



SBA Mitigation Loan Communication Strategies Evaluation Final Evaluation Report

Date: December 9, 2022

Prepared for: **U.S. Small Business Administration, Office of Program Performance, Analysis, and Evaluation**
Contract Number: 73351018A0036/73351021F0198

Prepared by: **Summit Consulting, LLC**
601 New Jersey Ave. NW, Suite 400 | Washington, DC 20001
SAM: FNYSF7X4ELS5 | Taxpayer ID: 95-4816438 | CAGE Code: 3GZS9
www.summitllc.us



DISCLAIMER

This report was prepared for the U.S. Small Business Administration Office of Program Performance, Analysis, and Evaluation and Office of Disaster Assistance, under Contract Number 73351018A0036, Task Order 73351021F0198. The views expressed are those of the authors and should not be attributed to the SBA, nor does mention of trade names, commercial products, or organizations imply endorsement of same by the U.S. government.

ACKNOWLEDGMENTS

The team would like to thank the U.S. Small Business Administration Office of Program Performance, Analysis, and Evaluation and Office of Disaster Assistance staff for their technical feedback and support during this project. In particular, the team thanks Lisa Hechtman for her guidance and technical feedback.

Table of Contents

Executive summary	1
1 Introduction	3
1.1 Background	3
1.2 Research objectives	4
2 Data sources and methods	5
2.1 Experiment preparation.....	5
2.2 Quantitative data and methods.....	8
3 Findings	10
3.1 Comparing the experiment population to the 2013–2018 population of eligible borrowers.....	10
3.2 Research Objective 1: <i>Did the new communication strategy increase the percentage of eligible borrowers utilizing the mitigation loan increase?</i>	11
3.3 Research Objective 2: <i>Did the new communication strategy outcomes differ based on disaster survivor characteristics or type of disaster?</i>	12
4 Limitations	19
4.1 Borrower perception of emails	19
4.2 Short analysis period.....	19
4.3 Potential for contamination and confounding effects	19
4.4 Historically low mitigation uptake rate.....	20
4.5 Lack of diversity among borrowers who chose the mitigation increase option.....	20
5 Conclusions and recommendations	21
5.1 Summarizing the conclusions	21
5.2 Recommendations	21
Appendix A Cognitive testing data collection instrument	A-1
Introduction (5 min.).....	A-1
System message #1 (15 min.).....	A-2
System message #2 (15 min.).....	A-3
Comparison (10 min.).....	A-4
Closing	A-4
Appendix B Final email for experiment	B-1
Appendix C Data analysis tables	C-1
Additional data tables from Section 5.1	C-1
Additional data tables from Section 5.2.1	C-2
Additional data tables from Section 5.3	C-4

List of Figures

Figure 1: Overview of the SBA Disaster Assistance Loan Program and the mitigation increase option	3
Figure 2: Evaluation steps	4
Figure 3: New mitigation uptake by months since application acceptance	14
Figure 4: New mitigation uptake rate by months since application acceptance.....	14
Figure 5: New mitigation uptake across the United States	17
Figure 6: New mitigation uptake in Louisiana and surrounding localities.....	17
Figure 7: New mitigation uptake in the tristate area of New York, New Jersey, and Connecticut	18

List of Tables

Table 1: New mitigation uptake by experimental group	11
Table 2: June 2022 and August 2022 new mitigation uptake.....	19
Table C-1: Model 1 – likelihood of new mitigation uptake.....	C-1
Table C-2: New mitigation by email activity combinations	C-2
Table C-3: New mitigation uptake by opening the first email	C-2
Table C-4: New mitigation uptake by clicking the link in the first email	C-2
Table C-5: New mitigation uptake by opening the second email	C-2
Table C-6: New mitigation uptake by clicking the link in the second email	C-3
Table C-7: New mitigation uptake of all borrowers by credit score	C-4
Table C-8: New mitigation uptake of homeowner borrowers by credit score	C-4
Table C-9: New mitigation uptake of treatment group borrowers by credit score.....	C-4
Table C-10: New mitigation uptake of control group borrowers by credit score.....	C-5
Table C-11: New mitigation uptake of all borrowers by time since application acceptance	C-5
Table C-12: New mitigation uptake of homeowner borrowers by time since application acceptance	C-5
Table C-13: New mitigation uptake of treatment group borrowers by time since application acceptance	C-6
Table C-14: New mitigation uptake of control group borrowers by time since application acceptance ..	C-6
Table C-15: New mitigation uptake of all borrowers by disaster insurance status.....	C-6
Table C-16: New mitigation uptake of homeowner borrowers by disaster insurance status.....	C-6
Table C-17: New mitigation uptake of treatment group borrowers by disaster insurance status.....	C-7
Table C-18: New mitigation uptake of control group borrowers by disaster insurance status.....	C-7
Table C-19: New mitigation uptake of all borrowers by disaster type	C-7
Table C-20: New mitigation uptake of homeowner borrowers by disaster type	C-8
Table C-21: New mitigation uptake of treatment group borrowers by disaster type.....	C-8
Table C-22: New mitigation uptake of control group borrowers by disaster type.....	C-8
Table C-23: New mitigation uptake of all borrowers by state.....	C-9
Table C-24: New mitigation uptake of homeowner borrowers by state.....	C-10
Table C-25: New mitigation uptake of treatment group borrowers by state.....	C-11
Table C-26: New mitigation uptake of control group borrowers by state.....	C-12
Table C-27: Model 2 – likelihood of new mitigation uptake.....	C-13

EXECUTIVE SUMMARY

PURPOSE

Historically, uptake of the mitigation increase option has been around 2% (2.15% for homeowners and 1.86% for business owners). One goal of the Office of Disaster Assistance (ODA) is to increase uptake of mitigation increase option, as stated in the U.S. Small Business Administration (SBA) 2022–2023 fiscal year agency priority goals.¹ In support of this goal, ODA is in the process of developing a set of new communication materials across multiple platforms to increase awareness and uptake of mitigation increase option. This evaluation tested one form of communication (emails) using an experiment with eligible borrowers. The experiment utilized stratification and random assignment from the Disaster Credit Management System (DCMS) data of borrowers who received a Disaster Assistance Loan in the last two years but chose not to receive a mitigation increase. Quantitative analyses of DCMS data pre- and post-experiment were conducted to determine whether the emails had a statistically significant impact on the uptake of the mitigation increase fund option.

- **Research Objective 1.** Did the new communication strategy (the emails) increase the percentage of eligible borrowers utilizing the mitigation increase?
- **Research Objective 1.1.** Did those who opened the email or clicked through the link in the new communication strategy (the emails) increase their utilization of the mitigation increase?
- **Research Objective 2.** Did the new communication strategy (the emails) outcomes differ based on disaster survivor characteristics or type of disaster?

CONCLUSIONS BY RESEARCH OBJECTIVE

- **Research Objective 1.** New mitigation uptake of borrowers in the treatment group was significantly higher than the new mitigation uptake of borrowers in the control group.
- **Research Objective 1.1.** New mitigation uptake of borrowers who opened either email was significantly higher than the new mitigation uptake of borrowers who did not.
- **Research Objective 2.** New mitigation uptake was significantly higher for borrowers who:
 - Were in the treatment group,
 - Were less than 12 months from their initial Disaster Assistance Loan application acceptance,
 - Were hurricane or flood survivors, or
 - Lived in New York, Louisiana, or Michigan.

RECOMMENDATIONS

1. **Use email communications in coordination with alternative methods of communication (such as social media).** Borrowers in the treatment group who opened either email had significantly higher mitigation uptake than borrowers who did not. Emails are likely to be effective in increasing mitigation uptake, though only to a small degree.
2. **Make communications more effective by applying the findings from cognitive testing.** Ensuring clear language (such as replacing a confusing phrase like “rebuild stronger” when talking about mitigation), removing confusing words or phrases, having a descriptive and catchy subject line, including examples of mitigation actions (though ensuring borrowers are aware there are more options not listed), clearly communicating that the mitigation increase funds are additional

¹ U.S. Small Business Administration, “FY 2022 Goaling Guidelines.” https://www.sba.gov/sites/default/files/2022-06/FY22%20Small%20Business%20Goaling%20Guidelines_Final_220623%28R%29.pdf.

funds on top of the borrower's original Disaster Assistance Loan, and using graphics, colors, and logos to make the email more attractive and easier to read can all improve the effectiveness of future communications.

- 3. Add information on the mitigation increase option to the new loan application portal.** Using the portal, the SBA could include links to more information, a mitigation increase request form, or a customer service email.
- 4. Continue personal outreach to communicate with borrowers about the mitigation increase funds, including working with partner organizations to increase awareness.** Most borrowers hear about the mitigation increase option from their loan officers or other word-of-mouth methods. Increasing and improving one-on-one outreach methods is critical to increasing awareness and uptake of the mitigation increase option. The development of an outreach campaign around the mitigation increase option could include training partner organizations, those on the ground working with disaster survivors, and those who support the disaster recovery process post-disaster and working with these organizations to promote the mitigation increase.
- 5. Continue to regularly track and analyze mitigation increase uptake.** Tracking borrower data over time will allow the SBA to identify and follow trends in mitigation increase uptake. Understanding the trends in mitigation uptake will provide the SBA with knowledge to potentially lead to new suggestions for communications or outreach campaigns.

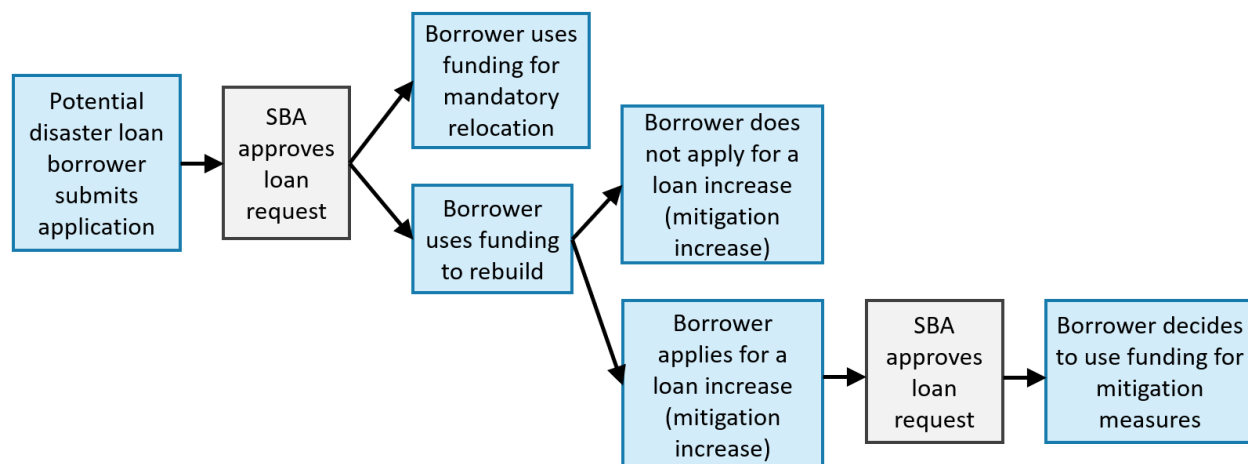
1 INTRODUCTION

Summit Consulting, LLC, (“the Summit team” or “the team”) is pleased to present this report on the evaluation of the U.S. Small Business Administration Disaster Assistance Mitigation Loan Communication Strategies.

1.1 Background

Established in 1953 by the Small Business Act and expanded under the Disaster Mitigation Act of 2000, the SBA Disaster Assistance Loan Program provides low-interest disaster loans to help businesses and homeowners recover from declared disasters. The program includes several types of financing to provide relief for physical damage or economic injuries to homeowners, business owners, and essential employees who have been ordered to active military duty. As part of the Disaster Assistance Loan Program, as shown in **Figure 1**, borrowers are eligible for expanded financial support to purchase mitigation measures.

