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Business Disruption and Recover Post Hurricane Harvey in Southeast Texas (SETX)

PREPARED BY

Michelle Meyer, Ph.D.
Director, Hazard Reduction and Recovery Center
Joy Semien, M.S.
Graduate Research Assistant, Hazard Reduction and Recovery Center

RELATED PROJECT

Southern Climate Impacts Planning Program (SCIPP) Phase III: Helping Communities Build Resilience to Weather and Climate Extremes

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Acknowledgements

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Research Investigators

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Executive Summary

To gather more in-depth information about how disasters affect organizations, the National Institute of Standards and Technology (NIST) launched a study of business disruption following several disasters in 2017. NIST's coastal resilience initiative focused on study sites in the Carolinas (associated with Carolinas Integrated Sciences & Assessments - CISA) and the western Gulf Coast (associated with Southern Climate Impacts Planning Program - SCIPP). This report describes the research conducted along the western Gulf Coast in the combined study area of Port Arthur and Beaumont, Texas.

We used a mixed-method research approach to study businesses and nonprofits that were impacted by Hurricane Harvey in 2017. This approach combined both qualitative and quantitative data collection methods using face-to-face and telephone surveys to obtain business disruption and recovery information from business owners or managers and interviews and surveys with nonprofit leaders. The survey instrument assessed the perceptions and behavior of the organizational respondents throughout the recovery process, operational interruptions, disaster recovery progress, financial stability, mitigation behaviors, preparedness behaviors, and overall risk-perceptions toward hazards. We obtained, in sum, a general assessment of how organizations were recovering. We selected organizations from a random sample of 300 businesses and 200 nonprofits. The data collection was interrupted by Hurricane Imelda and the COVID-19 pandemic. To date of this writing in August 2020, we have attempted contact with 368 organizations out of the initial 500 target organizations (74%). Of those, we contacted 265 organizations (73% of attempts). Out of those contacted, 90 organizational representatives refused participation, 79 organizational representatives asked us to revisit at a different day, and 96 organizational representatives (66 small businesses and 30 nonprofits) completed the survey. This resulted in a 36% response rate. Though we were unable to finish sampling, we are hopeful that these results will provide insight into what tools and activities are needed to enable business owners and nonprofit leaders to prepare, respond, and recover from a disaster.

Executive Summary

The results indicate that the most common pre-Harvey mitigation activities were backing up important documents (63%), maintaining off-site back-ups (57%); and developing an emergency response plan (51%). Following Harvey, more organizations completed mitigation activities, which will hopefully improve their resilience to future disasters. Though many organizations reported not having response, continuity, and recovery plans, 90% of organizations that did felt that these plans accelerated their recovery operations. Overall, about 20% of respondents were unsure if they were required to have flood insurance. Together, this gap in flood insurance knowledge and limited but useful planning processes provides an imperative for future engagement and educational activities.

This project also particularly focused on disparities between minority led organizations (veteran, women, or racial minority-owned) and other organizations. The respondents included 34% minority-owned (i.e., racial minority-, woman-, or veteran-owned) businesses, and 69% minority-led nonprofits. Preliminary results indicate that minority organizations reported more damage on almost all categories including to their building (55% versus only 33% of non-minority organizations), building contents (41% versus 24%); machinery/equipment (37% versus 16%); and documents (34% versus 14%). Furthermore, only 73% of minority-owned businesses reported being fully recovered from Hurricane Harvey compared to 90% of non-minority businesses. These findings suggest there are factors impacting minority-owned/led organizational damage and recovery.

This report provides a full description of the methods used to design and conduct the study as well as outlines the preliminary survey results. This research was designed so that disaster professionals can better support business owners and nonprofit leaders in preparing for disaster in their community.

