling in. ACEC conducts Wave 7 of the Business Impact Survey from May 27 to 29.

- The vast majority of firms (82%) still felt the condition of the US Economy was worse compared to March 1. However, firms' sentiment regarding their overall finances and cash flow continued to improve. The percentage of firms that were negative regarding their cash flow had fallen from 58% in Wave 3 to 34% in Wave 7.
 - The smaller firms were still struggling the most:
 - 25 or fewer FTEs – 64% vs 43% “worse than March 1” in Wave 3 vs Wave 7
 - 26 to 50 FTEs – 57% vs 28%
 - 51 to 200 FTEs – 49% vs 26%
 - 201 to 500 FTEs – 49% vs 26%
 - 501 or more FTEs – 53% vs 9%
- Despite improved sentiment, firms were preparing for more economic pain. Firms planned to take additional cost cutting actions in the next 90 days including freezing non-essential purchases (45%), speeding up collections (39%) and freezing salary/pay increases (28%).
- Firms were less optimistic in Wave 7 about a “return to normal” within six months compared to Waves 5 (23% vs. 37%). Conversely, more firms felt it would take 12 to 18 months compared to Wave 5 (47% vs. 27%).

SOBERING ECONOMIC REALITY AND THE BIG PUSH TO RE-OPEN – WAVE 7 (CONT'D)

- Following a second round of funding for the PPP, perceptions of the CARES Act hit their highest level since the question was first asked. Three-fourths (75%) of firms now rated it positively.
 - Perceptions of the CARES Act were now much better among small firms, but had actually declined among large firms:
 - 25 or fewer FTEs – 44% vs 77% “positive” Wave 5 vs Wave 7
 - 26 to 50 FTEs – 64% vs 82%
 - 51 to 200 FTEs – 74% vs 81%
 - 201 to 500 FTEs – 77% vs 66%
- Perceptions were likely buoyed by the fact that 89% of firms had applied for and received approval for a PPP loan.
 - The approvals were high across the board, although still slightly lower among small firms:
 - 25 or fewer FTEs – 85%
 - 26 to 50 FTEs – 95%
 - 51 to 200 FTEs – 94%
 - 201 to 500 FTEs – 91%
- There was concern that firms would not be able to use the PPP funds in the eight week period allotted for forgiveness of the loans, so it was not surprising that nearly eight out of ten firms (79%) supported extending the forgiveness window, which ultimately passed Congress just after fielding of Wave 7.

SOBERING ECONOMIC REALITY AND THE BIG PUSH TO RE-OPEN – WAVE 7 (CONT'D)

- By the end of May, a majority of firms (61%) had either already re-opened or never closed. Most of the rest planned to re-open in the next 30 to 90 days (27%).
 - Smaller firms were more likely to have never closed or already re-opened compared to larger firms.
 - 0 to 25 FTEs = 69% “Never closed / already re-opened”
 - 26 to 50 FTEs = 58%
 - 51 to 200 FTEs = 54%
 - 201 to 500 FTEs = 46%
 - 501 or more FTEs = 32%
 - Nonetheless, nearly all firms planned to re-open their offices in the next 30 to 60 days.
- Although firms were re-opening, they revealed significant hesitation in allowing employees to travel to large gatherings, especially by means of air travel. Only 17% of firms indicated a willingness to allow employees to travel by air to meetings with more than 100 attendees. Even for events with 10 or fewer attendees, a plurality of firms (45%) said they would allow air travel.
- Firms are much more likely to allow travel by car to conferences / meetings / events compared to air travel. However, the event will need to have 20 or fewer attendees to attract half of firms.
- Firms look at travel for client meetings differently. More than half of firms (60%) are likely to allow air travel to in-person client meetings in the next six months, and 83% will allow travel by car to client meetings.

METHODOLOGY – WAVE 1

- 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 March 17 and 18, 2020.
 - A total of 3,456 invitations were emailed, although 294 bounced and 17 opted-out, resulting in a total of 3,145 potential respondents.
 - Individuals who did not respond to the first email were sent one follow-up reminder.
 - In all, 794 individuals responded to the email invitations for an overall **response rate of 25%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 12% of respondents completed the survey using a mobile device.
- Throughout the report for Wave 1 meaningful, statistically significant differences are noted by geographic region.

METHODOLOGY – WAVE 2

- 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 March 24 and 25, 2020.
 - A total of 3,438 invitations were emailed, although 298 bounced and 20 opted-out, resulting in a total of 3,120 potential respondents.
 - Individuals who did not respond to the first email were sent one follow-up reminder.
 - In all, 738 individuals responded to the email invitations for an overall **response rate of 24%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 11% of respondents completed the survey using a mobile device.
- Throughout this report meaningful, statistically significant differences are noted by number of FTEs.

METHODOLOGY – WAVE 3

- 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 March 31 and April 1, 2020.
 - A total of 3,417 invitations were emailed, although 298 bounced and 9 opted-out, resulting in a total of 3,110 potential respondents.
 - Individuals who did not respond to the first email were sent one follow-up reminder.
 - In all, 610 individuals responded to the email invitations for an overall **response rate of 20%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 10% of respondents completed the survey using a mobile device.
- Throughout this report meaningful, statistically significant differences are noted by number of FTEs.

METHODOLOGY – WAVE 4

- 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 April 7 and 8, 2020.
 - A total of 3,407 invitations were emailed, although 291 bounced and 9 opted-out, resulting in a total of 3,107 potential respondents.
 - Individuals who did not respond to the first email were sent one follow-up reminder.
 - In all, 566 individuals responded to the email invitations for an overall **response rate of 18%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 10% of respondents completed the survey using a mobile device.
- Throughout this report meaningful, statistically significant differences are noted by number of FTEs.

METHODOLOGY – WAVE 5

- 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 April 21 and 22, 2020.
 - A total of 3,395 invitations were emailed, although 301 bounced and 11 opted-out, resulting in a total of 3,083 potential respondents.
 - Individuals who did not respond to the first email were sent one follow-up reminder.
 - In all, 512 individuals responded to the email invitations for an overall **response rate of 17%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 9% of respondents completed the survey using a mobile device.
- Throughout this report meaningful, statistically significant differences are noted by number of FTEs.

METHODOLOGY – WAVE 6

- 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 May 5 and 6, 2020.
 - A total of 3,384 invitations were emailed, although 305 bounced and 8 opted-out, resulting in a total of 3,071 potential respondents.
 - Individuals who did not respond to the first email were sent one follow-up reminder.
 - In all, 492 individuals responded to the email invitations for an overall **response rate of 16%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 10% of respondents completed the survey using a mobile device.
- Throughout this report meaningful, statistically significant differences are noted by number of FTEs.

METHODOLOGY – WAVE 7

- 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 between May 27 and 29, 2020.
 - A total of 3,376 invitations were emailed, although 311 bounced and 8 opted-out, resulting in a total of 3,057 potential respondents.
 - Individuals who did not respond to the first email were sent a follow-up reminder. Those who did not respond to the reminder email were sent a second reminder email.
 - In all, 538 individuals responded to the email invitations for an overall **response rate of 18%**.
- Individuals could respond using a laptop/desktop computer, tablet or smartphone; 8% of respondents completed the survey using a mobile device.
- Throughout this report meaningful, statistically significant differences are noted by number of FTEs.

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 individuals 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

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.

THANK YOU!



Research conducted by Joseph Bates

Research Consultant
ACEC Research Institute
ACECResearchInstitute.org