Figure 1: Overview of the SBA Disaster Assistance Loan Program and the mitigation increase option



The expanded financial support allows borrowers to purchase mitigation measures post-disaster when (1) there has been verified damage to real estate and (2) the loan already includes funds for physical losses. Mitigation measures are proactive steps taken to eliminate or reduce the impacts and risks of a disaster before it occurs. These can be actions such as elevating a building, building a tornado safe room, installing sump pumps or drainage systems, or upgrading doors and windows. The mitigation increase cannot be used for relocation; relocation is separate, and SBA funds may only be used for mandatory relocations.²

The Summit team completed an evaluation of the mitigation increase option in early 2021 and found that only 2.15% of homeowners and 1.86% of business owners who received the original Disaster Assistance Loan and were eligible for the mitigation increase funds in the 2013 to 2018 fiscal years also chose the mitigation increase option. To increase uptake and awareness of the mitigation increase option, the SBA has developed a set of new communication materials across multiple platforms. The creation of new marketing and communication materials regarding the mitigation increase option was

² A relocation required by local authorities, typically as a form of future disaster risk reduction or climate change adaptation.

one of the recommendations made by the Summit team in the 2021 mitigation increase evaluation report.³ The SBA now seeks to test these new communication materials for effectiveness through an experimental design to determine whether they increase uptake of the mitigation increase option. Working with the SBA, the Summit team tested the effectiveness of an email meant to encourage uptake of the mitigation increase option. This report outlines the research objectives, data sources and methods, findings, limitations, and conclusions and recommendations of the evaluation.

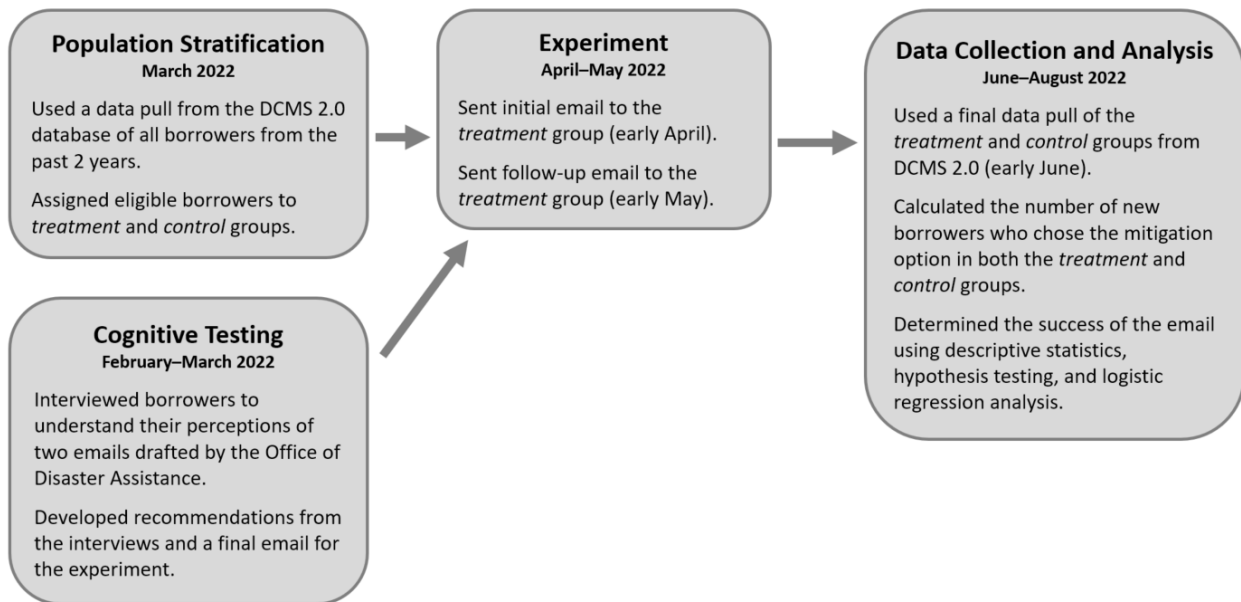
1.2 Research objectives

The evaluation addresses the following three research objectives:

- **Research Objective 1.** Did the new communication strategy (the email) increase the percentage of eligible borrowers utilizing the mitigation loan increase?
 - **Research Objective 1.1.** Did those who opened the email or clicked through the link in the new communication strategy increase their utilization of the mitigation loan increase?
- **Research Objective 2.** Did the new communication strategy (the email) outcomes differ based on disaster survivor characteristics or type of disaster?

To answer the research questions, the team performed cognitive testing of multiple email versions and implemented a randomized controlled trial to test the email's impacts. **Figure 2** illustrates the steps and timeline of this evaluation.

Figure 2: Evaluation steps



³ <https://www.sba.gov/document/report-evaluation-characteristics-perceptions-disaster-assistance-mitigation-loan-option-borrowers>

2 DATA SOURCES AND METHODS

As seen in **Figure 1**, there are two data sources used in the evaluation:

1. **DCMS 2.0.** The Disaster Credit Management System (DCMS), provided by the SBA, is an administrative database of Disaster Assistance Loan borrowers and includes information such as the borrower contact information, type of disaster, loan amount and terms, and other relevant variables. Data from DCMS 2.0 were collected twice during this evaluation: first to determine the control and treatment groups based on borrower characteristics and second to conduct analysis based on mitigation increase uptake following the experiment.
2. **Cognitive interview transcripts.** The team generated interview transcripts for all cognitive testing interviews as a project data source. The team used the transcripts to develop recommendations to refine the email sent to the treatment group in the experiment as well as provide the SBA with insights for the development of future communications.

The following section describes the cognitive testing methodology and results, the experiment methodology, including random assignment, and the quantitative methods used to analyze the experiment results.

2.1 Experiment preparation

The experiment consisted of two distinct phases: (1) the setup for the experiment, including cognitive testing and control and treatment group assignment, and (2) experiment administration.

Cognitive testing

Cognitive testing is a method for pretesting data collection instruments or other materials. In cognitive testing interviews, respondents are asked questions regarding material clarity and content. Cognitive testing of the email used in the experiment was a crucial step to identify revisions and improvements, which improved the chance that the email would boost mitigation increase uptake. Based on the cognitive testing findings, the Summit team made five recommendations to refine the email used in the experiment. The SBA can also use these recommendations for other communication materials in the future.

Cognitive testing methodology

This section describes the team's process for developing a discussion guide, selecting borrowers for recruitment, conducting the cognitive interviews, and conducting a thematic analysis of the interview transcripts.

Discussion guide. The Summit team developed a comprehensive discussion guide to ensure that the interviewers collected data on all relevant topics in the interview. The guide included an introduction that described what the interview would cover and how it would be conducted, as well as ensured respondents that their responses will remain confidential. Interviewers solicited respondents' opinions on the draft emails, covering the following topics:

1. How easy or difficult the email was to understand;
2. Confusing words or phrases;
3. Missing information;
4. Length of the email;

5. Persuasiveness of the email; and
6. Preference between the two email versions.

The cognitive testing discussion guide and draft emails that were tested can be found in **Appendix A**.

Recruitment. In selecting applicants for recruitment, the team used our prior work evaluating the mitigation increase option to inform expectations. Previously, when contacting Disaster Assistance Loan borrowers, the team had a low response rate of about 15%. The response rate for the cognitive testing interviews for this evaluation was similarly low. After contacting a total of 180 borrowers, the team was able to complete four interviews, about a 2% response rate.

Because prior experience with the Disaster Assistance Loan Program was necessary to understand the messages being tested, the team selected respondents who had received a Disaster Assistance Loan but did not apply for the mitigation increase. Additionally, the team only selected borrowers who were not potentially eligible for the experiment. To reduce the potential for recall issues, the team did not select any borrowers who received a loan earlier than 2017. To the extent possible, the team also attempted to keep a diversity of characteristics when selecting applicants to contact, such as splitting between homeowners and business owners, disaster type, and state (although fires in California overwhelmed homeowner borrowers for the target time period).

Administration. The cognitive interviews lasted 45 minutes and were conducted through Microsoft Teams. Microsoft Teams allows the interviewer to display the email messages for the interviewees to read during the interview. For interviewees who preferred to join by phone, the draft emails being tested were sent via email. At the beginning of each interview, the interviewer showed one of the two email scripts before asking the set of related questions in the discussion guide. The interviewer then showed the second email script, asked the same set of questions, and asked respondents which version they preferred. The team alternated which email was shown first to reduce bias. The final 10 minutes of the interview was reserved for comparison between the emails. The interviews were recorded to facilitate transcripts, which the team then used for analysis.

Analysis. The team conducted a thematic analysis of the four interview transcripts and compared trends, such as things respondents found challenging to understand or things that caught their attention in the emails, to create recommendations to revise the draft emails.

Results

The conclusions of the thematic analysis of the cognitive testing interview transcripts generated five recommendations from the team to improve the final email used in the experiment.

1. **Use Email 1 as a starting point.** While both emails had a relatively positive response, more respondents preferred aspects of Email 1 than Email 2. (Both emails are in **Appendix A**.)
2. **Update the subject line.** The original subject line used for both emails was “How to Use Your SBA Loan to Rebuild Stronger.” Two respondents found this subject line confusing and suggested areas for improvement. One of these respondents said that it was unclear that the email was for an additional loan, while the other respondent was confused by the phrase “rebuild stronger.” The team suggested that the subject line be changed to “Additional SBA Funds to Protect Against Future Disasters.”
3. **Explain “20% of your total losses” more clearly.** The original emails use the phrase “You may be eligible for additional loan funds – up to 20% of your total losses – to help you take steps now to

prevent future losses when another disaster hits.” Two respondents found this phrase to be confusing. They were unclear that these funds were in addition to the Disaster Assistance Loan funds they had already received. The team suggested updating the phrase (changes indicated in *italics*) to the following: “You may be eligible for additional loan funds *on top of your Disaster Assistance Loan* – up to *an additional 20%* of your total losses – to help you take steps now to prevent future losses when another disaster hits.”

4. **Include some examples of mitigation actions but ensure borrowers are aware this is not a complete list.** Email 2 includes a list of potential mitigation actions that borrowers could take for floods (seal roof deck, elevate structure), wildfires (install Class A fire-rated roof, install noncombustible gutters, fences, and gates), and wind (upgrade to pressure-rated windows, brace or upgrade to wind-rated garage doors). Two respondents said that they found the list of mitigation action examples helpful because they saw actions they could have taken had they known about the mitigation increase option. The team recommended including a shorter list (to be mindful of the length of the email) and adding language so that borrowers know it is not a complete list.
5. **Include graphics, colors, or a logo to make the email look more official and pleasing to the eye.** One respondent noted that the blank design of the email was not eye-catching and the email did not look like an official SBA correspondence. The final email developed by the team for the experiment includes the SBA logo and some bolding and red font color to emphasize important phrases, which make it more visually appealing.

The final email used in the experiment can be found in **Appendix B**.

Treatment and control group assignment

The team used stratification and random selection to assign the borrowers in the experiment to the treatment or control group. The dataset to select borrowers for the experiment came from the DCMS 2.0 database and only included applicants approved for a Disaster Assistance Loan between 2 years prior to the last day of the experiment and the day of data collection (which covers the eligibility period for the mitigation increase). The team also cleaned the data to ensure the experiment was only selecting borrowers that meet the eligibility requirements. The steps for cleaning the data included:

1. Removing observations with no email address listed;
2. Eliminating duplicate emails and keeping only the observation with the most recent loan application;
3. Dropping declined or canceled applications, Economic Injury Disaster Loan recipients, home renters, and those with no loan type listed as these individuals are not eligible for the mitigation increase; and
4. Removing borrowers who have already received mitigation, as they are not eligible to receive mitigation again.

After defining the final experiment population through data cleaning, the team split the population of borrowers into the *treatment group* (those who receive the email) and *control group* (those who do not receive the email). To do this, the team used stratification⁴ and randomly assigned borrowers to either

⁴ Stratification is a method of selecting a sample from a population that is partitioned into subgroups, called strata, which are organized based on shared characteristics or attributes of the population.

group. The characteristics used to define the strata in this evaluation were damage type⁵, credit score (adopted from the Experian standard⁶), insurance status⁷, and time since the application acceptance date.⁸ Counting all permutations of these characteristics created 240 unique strata or groups that a borrower could belong to before being randomly assigned to either the treatment or control groups.

This stratification and random assignment method ensured that the diversity of the selected characteristics of the borrowers in both the treatment and control groups were equal. This allowed the experiment to control for any potential impacts on mitigation increase uptake based on these characteristics. Our results covered a nominal 50/50 split across the treatment and control groups and verified that within groups the split of treatment and control group borrowers is either exactly 50/50 or very close (depending on even/odd numbers in the strata).

Experiment administration

Once the population of borrowers was divided into the control and treatment groups, the team sent the email for the first time to the treatment group on April 4, 2022. The experiment used the GovDelivery system through the SBA to send out the emails.