Introduction

Much of the disaster literature refers to businesses as the economic engine of the community, allowing money to flow into and out of the communities (Schrank, Marshall, Hall-Philips, Wiatt, and Jones, 2013). These institutions support recovery in direct and indirect ways. They provide community members with goods and services that are accessible locally, with employment opportunities supporting the economic growth of local households, and thus support the local economy and tax base (Tierney, 2007; Xiao, Wu, Finn, and Chandrasekhar, 2018; Zhang, Lindell, and Prater, 2009; Xiao, and Walter Gillis Peacock, 2014; Xiao, and Drucker, 2013; Xiao, 2011). They also provide a physical and social space to increase cultural and social capital among community members (Chamlee-Wright and Storr, 2011). They can also support local community-focused political agendas and help lobby for the needs of the community.

Though businesses can greatly help the community in the time of disastrous impact, these institutions often experience impacts themselves and must respond and recover to damage (Huang, Wang, and Song, 2018; Marshall, Niehm, Sydnor, and Schrank, 2015; Schrank, Marshall, Hall-Philips, Wiatt, and Jones, 2013). For instance, businesses are often faced with disruption to infrastructure, services, utility operations, and supply chains (Marshall, Niehm, Sydnor, and Schrank, 2015; Tierney, 1997; Webb, Tierney, and Dahlhamer, 2000). In addition, many often lose inventories and experience damage to their building structures that prevent them from reopening quickly (Webb, Tierney, and Dahlhamer, 2000). Small businesses often have a higher chance of closure post-disaster impact because they often experience a larger proportionate loss as compared to larger businesses (Tierney, 1997; Schrank, Marshall, Hall-Philips, Wiatt, and Jones, 2013). According to the FEMA statistics provided in Marshall et al. (2015), 40% of businesses that experience a natural disaster do not survive.

Like businesses, nonprofits also play a pivotal role within the community as they provide human, financial, and political resources (Aeberhard, 2008; Chikoto-Schultz, Russo, Manson, and White, 2018). These institutions can provide community members with access to key social services like fresh food, shelter, clothing, and reduced childcare (Fowler, Kling,

and Larson, 2007; Gajewski, Bell, Lein, and Angel, 2011). They can hold workshops and training to promote capacity building among individuals living within the community (Chikoto-Schultz; Russo, Manson, and White, 2018). They can also provide a space to facilitate the growth of social networks, as well as serve as community liaisons and advocates between the local government and the community. Chikoto et al. (2013) has shown that nonprofits are instrumental in the recovery processes after a disaster. They are often the first responders providing resources to some of the communities hardest-hit areas. They can serve as a "gatekeeper" for larger humanitarian and governmental networks to gain access to community members (Chikoto, Sadiq, and Fordyce, 2013). They can relay imperative information to community members in a culturally sensitive manner to ensure receptibility (Aeberhard, 2008; Auer, and Lampkin, 2006). They can provide space to serve as distribution, disaster financial assistant sites, and serve as volunteer relief (Alesch, Holly, Mittler, and Nagy, 2001; Chikoto-Schultz, Russo, Manson, and White, 2018). During the time of disasters, local nonprofit organizations often have an advantage as compared to those not located within the community. Their relationship within the community can afford them the ability to quickly locate and identify victims that may have previously been in vulnerable states. They can also serve as an advocate intervening on the behalf of the entire community between the public and private sectors advocating for needed prevention, reconstruction, and recovery resources (Kapucu and Van Wart, 2006; Aeberhard, 2008; Kapucu, 2007). In addition, they can serve as philanthropic organizations obtaining funding to serve the entire community.

Like small businesses, these institutions are a vital part of the community but very volatile post-disaster (Alesch, Holly, Mittler, and Nagy, 2001; Kapucu, 2001). Nonprofits are often heavily impacted by disasters (Alesch, Holly, Mittler, and Nagy, 2001; Huang, Wang, and Song, 2018; Marshall, Niehm, Sydnor, and Schrank, 2013). Nonprofits, specifically smaller and local community-based organizations often have similar struggles to that of small businesses. For instance, they may have limited funding streams and limited workforce, which may limit recovery and operations to the community post-disaster (Alesch, Holly, Mittler, and Nagy, 2001; Kapucu, 2007). These organizations often lack the preparedness resources, supplies, and human capital to support day-to-day operations. Nonprofits often run with little to no revenue and rely heavily on volunteer support. Like small businesses, these organizations also often lack sufficient disaster preparedness, mitigation, and recovery resources needed to "bounce back from a disaster" quickly (Highfield, Peacock, and Van Zandt, 2014, 298).