One month later, on May 3, the email was sent a second time as a reminder to the treatment group. Leaving 1 month between the two emails was meant to allow borrowers to have time to request the mitigation increase but not be so long that they forgot about the email.

One month after the second email, in the first week of June, the final experiment data was collected from the DCMS 2.0 database for analysis. The 1-month delay allowed borrowers to have time to request the mitigation increase but not be so long that they forgot about the email. The final data collection from DCMS 2.0 included only the experiment participants and was merged using email addresses to the original data file, used for treatment and control group assignment, for final analysis.

2.2 Quantitative data and methods

Once the final data file was merged with the original file, the team calculated “new mitigation,” or the number of borrowers who received the mitigation increase since the experiment began in early April. New mitigation was calculated by using the variable ‘current_up26_mitigation’ (or the current mitigation amount) from the DCMS 2.0 database; all borrowers who chose new mitigation had a value greater than zero for the current mitigation amount in the new data file. (All borrowers in the original file would have had no value for the current mitigation amount because any observations with previous mitigation were removed.) Using this final merged file and the calculation of new mitigation, the team conducted the following analyses:

⁵ The disaster type buckets are organized into the five most common disasters (hurricane, tornado, flood, earthquake, fire) and the catchall ‘other’ for all other disaster types.

⁶ Akin, Jim. “What Are the Different Credit Scoring Ranges?” Experian, June 23, 2020, <http://www.experian.com/blogs/ask-experian/infographic-what-are-the-different-scoring-ranges>.

⁷ Insurance status is a binary indicator (yes/no) of whether or not the borrower had disaster insurance at the time of the disaster for which they are receiving the loan.

⁸ Time strata are organized into buckets of less than 3 months, 3–6 months, 6–12 months, and more than a year since decision date.

- **Descriptive statistics.** Using descriptive statistics, such as counts, percentages, and cross tabulations, the team presented a picture of what mitigation uptake looks like across the control and treatment groups and various characteristics of interest available in DCMS 2.0.
- **Hypothesis testing.** In this evaluation, the team used both chi-squared tests⁹ and Fisher’s exact tests¹⁰ to test for statistically significant differences in mitigation uptake across characteristics. For example, the team tested whether new mitigation uptake (identified as a 1 for yes and 0 for no) was statistically different across the disaster type experienced by the borrower.
- **Logistic regression analysis.**¹¹ The team developed two models to estimate the effect of borrower characteristic variables on new mitigation uptake.
 - Model 1 used the independent variables found to have a significant relationship with mitigation uptake in the 2021 mitigation increase evaluation to see if these relationships held true with the experimental population.
 - Model 2 used the independent variables from Model 1 and included an indicator for treatment or control group status.
- **Data mapping.** To visually understand where new mitigation occurred, the team created maps using the zip code of the borrowers provided in the DCMS 2.0. The map shows where new mitigation takers were concentrated (with treatment and control group status indicated by color) and showing patterns by location.

⁹ A chi-squared test is designed to test for a statistically significant relationship between nominal or ordinal variables (qualitative variables that can take on one of a limited number of fixed possible values).

¹⁰ A Fisher’s exact test is the same as a chi-squared test, but it is more precise when the sample size for each combination of nominal variables (such as new mitigation uptake and hurricanes) is less than 1,000 observations.

¹¹ A logistic regression is a statistical analysis method that predicts a binary outcome (in this case, mitigation uptake or no mitigation uptake) based on a combination of one or more independent variables.

3 FINDINGS

The team first presents a comparison of the experimental population with findings from the 2021 mitigation increase evaluation. Next, each subsection provides the findings for this evaluation by research objective (listed in **Section 1.2**).¹²

3.1 Comparing the experiment population to the 2013–2018 population of eligible borrowers

The first inferential analysis conducted was to understand how the experimental population compares to the population examined previously in the 2021 evaluation of 2013–2018 eligible borrowers. In this evaluation, the team used the logistic regression Model 1¹³ to evaluate if any of the variables previously found to have a significant relationship with mitigation uptake would continue to for new mitigation uptake with the experimental population.

The 2021 mitigation increase evaluation found the following variables to have a significant relationship with mitigation uptake for homeowners: is a flood survivor, lives in a high-flood-risk zone, has disaster insurance, has a higher annual income, or has a low interest rate. Flood survivors had the highest mitigation uptake rate (3.17%) of all disaster types. The evaluation also found that one of the most common uses of mitigation increase funds was elevation, a mitigation measure used for flood prevention. Similarly, borrowers who lived in a high-flood-risk zone and were, by the nature of the location, more prone to floods would follow these same trends. Borrowers who had disaster insurance are, potentially, already more risk averse and therefore would be more likely to choose the mitigation increase option. Finally, low interest rates were found to be a common motivator for borrowers in selecting the SBA Disaster Assistance Loan and the mitigation increase option. Low interest rates provide an incentive and make it more feasible for borrowers to choose additional funds for mitigation measures.

In this evaluation, the team found that of all the variables that had previously been found to have a significant relationship with mitigation uptake, only two had a statistically significant relationship with new mitigation uptake: annual income and loan terms (a positive relationship and negative relationship, respectively). This result suggests that the relationship between different demographic variables and mitigation uptake may change based on population or over time. See **Table C-1** for the complete analysis output.

¹² The business owner borrower results for the inferential analyses are not presented, as only six business owner borrowers in the experiment chose the mitigation increase option. Descriptive analyses combine both business owners and homeowners.

¹³ The complete list of characteristics included in the 2021 mitigation increase evaluation included disaster type, insurance status, log of annual income, credit score, loan interest rate, log of the original loan amount, log of the loan terms, log of the total verified loss, log of the approved mitigation amount, and family size.

3.2 Research Objective 1: *Did the new communication strategy increase the percentage of eligible borrowers utilizing the mitigation loan increase?*

This research objective aims to understand if the experiment worked: does sending an email to borrowers increase mitigation uptake? **Table 1** presents new mitigation uptake of borrowers in the treatment group and control group.

Table 1: New mitigation uptake by experimental group

Experimental Group	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Treatment	61	64.89	23,627	49.97	23,688	50.00
Control	33	35.11	23,655	50.03	23,688	50.00
GRAND TOTAL	94	100.00	47,282	100.00	47,376	100.00

Source: DCMS 2.0 data.

The treatment group had 61 mitigation takers compared to the control group’s 33. This difference is statistically significant and positive in favor of the treatment group.¹⁴

3.2.1 Research Objective 1.1: *Did those who opened the email or clicked through the link in the new communication strategy increase their utilization of the mitigation loan increase?*

This research objective analyzed the effects of the emails in more detail by examining how treatment group borrowers’ interaction with the emails impacted their likelihood of receiving new mitigation.

A total of 61 borrowers who received the emails took up new mitigation, with 58 borrowers opening at least one email and 28 clicking at least one link. The remainder of the borrowers who received the emails did not take up mitigation, with more than 3,900 out of 23,688 not interacting with either email. For a full count of mitigation uptake for each possible iteration of borrower email interaction, see **Table C-2**.

To examine whether borrower email interaction had a significant relationship with new mitigation uptake, the team conducted hypothesis testing by email number and activity.

- **Opened first email.** The new mitigation uptake rate of all borrowers who opened the first email is significantly different (higher) than the new mitigation uptake of borrowers who did not open the first email.
- **Clicked link in first email.** The new mitigation uptake rate of all borrowers who clicked on the link in the first email is significantly different (higher) than the new mitigation uptake of borrowers who did not click the link in the first email.¹⁵

¹⁴ Chi-squared *p*-value: 0.004, Fisher’s exact *p*-value: 0.005.

¹⁵ Note: For both emails, if the applicant did not open a given email, then they were automatically classified as ineligible to click the email’s link.

- **Opened second email.** The new mitigation uptake rate of all borrowers who opened the second email is significantly different (higher) than the new mitigation uptake of borrowers who did not open the second email.
- **Clicked link in second email.** The new mitigation uptake rate of all borrowers who clicked on the link in the second email is different (higher) than the new mitigation uptake of borrowers who did not click the link in the second email, but this result was not statistically significant.

Opening either email was associated with a larger number of borrowers taking up mitigation, with 55 instances of mitigation respectively, which suggests that opening an email is positively correlated with mitigation uptake. Of borrowers who took up mitigation, about 41% (25) opened and clicked the first email, but the relationship was weaker for the second email (and the relationship between clicking the link in the second email was not statistically significant). All output of the hypothesis testing can be found in **Table C-3** through **Table C-6**.

3.3 Research Objective 2: Did the new communication strategy outcomes differ based on disaster survivor characteristics or type of disaster?

This research objective is aimed at understanding the relationship between disaster survivor characteristics and new mitigation uptake. The team examined the descriptive statistics and conducted hypothesis testing by characteristic and new mitigation uptake for all borrowers in the experiment and compared these results with descriptive statistics and hypothesis testing of only homeowner borrowers, only treatment group borrowers, and only control group borrowers. The team also used Model 2 to provide insight into the relationships between all characteristics and new mitigation uptake while controlling for the other characteristics.

New mitigation uptake by credit score

Borrowers were divided into five categories of credit score (exceptional, very good, good, fair, poor). See **Table C-7** through **Table C-10** for complete tables.

Descriptive statistics

All borrowers. Of all 94 borrowers who chose new mitigation in the experiment, about 33% had a fair credit score, the score category with the most new mitigation uptake. The second highest number of borrowers with new mitigation uptake, about 24%, had a very good credit score.

- **Homeowner borrowers.** Most homeowner borrowers fell into the fair credit score category, with the second most in the very good category.
- **Treatment group borrowers.** Most treatment group borrowers had credit scores categorized as either fair, good, or very good.
- **Control group borrowers.** Most control group borrowers had credit scores in the fair category.

Differences in new mitigation uptake

All borrowers. New mitigation uptake was not statistically significant across credit score categories.

- **Homeowner borrowers.** New mitigation uptake among homeowners was not significantly different by credit score category.
- **Treatment group borrowers.** New mitigation uptake among the treatment group was not significantly different by credit score category.



- **Control group borrowers.** New mitigation uptake among the control group was not significantly different by credit score category.

New mitigation uptake by time since application acceptance

Borrowers were divided into four groupings of time since Disaster Assistance Loan application acceptance (less than 3 months, 3 to 6 months, 6 to 12 months, more than 12 months). See **Table C-11** through **Table C-14** for complete tables.

Descriptive statistics

All borrowers. About 51% of borrowers with new mitigation uptake fell in the 3 to 6 months grouping. The graph in **Figure 3** shows increasing new mitigation until it peaks with borrowers 6 months out from their original loan application acceptance date.

- **Homeowner borrowers.** Homeowners who chose new mitigation were most often between 3 to 6 months from application acceptance, with less than 3 months and between 6 to 12 months as second most common.
- **Treatment group borrowers.** Treatment group borrowers who chose new mitigation fell between 3 to 6 months from application acceptance or less than 3 months since application acceptance.
- **Control group borrowers.** Most control group borrowers who chose mitigation fell between 3 to 6 months from application acceptance.

Differences in new mitigation uptake

All borrowers. New mitigation uptake was significantly different across these time groupings. While most new mitigation uptake is seen in the 3-to-6-month time frame, it is also the most heavily represented time strata in the entire experimental population. When accounting for this clustering by month, the new mitigation uptake rate is the highest for borrowers who are 1 month or less out from their application acceptance (**Figure 4**). This suggests that the most effective time for the SBA to communicate with borrowers about the mitigation increase option is as soon as possible after their original Disaster Assistance Loan application acceptance, although any time before 6 months may also be significantly effective.

- **Homeowner borrowers.** New mitigation uptake among homeowners was significantly different among time groupings since application acceptance.
- **Treatment group borrowers.** New mitigation uptake among treatment group borrowers was significantly different among time groupings since application acceptance.
- **Control group borrowers.** New mitigation uptake among control group borrowers was significantly different among time groupings since application acceptance.

Figure 3: New mitigation uptake by months since application acceptance

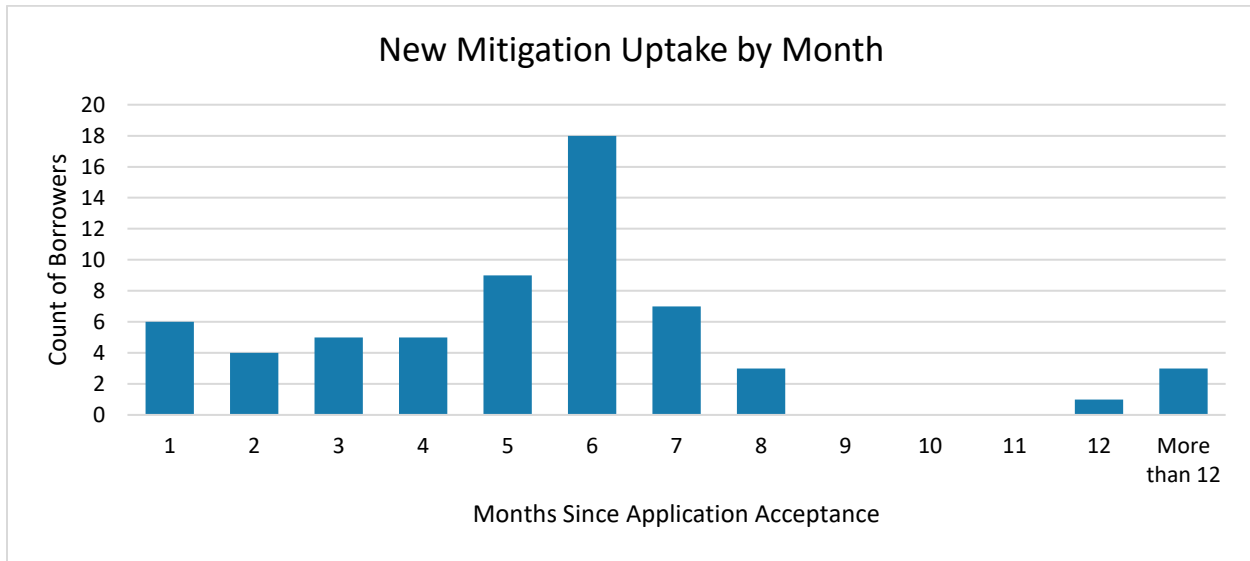
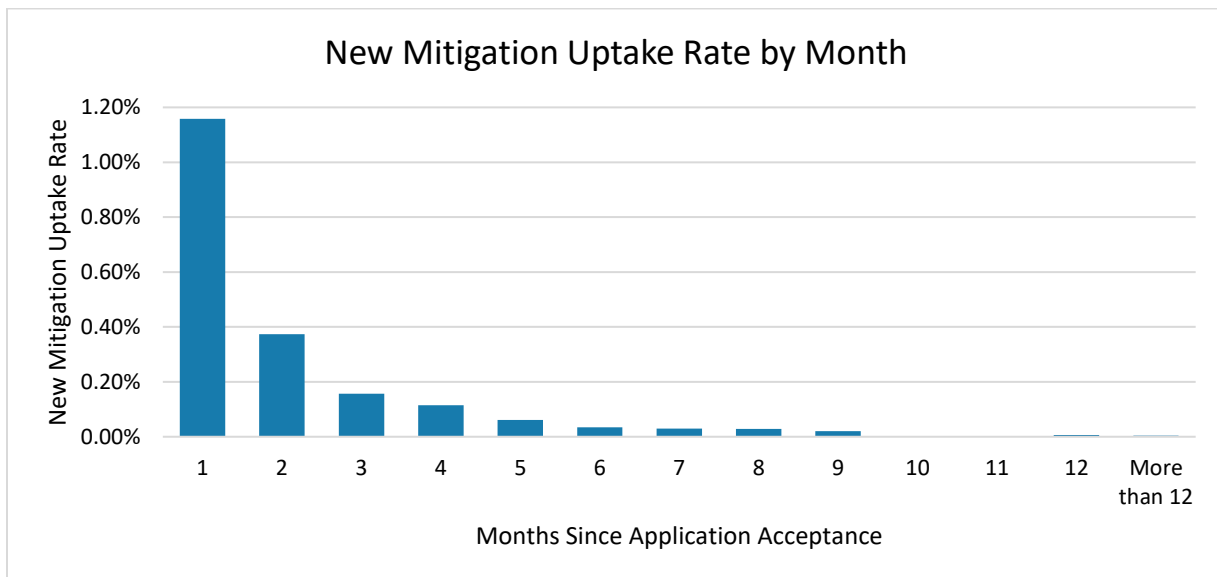


Figure 4: New mitigation uptake rate by months since application acceptance



New mitigation uptake by disaster insurance status

The DCMS 2.0 contains an indicator, either ‘yes’ or ‘no’, for whether or not a borrower had disaster insurance (such as flood insurance) at the time of the disaster. See **Table C-15** through **Table C-18** for complete tables.

Descriptive statistics

All borrowers. About 9% of borrowers who chose new mitigation had disaster insurance.

- **Homeowner borrowers.** As with all borrowers, about 9% of homeowners who chose new mitigation had disaster insurance.

- **Treatment group borrowers.** About 7% of treatment group borrowers who chose new mitigation had disaster insurance.
- **Control group borrowers.** About 12% of control group borrowers who chose new mitigation had disaster insurance.

Differences in new mitigation uptake

All borrowers. New mitigation uptake of borrowers with disaster insurance was not significantly different from the new mitigation uptake of borrowers without disaster insurance.

- **Homeowner borrowers.** As with all borrowers, homeowners with disaster insurance did not choose new mitigation at a significantly different rate than homeowners without disaster insurance.
- **Treatment group borrowers.** As with all borrowers and homeowners, treatment group borrowers with disaster insurance did not choose new mitigation at a significantly different rate than treatment group borrowers without disaster insurance.
- **Control group borrowers.** As with all other variations, control group borrowers with disaster insurance did not choose new mitigation at a significantly different rate than control group borrowers without disaster insurance.

New mitigation uptake by disaster type

The types of disasters experienced by borrowers were consolidated into six categories based on the most common types of disasters experienced (earthquakes, fires, floods, hurricanes, tornadoes, other). See **Table C-19** through **Table C-22** for complete tables.

Descriptive statistics

All borrowers. About 73% of borrowers who chose new mitigation had experienced a hurricane, with the next most common disaster being floods, which were experienced by about 12% of borrowers. There were no borrowers who chose new mitigation that had experienced an earthquake. The rate of uptake, defined as the number of borrowers taking mitigation for a certain disaster divided by the total number of borrowers who experienced that type of disaster, was highest among those who had experienced fires (0.8%).

- **Homeowner borrowers.** Hurricanes were the most common disaster type for homeowners who chose new mitigation, followed by floods.
- **Treatment group borrowers.** About 75% of treatment group borrowers who chose new mitigation were hurricane survivors.
- **Control group borrowers.** About 70% of control group borrowers who chose new mitigation were hurricane survivors.

Differences in new mitigation uptake

All borrowers. New mitigation uptake was significantly different across disaster types. This suggests that borrowers who have experienced a fire may choose the mitigation increase option more often.

- **Homeowner borrowers.** New mitigation uptake for homeowners was significantly different across disaster types.

- **Treatment group borrowers.** Unlike the analysis of all borrowers and homeowner borrowers, new mitigation uptake for the treatment group across disaster types was not significantly different.
- **Control group borrowers.** Opposite of the treatment group borrowers, mitigation uptake for control group borrowers across disaster types was significantly different.

New mitigation uptake by state

The team examined new mitigation uptake across the United States by using the state listed in the borrower's address in the DCMS 2.0. See **Table C-23** through **Table C-26** for complete tables.

Descriptive statistics

All borrowers. Disaster survivors who chose new mitigation were concentrated, in order of magnitude, in New York, Louisiana, and Michigan. As seen in **Figure 5**, outside of these three states, new mitigation uptake was spread across the United States with no obvious clustering. In Louisiana and the surrounding localities, shown in **Figure 6**, there is more new mitigation uptake from the treatment group over the control group. This is unsurprising given the proportion of new mitigation uptake from the treatment group over the control group. **Figure 7** shows that new mitigation uptake in the tristate area of New York, New Jersey, and Connecticut was evenly split among the control and treatment groups, with some clustering in areas of dense population.

For **homeowner borrowers** and **treatment group borrowers**, almost all new mitigation uptake was located in New York or Louisiana. For **control group borrowers**, almost all new mitigation uptake was located in New York.

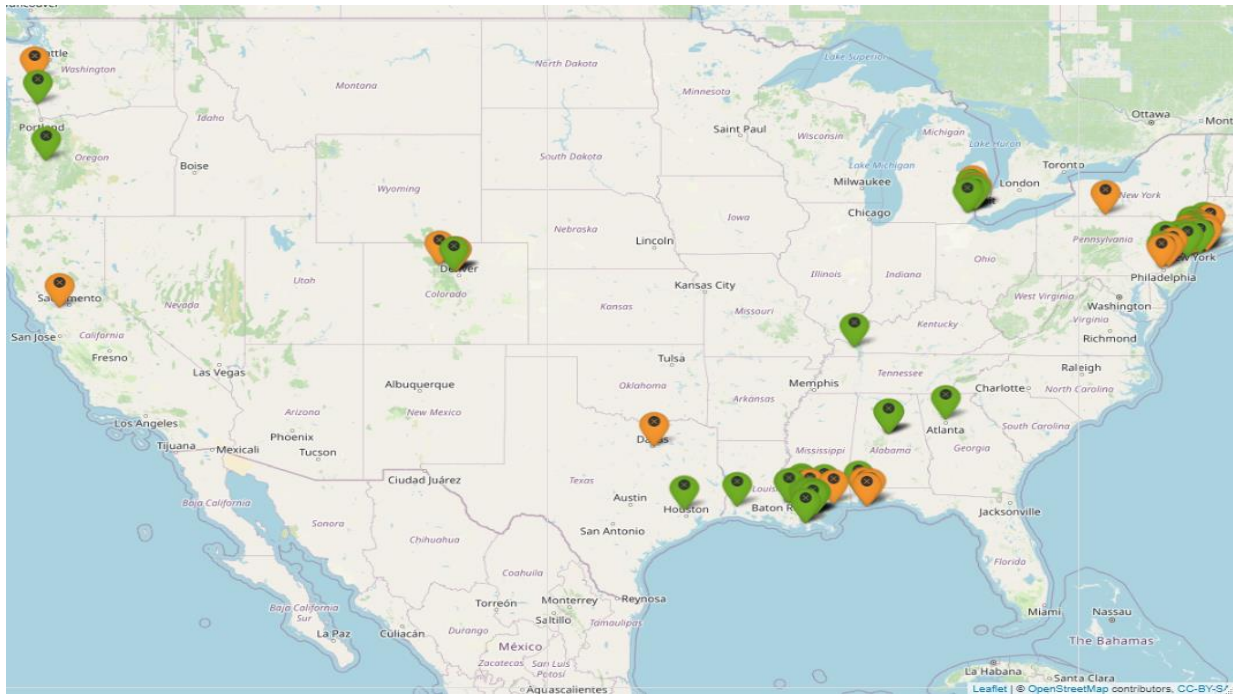
Differences in new mitigation uptake

All borrowers. New mitigation uptake was significantly different across states. Ideal areas for increasing new mitigation uptake where borrowers may already be more likely to choose mitigation include New York, Louisiana, and Michigan. However, it should also be noted that disaster type and location are highly correlated. The same disaster types are concentrated in consistent locations. Depending upon the organization of outreach and marketing efforts, the SBA could either focus efforts by state or disaster type.

- **Homeowner borrowers.** New mitigation uptake among homeowner borrowers was significantly different across states.
- **Treatment group borrowers.** New mitigation uptake among treatment group borrowers was significantly different across states.
- **Control group borrowers.** New mitigation uptake among control group borrowers was significantly different across states.