Study Relevance

Much of disaster research has focused on the immediate impact of a disaster on households (Tierney, 1997; Xiao and Van Zandt, 2012). Research is expanding to include the impact of disasters on business and nonprofits, though much remains unknown (Tierney, 1997; Xiao, Wu, Finn, and Chandrasekhar, 2018). We know from past studies that these organizations share similar traits and that during and after a disaster the already present challenges that these organizations face are further exacerbated. Therefore, it is important to study the disruption and recovery of these organizations and continue to build an understanding of mechanisms that promote their resilience and consequently community resilience.

Background

Coastal storms are continuing to increase in frequency and intensity (Walsh, 2014). The 2017 Atlantic hurricane season was one of the most intense and active seasons the United States has experienced (NOAA, 2017). The season left many communities devastated as many lost their homes and their livelihoods. According to the National Oceanic and Atmospheric Administration (NOAA), the season ended with 17 named storms, 10 hurricanes, in which six were major hurricanes, ranking categories 3, 4, or 5 on the Saffrin-Simpson scale (NHCCPHC, n.d.; NOAA, 2017). The storms that had the greatest impact on the United States were Harvey, Irma, and Maria causing the United States close to $300 billion in damages (NOAA, 2018).

Hurricane Harvey impacted the state of Texas in 2017, initially making landfall near Rockport, Texas. The storm dropped over 27 trillion gallons of rainwater over a six-day period (FEMA, 2017). The Category 4 hurricane affected communities across four states: Texas, Louisiana, Arkansas, and Tennessee, but the most heavily impacted were those along the Texas Gulf Coast (Blake, 2018). Some areas across the region experienced more than 60 inches of rain in a few days (Blake, 2018). There were approximately 68 direct deaths and 35 indirect deaths as a result the storm according to the National Hurricane Center (NHC). Direct deaths are “those occurring as a direct result of the forces of the tropical cyclone” and indirect deaths are those occurring due to “factors [like] heart attacks, house fires, electrocutions from downed power lines, vehicle accidents on wet roads etc. (Blake, 2018).

For many communities impacted by Hurricane Harvey the damages encountered were not from the direct impacts of the hurricane winds but rather from the continuous rain leading to major flooding. The floodwaters damaged or destroyed thousands of homes. Overlooked often by media, though, are the businesses damaged or impacted by Harvey. This study provides researchers with an opportunity to examine the short-term recovery of businesses. This study can ultimately allow for the development of policies and programs that would improve the overall recovery process.

This study of Hurricane Harvey's business impacts coincides with a similar study in Charleston, South Carolina. Research topics and case student locations were aligned to support comparability across the studies. Together, the projects provide much more information on ways to support organizations during disaster recovery (Helgeson et. al., 2020) .

Research Objectives and Goals

The goals of this project were to better understand the recovery of organizations in Texas following the 2017 Hurricane Harvey.

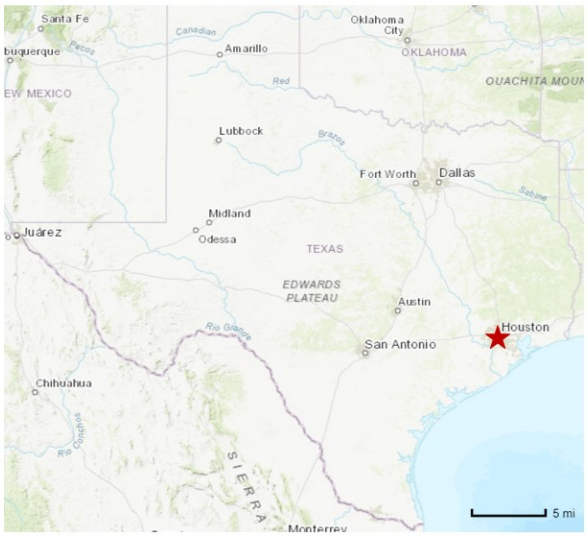
Research Questions

To fully understand the impact that Hurricane Harvey had on organizations in the region we sought to answer the following research questions:

- RQ 1: What factors impact an organization's ability to recover?
- RQ 2: How do business and nonprofit recovery processes compare?
- RQ 3: Do socio-vulnerability factors of the organization affect their recovery process?