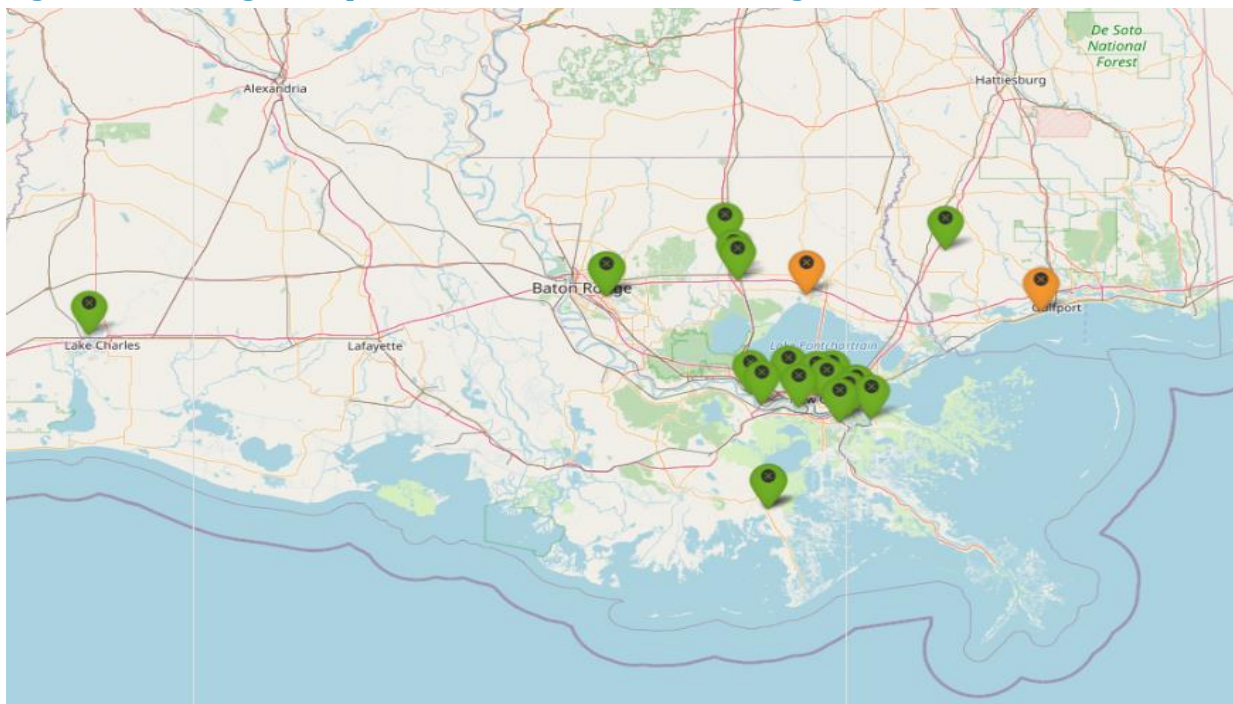


Figure 5: New mitigation uptake across the United States



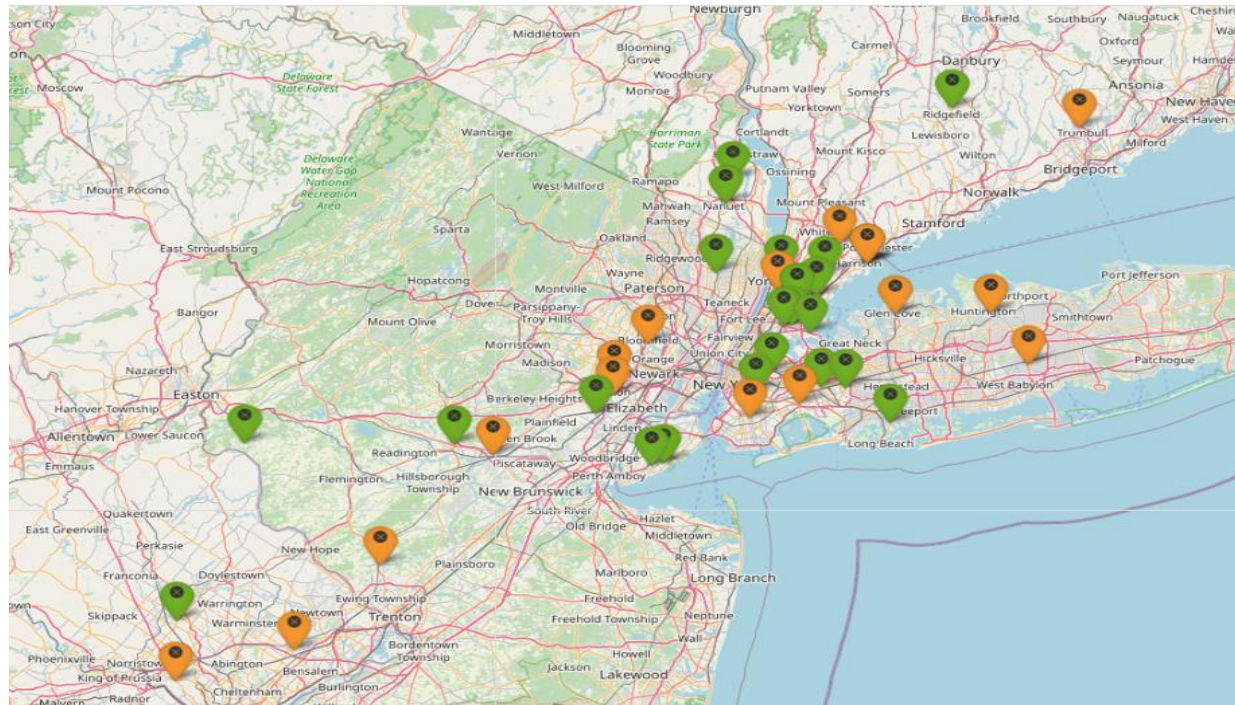
Source: DCMS 2.0 data. Green flags indicate new mitigation uptake by borrowers in the treatment group; orange flags indicate new mitigation uptake by borrowers in the control group.

Figure 6: New mitigation uptake in Louisiana and surrounding localities



Source: DCMS 2.0 data. Green flags indicate new mitigation uptake by borrowers in the treatment group; orange flags indicate new mitigation uptake by borrowers in the control group.

Figure 7: New mitigation uptake in the tristate area of New York, New Jersey, and Connecticut



Source: DCMS 2.0 data. Green flags indicate new mitigation uptake by borrowers in the treatment group; orange flags indicate new mitigation uptake by borrowers in the control group.

Likelihood of new mitigation uptake

Using Model 2, the team investigated which characteristics, if any, are related to the outcome of new mitigation uptake in homeowners.¹⁶ The team found that the following three characteristics were significantly related to new mitigation uptake in homeowners:

- **Treatment group status.** Treatment group status had a positive relationship with new mitigation uptake. Being in the treatment group increases the likelihood of new mitigation by about 97% with all else equal.
- **Annual income.** The log of the borrower’s annual income had a positive relationship with new mitigation uptake. Each tenfold increase of a borrower’s annual income increases the likelihood of new mitigation by about 79%, all else equal.
- **Time since application acceptance.** A borrower falling between 3 to 6 months, 6 to 12 months, or greater than 12 months since application acceptance is less likely to choose new mitigation to an increasing degree as the time becomes longer. Being within less than 3 months since the borrower’s application acceptance is more likely to lead to new mitigation than all other time groupings. The results are not consistent with the early analysis presented, which suggested between 3 to 6 months may be the most likely time for new mitigation uptake. However, both analyses show that the closer the borrower is to their time since application acceptance, the more likely they are to choose new mitigation.

¹⁶ The complete list of characteristics included were treatment group status, disaster type, insurance status, annual income, credit score, interest rate, original loan amount, loan terms, verified loss amount, and family size.



4 LIMITATIONS

While the team developed the evaluation plan to control for as many limitations as possible, there are a few limitations that should be considered when reviewing the findings.

4.1 Borrower perception of emails

While the email was sent by the official GovDelivery system¹⁷ and included the SBA logo and links to official SBA email addresses and web pages, some borrowers in the treatment group may have had concerns over the email being a phishing attack or related scam. Borrowers’ suspicion of the emails may have been heightened due to the emails suggesting that the borrower take out new loans. It is possible that borrowers’ perception of the emails and borrowers’ internet security considerations may have resulted in fewer borrowers engaging with the contents of the emails, which would have reduced the emails’ effectiveness.

4.2 Short analysis period

While this evaluation was constrained to a specific timeline, it is likely that there would be differing rates of mitigation uptake in the treatment and control groups if the analysis covered the full 2 years of borrowers’ eligibility (measured in this experiment as the difference between the loan application acceptance date and date of assignment into the treatment and control groups). Following analysis of the June experiment data pull (on which the findings in this report are based), an additional data pull from August was used to see if the uptake trends from June continued. As shown in **Table 2**, the treatment group continued to have about 50% more mitigation uptake than the control group when looking at new mitigation uptake from June through August.

Table 2: June 2022 and August 2022 new mitigation uptake

New Mitigation Uptake	June Data (April–June)		August Data (June–August)		All Borrowers
	Count	%	Count	%	
Control	33	35.11	24	31.58	57
Treatment	61	64.89	52	68.42	113
TOTAL	94	100.00	76	100.00	170

4.3 Potential for contamination and confounding effects

While the random assignment of the control and treatment groups controls for contamination, the experiment was not conducted in a controlled setting (such as a laboratory), so there is the possibility for some contamination. Borrowers in both the treatment and control groups may have learned about the mitigation increase option in ways other than the email; in the 2021 mitigation increase evaluation, the team discovered that borrowers often learn about the mitigation increase option from individuals in their community or discussions with their loan officer. While the team was aware of this possibility, it was beyond the scope and timeline of this evaluation to measure the extent to which contamination occurred or control for ways in which the experiment may have been contaminated.

¹⁷ It is also possible, through using an automated email delivery method, that the emails may have ended up in some borrowers’ junk folders.

Similar to the potential for contamination, findings from the 2021 mitigation increase evaluation support the possibility of confounding effects. For example, homeowners who opened or clicked the link may have been predisposed to choose the mitigation increase. The 2021 mitigation increase evaluation found that borrowers who are more risk averse may be more willing to choose the mitigation increase. In the case of this example, the borrowers who opened or clicked on the link in the email may have already been more risk averse and willing to choose the mitigation increase. However, it is unlikely that the borrowers who opened or clicked the link in the email did so because they were previously aware of the mitigation increase option.

The 2021 mitigation increase evaluation also found that almost all borrowers were unaware the mitigation increase option was available. Therefore, it is most likely that the email in the experiment made the borrower aware of the mitigation increase option. As the data used in analysis was limited to only those variables captured in the DCMS 2.0 database, there were likely many other confounding effects not available for this analysis. For example, even if every borrower was aware of the mitigation increase option, the uptake rate would not be 100%. Borrowers may not choose the mitigation increase option for any unmeasured reason.

4.4 Historically low mitigation uptake rate

The previous evaluation of the mitigation increase found that the uptake rate for both homeowners and business owners was around 2% of all eligible borrowers. Combined with the short timeline and other limitations presented here, the expected uptake rate, even with the email, was likely to be low. The low number of borrowers choosing the mitigation increase option impacted the analyses by reducing the ability to confidently make conclusions about the impact of the emails.

4.5 Lack of diversity among borrowers who chose the mitigation increase option

The majority of borrowers who chose the mitigation increase option during the experiment had very similar demographics, such as location and type of disaster. This limited the ability to confidently make conclusions about the impact of differences across demographics between those who did and did not choose the mitigation increase option.

These considerations provide context to the findings presented below. While several results were statistically significant, they should be viewed with the caveat that the number of borrowers choosing the mitigation increase option was low.

5 CONCLUSIONS AND RECOMMENDATIONS

The team has summarized the findings into three conclusions, one to answer each research objective. These conclusions have led the team to develop five recommendations for the SBA to help increase awareness and uptake of the mitigation increase option.

5.1 Summarizing the conclusions

The team has summarized the conclusions for each of the three research objectives into the following points:

1. **Research Objective 1.** New mitigation uptake of borrowers in the treatment group was significantly higher than new mitigation uptake of borrowers in the control group.
2. **Research Objective 1.1.** New mitigation uptake of borrowers who opened either email was significantly higher than new mitigation uptake of borrowers who did not.
3. **Research Objective 2.** New mitigation uptake was significantly higher for borrowers who:
 - Were in the treatment group; and
 - Were less than 6 months from their initial Disaster Assistance Loan application acceptance.

5.2 Recommendations

The following recommendations were developed from the evaluation findings, both cognitive testing and quantitative analysis, and cover communications, marketing, and continued analysis.

Recommendation 1. Use email communications in coordination with alternative methods of communication (such as social media).

As discussed in **Section 3.2.1**, borrowers in the treatment group who opened either email had significantly higher mitigation uptake than borrowers who did not. In other words, emails are likely to be effective in increasing mitigation uptake, even if only to a small degree. This success, combined with the ease with which emails can be distributed to all borrowers who have an email on file in DCMS via GovDelivery, makes emails a cost-effective choice to communicate with borrowers.

However, as discussed in **Section 3**, borrowers may not trust the email, skip over it, or forget to follow through. Therefore, to better communicate information on the mitigation increase option, the emails would work best combined with alternative methods of communication. This could include social media posts or information added to the borrower's loan portal (Recommendation 3). For example, social media communications that show real borrowers who successfully used mitigation increase funds to protect their property would be a good way to increase awareness and indicate to potential mitigation increase borrowers that the program may also be successful for them.

Recommendation 2. Make communications more effective by applying the findings from cognitive testing.

In developing future communications, using the findings from the cognitive testing in this evaluation (**Section 2.1**) can help make communications more effective. Ensuring clear language (such as replacing a confusing phrase like "rebuild stronger" when talking about mitigation), removing confusing words or phrases, having a descriptive and catchy subject line, including examples of mitigation actions (though ensuring borrowers are aware there are more options not listed), clearly communicating that the



mitigation increase funds are additional funds on top of the borrower's original Disaster Assistance Loan, and using graphics, colors, and logos to make the email more attractive and easier to read can all improve the effectiveness of future communications.

Recommendation 3. Add information on the mitigation increase option to the new loan application portal.

During cognitive testing, one participant suggested that the loan management portal used by borrowers is already a trusted source of information and may be an ideal way to communicate information about the mitigation increase option. Using the portal, the SBA could include links to more information, a mitigation increase request form, or a customer service email. This is especially relevant as borrowers are already in the loan portal thinking about their Disaster Assistance Loan and rebuilding process post-disaster. They may be more receptive to information on the mitigation increase option or less likely to forget to follow up.

As of the completion of this report, the SBA is currently in the process of developing and deploying a new loan portal that will be a "one-stop shop" for all loans offered by the SBA. Adding mitigation increase information to this portal before it deploys would be an effective way to increase awareness, and potentially uptake, of the mitigation increase option. The previous evaluation of the mitigation increase found that borrowers learn about and choose mitigation at many different steps of the Disaster Assistance Loan process. Using the portal, borrowers could be shown information about ways they could use the mitigation increase funds or have the option to request the mitigation increase at a variety of steps, choosing which works best for them. Additionally, the design of the portal could prominently display information about the mitigation increase option and the ability to request it. This could include adding hover-over definitions or additional information, links, an in-portal calculator for borrowers to explore how the additional mitigation increase funds could impact their loan payments, or a required "yes" or "no" box to move forward with the application that asks if they want more information on the mitigation increase option.

Recommendation 4. Continue personal outreach to communicate with borrowers about mitigation increase funds, including working with partner organizations to increase awareness.

In the 2021 evaluation of the mitigation increase, interviews with borrowers who previously chose the mitigation increase option found that most borrowers hear about the mitigation increase option from their loan officers or other word-of-mouth methods. The team also found that discussions of the mitigation increase option across loan officers may be inconsistent. Increasing and improving one-on-one outreach methods is critical to increasing awareness and uptake of the mitigation increase option.

The development of an outreach campaign around the mitigation increase option could include training partner organizations, those on the ground working with disaster survivors, and those who support the disaster recovery process post-disaster and working with these organizations to promote the mitigation increase option. Holding virtual or in-person town halls with SBA staff to discuss the mitigation increase option with disaster survivors may also be a successful way to increase awareness of the mitigation increase option.

Recommendation 5. Continue to regularly track and analyze the mitigation increase uptake.

Continuing to track mitigation increase uptake over time is essential to understanding what communication methods and interventions work to increase awareness and uptake. Tracking uptake over time will allow the SBA to follow trends in uptake as the new loan portal deploys and new communications and outreach strategies are put into action. Understanding the trends in mitigation uptake will provide the SBA with knowledge to potentially lead to new suggestions for communications or outreach campaigns.

This evaluation included the development of an analytic script and associated user guide to facilitate tracking of mitigation uptake over time. With minimal user input, the script will use the data from DCMS 2.0 to export tables describing the characteristics of borrowers who did and did not choose the mitigation increase option, as well as hypothesis testing to identify differences in mitigation uptake across characteristics. The team recommends that this analysis be conducted regularly on a monthly basis to better establish trends in mitigation uptake over time.

Appendix A COGNITIVE TESTING DATA COLLECTION INSTRUMENT

Introduction (5 min.)

Thank you for taking the time to speak with me today. My name is [NAME], and I am a [POSITION] at Summit Consulting. [INTRODUCE OTHER SUMMIT STAFF ON CALL.]

Summit Consulting is working with the U.S. Small Business Administration [SBA] to test a new set of communication materials for the SBA Disaster Assistance Loan Program. As part of this study, we are conducting telephone interviews with borrowers like you to pretest the materials.

Our goal today is to test out two emails with you. I'll be sharing the two email scripts and asking you questions about how easy they are to understand, any words or phrases that are confusing, and any information that is missing. Your feedback will help us learn if any edits or changes are needed to improve these communication materials.

Do you have any questions about the purpose of today's interview?

Our interview today will take about 45 minutes. With your permission, I'd like to record our discussion. This recording will only be available to researchers working on this project. All information you provide will be anonymous; we will not identify you by name in any reports that we produce. All questions are voluntary. Do I have your permission to record this interview?

Do you have any questions before we get started?

START RECORDING. So that I have it on the recording, today is [DATE AND TIME], and this interview is with [RESPONDENT NAME].

System message #1 (15 min.)

**INTERVIEWER INSTRUCTIONS: SHARE SCREEN WITH RESPONDENT SHOWING THE FIRST SYSTEM MESSAGE.
ALTERNATE ORDER OF SYSTEM MESSAGES ACROSS INTERVIEWS.**

Email #1: Application submitted (knowledge building)

How to Use Your SBA Loan to Rebuild Stronger

Every year, the SBA helps tens of thousands of disaster survivors to rebuild stronger. Rebuilding your home or business stronger is within reach for you too.

You may be eligible for additional loan funds—up to 20% of your total losses—to help you take steps now to prevent future losses when another disaster hits. Even simple things can strengthen your home or business today to avoid unplanned costs in the future. Visit sba.gov/mitigation to learn more about what you can do.

For additional information, please contact the SBA disaster assistance customer service center. Call 1-800-659-2955 (TTY: 1-800-877-8339) or email disastercustomerservice@sba.gov. Learn more about the loan by visiting sba.gov/mitigation.

- Please take a few minutes to read this email and let me know when you're done. Take your time.
- Overall, how easy or difficult was this email to understand?
- In your own words, can you summarize the email's main message?
 - In your own words, how would this additional loan help borrowers?
- What do you think is meant by "unplanned costs" in the second paragraph?
- Were there any words or phrases that were confusing?
- Do you have any questions about the email content after reading it?
- Is there any information that is missing?
- In your opinion, is the email too long, the right length, or too short? Why?
- How easy or difficult to understand is the subject line?
 - Is there a better subject line that the SBA could use?
- If you had received this email from the SBA after you received your Disaster Assistance Loan, would you have clicked on the link at the end of the email?
 - Why [not]?
 - What information would you expect to see if you clicked on the link?
- If you had received this email from the SBA after you received your Disaster Assistance Loan, would you have decided to apply for the additional loan funds?
 - Why [not]?
 - [IF NO] Is there any other information the SBA could provide in this email that would make you more likely to apply for a mitigation loan?
- Are there any improvements or changes that should be made to this email?

System message #2 (15 min.)

**INTERVIEWER INSTRUCTIONS: SHARE SCREEN WITH RESPONDENT SHOWING THE SECOND SYSTEM MESSAGE.
ALTERNATE ORDER OF SYSTEM MESSAGES ACROSS INTERVIEWS.**

Email #2: 6 months after initial loan approval (readiness)

How to Use Your SBA Loan to Rebuild Stronger

By taking steps to rebuild stronger, you're readying yourself, your business or family, and your community and minimizing the risk of future damage and destruction.

As an SBA Disaster Assistance Loan recipient, additional loan funding may be available to you so you can ready your property and protect against potential damage and disaster.

Reach out to a loan officer today for help requesting for the optional Mitigation Assistance.

Rebuilding stronger is within reach. Types of improvements you can make with additional funding include:

Flood mitigation

- Seal roof deck
- Landscape property to improve water runoff and drainage
- Elevate structure

Wildfire mitigation

- Install Class A fire-rated roof
- Install 1/8" mesh screening over all vents to keep embers out of eaves and vents
- Install noncombustible gutters, fences, and gates

Wind mitigation

- Strengthen structures to protect against high wind damage
- Brace or upgrade to wind-rated garage doors
- Upgrade to pressure-rated windows

For additional information, please contact the SBA disaster assistance customer service center. Call 1-800-659-2955 (TTY: 1-800-877-8339) or email disastercustomerservice@sba.gov. Learn more about the loan by visiting sba.gov/mitigation.

- This next email is a slightly different version with similar information. Please take a few minutes to read this version and let me know when you're done. Take your time.
- Overall, how easy or difficult was this email to understand?
- In your own words, can you summarize the email's main message?
 - In your own words, how would this Mitigation Assistance help borrowers?
- Were there any words or phrases that were confusing?
- Do you have any questions about the email content after reading it?
- Is there any information that is missing?
- In your opinion, is the email too long, the right length, or too short? Why?
- What is your initial reaction to the list of types of improvements you could make with additional funding?
 - Is it helpful? Why [not]?
 - Is there too much or too little information?
- How easy or difficult to understand is the subject line?

- Is there a better subject line that the SBA could use?
- If you had received this email from the SBA after you received your Disaster Assistance Loan, would you have clicked on the link at the end of the email?
 - Why [not]?
 - What information would you expect to see if you clicked on the link?
- If you had received this email from the SBA after you received your Disaster Assistance Loan, would you have decided to apply for the additional loan funds?
 - Why [not]?
 - [IF NO] Is there any other information the SBA could provide in this email that would make you more likely to apply for a mitigation loan?
- Are there any improvements or changes that should be made to this email?

Comparison (10 min.)

- Now that you've seen two different versions of the email, which version do you think is better? Why?
- Which email is easier to understand?
- Which email conveys the overall message better?

Closing

Those are all of the questions that I have for you today. Is there anything we haven't discussed that you'd like to mention?

Thanks again for speaking with us today.

Appendix B FINAL EMAIL FOR EXPERIMENT



U.S. Small Business
Administration

Dear Borrower,

Every year, the SBA **helps tens of thousands of disaster survivors** to rebuild stronger. Rebuilding your home or business stronger is within reach for you too.

You may be eligible for additional loan funds on top of your Disaster Assistance Loan—**up to an additional 20% of your total losses**—to help you take steps now to prevent future losses if another disaster hits. Even simple actions can strengthen your home or business today to **avoid unexpected damages in the future**.

Some of the **many actions you may be eligible to take** include elevating your structure, installing a Class A fire-rated roof, or upgrading to pressure-rated windows. Visit sba.gov/mitigation to learn about even more actions you can take to prevent future losses.

For additional information, please contact the SBA disaster assistance customer service center. Call 1-800-659-2955 (TTY 7-1-1) or email disastercustomerservice@sba.gov.

Sincerely,

The SBA Team

Appendix C DATA ANALYSIS TABLES

Additional data tables from Section 5.1

Table C-1: Model 1 – likelihood of new mitigation uptake

Independent Variable	Coefficient	Std. Err.	P-Value
Earthquakes	<i>Omitted due to no observations with new mitigation</i>		
Fires	0.915	1.097	0.404
Floods	1.201	1.064	0.259
Hurricanes	0.517	1.024	0.614
Other	0.101	1.125	0.928
Tornadoes	<i>Omitted due to perfect collinearity</i>		
Disaster insurance status	0.131	0.410	0.750
log(annual income)	0.593	0.167	0.000***
Credit score	-0.001	0.002	0.562
Interest rate	0.014	0.206	0.947
log(original loan amount)	-0.134	0.244	0.582
log(loan terms)	0.925	0.372	0.013*
log(total verified loss)	0.435	0.255	0.088
Family size	0.002	0.007	0.771
Constant	-21.544	3.427	0.000***
<i>Number of observations: 42,579</i>		<i>Pseudo R-squared: 0.034</i>	

*p<0.05, **p<0.01, ***p<0.001

Additional data tables from Section 5.2.1

Table C-2: New mitigation by email activity combinations

First Email	Second Email	Received Mitigation		Did Not Receive Mitigation		Mitigation Uptake Rate
		Count	%	Count	%	%
Opened	Unopened	1	1.64%	2,607	11.03%	0.00%
Opened, Clicked	Unopened	2	3.28%	258	1.10%	0.00%
Unopened	Opened	3	4.92%	1,877	7.94%	0.00%
Unopened	Opened, Clicked	0	0.00%	154	0.65%	0.00%
Opened	Opened	26	42.62%	12,082	51.14%	0.11%
Opened	Opened, Clicked	4	6.56%	805	3.41%	0.08%
Opened, Clicked	Opened	20	32.79%	1,411	5.97%	0.08%
Opened, Clicked	Opened, Clicked	2	3.28%	528	2.23%	0.00%
Unopened	Unopened	3	4.92%	3,905	16.53%	0.00%
Total		61	100.00%	23,627	100.00%	-

Note: The mitigation uptake rate is the percent of borrowers who chose mitigation in the category out of the total number of borrowers in that category.

Table C-3: New mitigation uptake by opening the first email

Opened 1st Email	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
No	6	9.84%	5,936	25.12%	5,942	25.08%
Yes	55	90.16%	17,691	74.88%	17,746	74.92%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.006**</i>			<i>Fisher's exact: 0.004**</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-4: New mitigation uptake by clicking the link in the first email

Clicked Link 1st Email	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
No	37	60.07%	21,430	90.70%	21,467	90.62%
Yes	24	39.34%	2,197	9.30%	2,221	9.38%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.000***</i>			<i>Fisher's exact: 0.000***</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-5: New mitigation uptake by opening the second email

Opened 2nd Email	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
No	6	9.84%	6,770	28.65%	6,776	28.61%
Yes	55	90.89%	16,857	71.35%	16,912	71.39%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.001***</i>			<i>Fisher's exact: 0.001***</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-6: New mitigation uptake by clicking the link in the second email

Clicked Link 2nd Email	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
No	55	90.89%	22,140	93.71%	22,195	93.70%
Yes	6	9.84%	1,487	6.29%	1,493	6.30%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.367</i>			<i>Fisher's exact: 0.314</i>		

*p<0.05, **p<0.01, ***p<0.001

Additional data tables from Section 5.3

Table C-7: New mitigation uptake of all borrowers by credit score

Credit Score	New Mitigation Uptake Rate	New Mitigation		No New Mitigation		Total	
	%	Count	%	Count	%	Count	%
Exceptional (800–850)	0.29%	16	17.02%	5,522	11.68%	5,538	11.69%
Very Good (740–799)	0.22%	23	24.47%	10,373	21.94%	10,396	21.94%
Good (670–739)	0.14%	18	19.15%	13,429	28.40%	13,267	28.00%
Fair (580–669)	0.19%	31	32.98%	16,369	34.62%	16,400	34.62%
Poor (300–579)	0.34%	6	6.38%	1,769	3.74%	1,775	3.75%
Total	-	94	100.00%	47,282	100.00%	47,376	100.00%
<i>p-values</i>		<i>Chi-squared: 0.135</i>			<i>Fisher's exact: 0.109</i>		

*p<0.05, **p<0.01, ***p<0.001

Note: The mitigation uptake rate is the percent of borrowers who chose mitigation in the category out of the total number of borrowers in that category.

Table C-8: New mitigation uptake of homeowner borrowers by credit score

Credit Score	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Exceptional (800–850)	14	15.91%	5,129	11.43%	5,143	11.44%
Very Good (740–799)	21	23.86%	9,655	21.52%	9,676	21.52%
Good (670–739)	17	19.32%	12,578	28.03%	12,595	28.02%
Fair (580–669)	30	34.09%	15,778	35.17%	15,808	35.16%
Poor (300–579)	6	6.82%	1,728	3.85%	1,728	3.84%
Total	88	100.00%	44,868	100.00%	44,956	100.00%
<i>p-values</i>		<i>Chi-squared: 0.186</i>			<i>Fisher's exact: 0.151</i>	

*p<0.05, **p<0.01, ***p<0.001

Table C-9: New mitigation uptake of treatment group borrowers by credit score

Credit Score	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Exceptional (800–850)	10	16.39%	2,759	11.68%	2,769	11.69%
Very Good (740–799)	13	21.31%	5,186	21.95%	5,199	21.95%
Good (670–739)	13	21.31%	6,619	28.01%	6,632	28.00%
Fair (580–669)	22	36.07%	8,177	34.61%	8,199	34.61%
Poor (300–579)	3	4.92%	886	3.75%	889	3.75%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>		<i>Chi-squared: 0.662</i>			<i>Fisher's exact: 0.585</i>	

*p<0.05, **p<0.01, ***p<0.001

Table C-10: New mitigation uptake of control group borrowers by credit score

Credit Score	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Exceptional (800–850)	6	18.18%	2,763	11.68%	2,769	11.69%
Very Good (740–799)	10	30.30%	5,187	21.93%	5,197	21.94%
Good (670–739)	5	15.15%	6,630	28.03%	6,635	28.01%
Fair (580–669)	9	27.27%	8,192	34.63%	8,201	34.62%
Poor (300–579)	3	9.09%	883	3.73%	886	3.74%
Total	33	100.00%	23,655	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.124</i>			<i>Fisher's exact: 0.087</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-11: New mitigation uptake of all borrowers by time since application acceptance

Time Since Application Acceptance	New Mitigation Uptake Rate	New Mitigation		No New Mitigation		Total	
	%	Count	%	Count	%	Count	%
Less than 3 months	0.70%	20	21.28%	2,829	5.98%	2,849	6.01%
3 to 6 months	0.27%	48	51.06%	17,485	36.98%	17,533	37.01%
6 to 12 months	0.16%	18	19.15%	11,539	24.40%	11,557	24.39%
More than 12 months	0.05%	8	8.51%	15,429	32.63%	15,437	32.58%
Total	-	94	100.00%	47,282	100.00%	47,376	100.00%
<i>p-values</i>	<i>Chi-squared: 0.000***</i>			<i>Fisher's exact: 0.000***</i>			

*p<0.05, **p<0.01, ***p<0.001

Note: The mitigation uptake rate is the percent of borrowers who chose mitigation in the category out of the total number of borrowers in that category.

Table C-12: New mitigation uptake of homeowner borrowers by time since application acceptance

Time Since Application Acceptance	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Less than 3 months	18	20.45%	2,555	5.69%	2,573	5.72%
3 to 6 months	45	51.14%	16,395	36.54%	16,440	36.57%
6 to 12 months	18	20.45%	11,099	24.74%	11,117	24.73%
More than 12 months	7	7.95%	14,819	33.03%	14,826	32.98%
Total	88	100.00%	44,868	100.00%	44,956	100.00%
<i>p-values</i>	<i>Chi-squared: 0.000***</i>			<i>Fisher's exact: 0.000***</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-13: New mitigation uptake of treatment group borrowers by time since application acceptance

Time Since Application Acceptance	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Less than 3 months	15	24.59%	1,408	5.96%	1,423	6.01%
3 to 6 months	32	52.46%	8,735	36.97%	8,767	37.01%
6 to 12 months	11	18.03%	5,768	24.41%	5,779	24.40%
More than 12 months	3	4.92%	7,716	32.66%	7,719	32.59%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.000***</i>		<i>Fisher's exact: 0.000***</i>			

*p<0.05, **p<0.01, ***p<0.001

Table C-14: New mitigation uptake of control group borrowers by time since application acceptance

Time Since Application Acceptance	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Less than 3 months	5	15.15%	1,421	6.01%	1,426	6.02%
3 to 6 months	16	48.48%	8,750	36.99%	8,766	37.01%
6 to 12 months	7	21.21%	5,771	24.40%	5,778	24.39%
More than 12 months	5	15.15%	7,713	32.61%	7,718	32.58%
Total	33	100.00%	23,655	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.030*</i>		<i>Fisher's exact: 0.026*</i>			

*p<0.05, **p<0.01, ***p<0.001

Table C-15: New mitigation uptake of all borrowers by disaster insurance status

Disaster Insurance Status	New Mitigation Uptake Rate	New Mitigation		No New Mitigation		Total	
	%	Count	%	Count	%	Count	%
Yes	0.12%	8	8.51%	6,393	13.52%	6,401	13.51%
No	0.21%	86	91.49%	40,889	86.66%	40,975	86.49%
Total	-	94	100.00%	47,282	100.00%	47,376	100.00%
<i>p-values</i>	<i>Chi-squared: 0.156</i>		<i>Fisher's exact: 0.175</i>				

*p<0.05, **p<0.01, ***p<0.001

Note: The mitigation uptake rate is the percent of borrowers who chose mitigation in the category out of the total number of borrowers in that category.

Table C-16: New mitigation uptake of homeowner borrowers by disaster insurance status

Disaster Insurance Status	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Yes	8	9.09%	5,950	13.26%	5,958	13.25%
No	80	90.91%	38,918	86.74%	38,988	86.72%
Total	88	100.00%	44,868	100.00%	44,956	100.00%
<i>p-values</i>	<i>Chi-squared: 0.249</i>		<i>Fisher's exact: 0.343</i>			

*p<0.05, **p<0.01, ***p<0.001

Table C-17: New mitigation uptake of treatment group borrowers by disaster insurance status

Disaster Insurance Status	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Yes	4	6.56%	3,193	13.51%	3,197	13.50%
No	57	93.44%	20,434	86.49%	20,491	86.50%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.112</i>			<i>Fisher's exact: 0.133</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-18: New mitigation uptake of control group borrowers by disaster insurance status

Disaster Insurance Status	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Yes	4	12.12%	3,200	13.53%	3,204	13.53%
No	29	87.88%	20,455	86.47%	20,484	86.47%
Total	33	100.00%	23,655	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.813</i>			<i>Fisher's exact: 1.000</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-19: New mitigation uptake of all borrowers by disaster type

Disaster Type	New Mitigation Uptake Rate	New Mitigation		No New Mitigation		Total	
	%	Count	%	Count	%	Count	%
Earthquakes	0.00%	0	0.00%	365	0.77%	365	0.77%
Fires	0.76%	7	7.45%	918	1.94%	925	1.95%
Floods	0.30%	12	12.77%	3,966	8.39%	3,978	8.40%
Hurricanes	0.20%	69	73.40%	35,181	74.41%	35,250	74.40%
Other	0.08%	5	5.32%	6,061	12.82%	6,066	12.80%
Tornadoes	0.13%	1	1.06%	791	1.67%	792	1.67%
Total	-	94	100.00%	47,282	100.00%	47,376	100.00%
<i>p-values</i>	<i>Chi-squared: 0.001***</i>			<i>Fisher's exact: 0.004**</i>			

*p<0.05, **p<0.01, ***p<0.001

Note: The mitigation uptake rate is the percent of borrowers who chose mitigation in the category out of the total number of borrowers in that category.

Table C-20: New mitigation uptake of homeowner borrowers by disaster type

Disaster Type	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Earthquakes	0	0.00%	354	0.79%	354	0.79%
Fires	6	6.82%	849	1.89%	855	1.90%
Floods	11	12.50%	3,799	8.47%	3,810	8.47%
Hurricanes	65	73.86%	33,373	74.38%	33,438	74.38%
Other	5	5.68%	5,760	12.84%	5,765	12.82%
Tornadoes	1	1.14%	733	1.63%	734	1.63%
Total	88	100.00%	44,868	100.00%	44,956	100.00%
<i>p-values</i>	<i>Chi-squared: 0.004**</i>			<i>Fisher's exact: 0.014*</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-21: New mitigation uptake of treatment group borrowers by disaster type

Disaster Type	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Earthquakes	0	0.00%	182	0.77%	182	0.77%
Fires	3	4.92%	460	1.95%	463	1.95%
Floods	7	11.48%	1,982	8.39%	1,989	8.40%
Hurricanes	46	75.41%	17,579	74.40%	17,625	74.40%
Other	4	6.56%	3,029	12.82%	3,033	12.80%
Tornadoes	1	1.64%	395	1.67%	396	1.67%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.328</i>			<i>Fisher's exact: 0.270</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-22: New mitigation uptake of control group borrowers by disaster type

Disaster Type	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
Earthquakes	0	0.00%	183	0.77%	183	0.77%
Fires	4	12.12%	458	1.94%	462	1.95%
Floods	5	15.15%	1,984	8.39%	1,989	8.40%
Hurricanes	23	69.70%	17,602	74.41%	17,625	74.40%
Other	1	3.03%	3,032	12.82%	3,033	12.80%
Tornadoes	0	0.00%	396	1.67%	396	1.67%
Total	33	100.00%	23,655	100.00%	23,688	100.00%
<i>p-values</i>	<i>Chi-squared: 0.000***</i>			<i>Fisher's exact: 0.010**</i>		

*p<0.05, **p<0.01, ***p<0.001

Table C-23: New mitigation uptake of all borrowers by state

State	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
AL	7	7.45%	2,933	6.20%	2,940	6.21%
AR	0	0.00%	39	0.08%	39	0.08%
CA	1	1.06%	248	0.52%	249	0.53%
CO	5	5.32%	487	1.03%	492	1.04%
CT	2	2.13%	162	0.34%	164	0.35%
DE	0	0.00%	11	0.02%	11	0.02%
FL	0	0.00%	1,513	3.20%	1,513	3.19%
GA	1	1.06%	56	0.12%	57	0.12%
HI	0	0.00%	19	0.04%	19	0.04%
IA	0	0.00%	543	1.15%	543	1.15%
IL	0	0.00%	115	0.24%	115	0.24%
IN	0	0.00%	37	0.08%	37	0.08%
KS	0	0.00%	3	0.01%	3	0.01%
KY	1	1.06%	481	1.02%	482	1.02%
LA	20	21.28%	23,414	49.52%	23,434	49.46%
MD	0	0.00%	8	0.02%	8	0.02%
MI	10	10.64%	3,222	6.81%	3,232	6.82%
MN	0	0.00%	4	0.01%	4	0.01%
MO	0	0.00%	16	0.03%	16	0.03%
MS	2	2.13%	1,045	2.21%	1,047	2.21%
NC	0	0.00%	90	0.19%	90	0.19%
NJ	9	9.57%	3,125	6.61%	3,134	6.62%
NULL [†]	0	0.00%	2	0.00%	2	0.00%
NY	28	29.79%	2,501	5.29%	2,529	5.34%
OH	0	0.00%	16	0.03%	16	0.03%
OK	0	0.00%	84	0.18%	84	0.18%
OR	1	1.06%	197	0.42%	198	0.42%
PA	3	3.19%	933	1.97%	936	1.98%
PR	0	0.00%	337	0.71%	337	0.71%
SC	0	0.00%	53	0.11%	53	0.11%
TN	0	0.00%	237	0.50%	237	0.50%
TX	2	2.13%	5,050	10.68%	5,052	10.66%
UT	0	0.00%	59	0.12%	59	0.12%
VA	0	0.00%	8	0.02%	8	0.02%
WA	2	2.13%	194	0.41%	196	0.41%
WI	0	0.00%	6	0.01%	6	0.01%
WV	0	0.00%	34	0.07%	34	0.07%
Total	94	100.00%	47,282	100.00%	47,376	100.00%
<i>p-value</i>	<i>Chi-squared: 0.000***</i>					

*p<0.05, **p<0.01, ***p<0.001

† The data was cleaned to remove null observations in a prespecified list of variables. The state indicator was not one of those variables, and a small number of remaining applications did not have data for state of origin.

Table C-24: New mitigation uptake of homeowner borrowers by state

State	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
AL	6	6.82%	2,811	6.27%	2,817	6.27%
AR	0	0.00%	36	0.08%	36	0.08%
CA	1	1.14%	201	0.45%	202	0.45%
CO	4	4.55%	460	1.03%	464	1.03%
CT	2	2.27%	156	0.35%	158	0.35%
DE	0	0.00%	11	0.02%	11	0.02%
FL	0	0.00%	1,451	3.23%	1,451	3.23%
GA	1	1.14%	53	0.12%	54	0.12%
HI	0	0.00%	17	0.04%	17	0.04%
IA	0	0.00%	526	1.17%	526	1.17%
IL	0	0.00%	107	0.24%	107	0.24%
IN	0	0.00%	36	0.08%	36	0.08%
KS	0	0.00%	3	0.01%	3	0.01%
KY	1	1.14%	450	1.00%	451	1.00%
LA	17	19.32%	22,294	49.69%	22,311	49.63%
MD	0	0.00%	6	0.01%	6	0.01%
MI	9	10.23%	3,107	6.92%	3,116	6.93%
MN	0	0.00%	1	0.00%	1	0.00%
MO	0	0.00%	15	0.03%	15	0.03%
MS	2	2.27%	1,015	2.26%	1,017	2.26%
NC	0	0.00%	81	0.18%	81	0.18%
NJ	9	10.23%	2,891	6.44%	2,900	6.45%
NULL [†]	0	0.00%	2	0.00%	2	0.00%
NY	28	31.82%	2,315	5.16%	2,343	5.21%
OH	0	0.00%	14	0.03%	14	0.03%
OK	0	0.00%	77	0.17%	77	0.17%
OR	1	1.14%	186	0.41%	187	0.42%
PA	3	3.41%	872	1.94%	875	1.95%
PR	0	0.00%	324	0.72%	324	0.72%
SC	0	0.00%	49	0.11%	49	0.11%
TN	0	0.00%	211	0.47%	211	0.47%
TX	2	2.27%	4,807	10.71%	4,809	10.70%
UT	0	0.00%	56	0.12%	56	0.12%
VA	0	0.00%	8	0.02%	8	0.02%
WA	2	2.27%	182	0.41%	184	0.41%
WI	0	0.00%	6	0.01%	6	0.01%
WV	0	0.00%	31	0.07%	31	0.07%
Total	88	100.00%	44,868	100.00%	44,956	100.00%
<i>p-value</i>	<i>Chi-squared: 0.000***</i>					

*p<0.05, **p<0.01, ***p<0.001

† The data was cleaned to remove null observations in a prespecified list of variables. The state indicator was not one of those variables, and a small number of remaining applications did not have data for state of origin.

Table C-25: New mitigation uptake of treatment group borrowers by state

State	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
AL	4	6.56%	1,452	6.15%	1,456	6.15%
AR	0	0.00%	19	0.08%	19	0.08%
CA	0	0.00%	126	0.53%	126	0.53%
CO	2	3.28%	244	1.03%	246	1.04%
CT	1	1.64%	79	0.33%	80	0.34%
DE	0	0.00%	5	0.02%	5	0.02%
FL	0	0.00%	732	3.10%	732	3.09%
GA	1	1.64%	27	0.11%	28	0.12%
HI	0	0.00%	7	0.03%	7	0.03%
IA	0	0.00%	274	1.16%	274	1.16%
IL	0	0.00%	62	0.26%	62	0.26%
IN	0	0.00%	18	0.08%	18	0.08%
KS	0	0.00%	3	0.01%	3	0.01%
KY	1	1.64%	243	1.03%	244	1.03%
LA	19	31.15%	11,744	49.71%	11,763	49.66%
MD	0	0.00%	6	0.03%	6	0.03%
MI	6	9.84%	1,592	6.74%	1,598	6.75%
MN	0	0.00%	1	0.00%	1	0.00%
MO	0	0.00%	8	0.03%	8	0.03%
MS	1	1.64%	544	2.30%	545	2.30%
NC	0	0.00%	42	0.18%	42	0.18%
NJ	4	6.56%	1,541	6.52%	1,545	6.52%
NULL [†]	0	0.00%	2	0.01%	2	0.01%
NY	18	29.51%	1,267	5.36%	1,285	5.42%
OH	0	0.00%	9	0.04%	9	0.04%
OK	0	0.00%	37	0.16%	37	0.16%
OR	1	1.64%	97	0.41%	98	0.41%
PA	1	1.64%	477	2.02%	478	2.02%
PR	0	0.00%	163	0.69%	163	0.69%
SC	0	0.00%	20	0.08%	20	0.08%
TN	0	0.00%	129	0.55%	129	0.54%
TX	1	1.64%	2,504	10.60%	2,505	10.57%
UT	0	0.00%	33	0.14%	33	0.14%
VA	0	0.00%	3	0.01%	3	0.01%
WA	1	1.64%	94	0.40%	95	0.40%
WI	0	0.00%	5	0.02%	5	0.02%
WV	0	0.00%	18	0.08%	18	0.08%
Total	61	100.00%	23,627	100.00%	23,688	100.00%
<i>p-value</i>	<i>Chi-squared: 0.000***</i>					

*p<0.05, **p<0.01, ***p<0.001

† The data was cleaned to remove null observations in a prespecified list of variables. The state indicator was not one of those variables, and a small number of remaining applications did not have data for state of origin.

Table C-26: New mitigation uptake of control group borrowers by state

State	New Mitigation		No New Mitigation		Total	
	Count	%	Count	%	Count	%
AL	3	9.09%	1,481	6.26%	1,484	6.26%
AR	0	0.00%	20	0.08%	20	0.08%
CA	1	3.03%	122	0.52%	123	0.52%
CO	3	9.09%	243	1.03%	246	1.04%
CT	1	3.03%	83	0.35%	84	0.35%
DE	0	0.00%	6	0.03%	6	0.03%
FL	0	0.00%	781	3.30%	781	3.30%
GA	0	0.00%	29	0.12%	29	0.12%
HI	0	0.00%	12	0.05%	12	0.05%
IA	0	0.00%	269	1.14%	269	1.14%
IL	0	0.00%	53	0.22%	53	0.22%
IN	0	0.00%	19	0.08%	19	0.08%
KS	0	0.00%	0	0.00%	0	0.00%
KY	0	0.00%	238	1.01%	238	1.00%
LA	1	3.03%	11,670	49.33%	11,671	49.27%
MD	0	0.00%	2	0.01%	2	0.01%
MI	4	12.12%	1,630	6.89%	1,634	6.90%
MN	0	0.00%	3	0.01%	3	0.01%
MO	0	0.00%	8	0.03%	8	0.03%
MS	1	3.03%	501	2.12%	502	2.12%
NC	0	0.00%	48	0.20%	48	0.20%
NJ	5	15.15%	1,584	6.70%	1,589	6.71%
NULL [†]	0	0.00%	0	0.00%	0	0.00%
NY	10	30.30%	1,234	5.22%	1,244	5.25%
OH	0	0.00%	7	0.03%	7	0.03%
OK	0	0.00%	47	0.20%	47	0.20%
OR	0	0.00%	100	0.42%	100	0.42%
PA	2	6.06%	456	1.93%	458	1.93%
PR	0	0.00%	174	0.74%	174	0.73%
SC	0	0.00%	33	0.14%	33	0.14%
TN	0	0.00%	108	0.46%	108	0.46%
TX	1	3.03%	2,546	10.76%	2,547	10.75%
UT	0	0.00%	26	0.11%	26	0.11%
VA	0	0.00%	5	0.02%	5	0.02%
WA	1	3.03%	100	0.42%	101	0.43%
WI	0	0.00%	1	0.00%	1	0.00%
WV	0	0.00%	16	0.07%	16	0.07%
Total	33	100.00%	23,655	100.00%	23,688	100.00%
<i>p-value</i>	<i>Chi-squared: 0.000***</i>					

*p<0.05, **p<0.01, ***p<0.001

† The data was cleaned to remove null observations in a prespecified list of variables. The state indicator was not one of those variables, and a small number of remaining applications did not have data for state of origin.

Table C-27: Model 2 – likelihood of new mitigation uptake

Independent Variable	Coefficient	Std. Err.	P-Value
Treatment group status	0.681	0.228	0.003**
Earthquakes	<i>Omitted due to no observations with new mitigation</i>		
Fires	0.917	1.098	0.403
Floods	1.196	1.064	0.261
Hurricanes	0.510	1.024	0.619
Other	0.099	1.125	0.930
Tornadoes	<i>Omitted due to perfect collinearity</i>		
Disaster insurance status	0.135	0.410	0.741
3–6 Months	-0.935	0.225	0.005**
6–12 Months	-1.356	0.385	0.000***
More than 12 months	-2.528	0.488	0.000***
log(annual income)	0.596	0.166	0.000***
Credit score	-0.001	0.002	0.555
Interest rate	0.155	0.205	0.940
log(original loan amount)	-0.129	0.244	0.596
log(loan terms)	0.927	0.372	0.013*
log(total verified loss)	0.429	0.255	0.092
Family size	0.002	0.007	0.803
Constant	-21.970	3.433	0.000***
<i>Number of observations: 42,579</i>		<i>Pseudo R-squared: 0.068</i>	

*p<0.05, **p<0.01, ***p<0.001