Study Area

Our chosen study site was the combined metropolitan area of Port Arthur and Beaumont, Texas (Port Arthur/Beaumont). Maps 1, 2, and 3 show the location. We selected these two cities because of their proximity to the coast, the frequency of disaster impact, the vast amount of Hurricane Harvey damage, as well as its overall comparability to the Charleston study site.



Map 1 Description: State of Texas

Source: Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS; generated by HRCC; Arc Gis; (29 September 2020).

Map 2 Description: Beaumont, Texas

Map 3 Description: Port Arthur, Texas

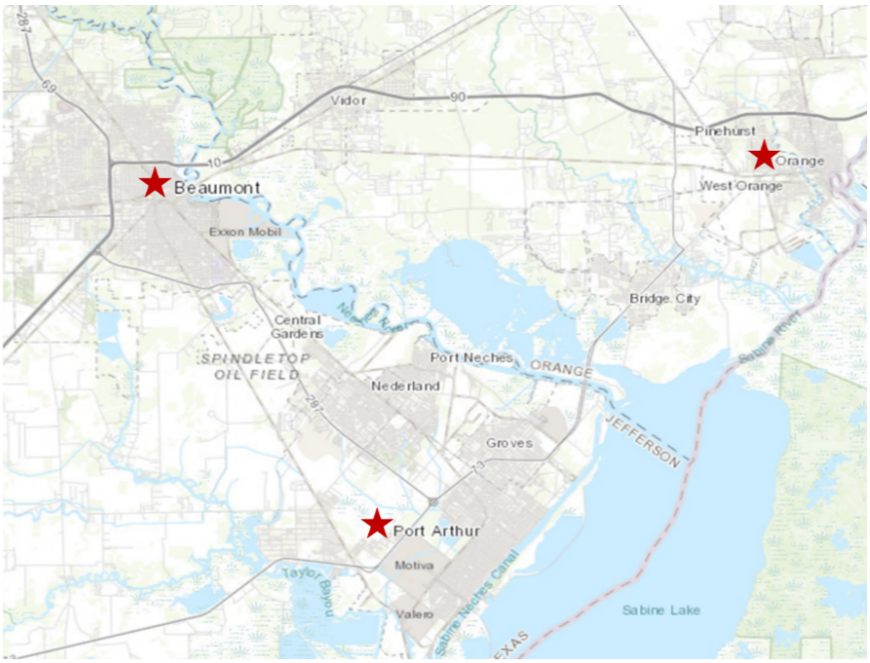
This combined area was chosen after conducting a comparability analysis of demographic, economic, and organizational data for four possible study areas in the region. Data were collected from the US Census Bureau's American Community Survey and On the Map, a web-based mapping tool that provides workforce data (U.S. Census, 2018). Location quotients were developed to assess the concentration of industries and occupations within the possible study sites and compare these to Charleston, South Carolina. The analysis showed that the combined area of Port Arthur/Beaumont were more comparable to Charleston, South Carolina more than the other areas in the Harvey affected region.

The study sites are similar in geography, population, education, income/poverty, economy, and industry. Port Arthur/Beaumont and Charleston are similar in geography as they are both port cities surrounded by two bodies of water responsible for bringing cargo ships into the region for industrial purposes. These sites are also similar in their vulnerable populations

having a similar distribution in terms of race (Black and Hispanic) and gender (female). The populations are also similar in the proportion of children and elderly residents. These demographics are significant to note because studies have shown that communities that possess higher levels of vulnerability are typically disproportionately impacted (Peacock and Girad, 1997).

Geographic History

The cities of Port Arthur/Beaumont make up a self-contained urban system located in the Southeast region of Texas in Jefferson County. The cities are two out of three parts of an area known as the "Golden Triangle" (Map 4). The "Golden Triangle" can be seen in Map 4 and consists of the cities of Beaumont, Port Arthur, and Orange, TX.

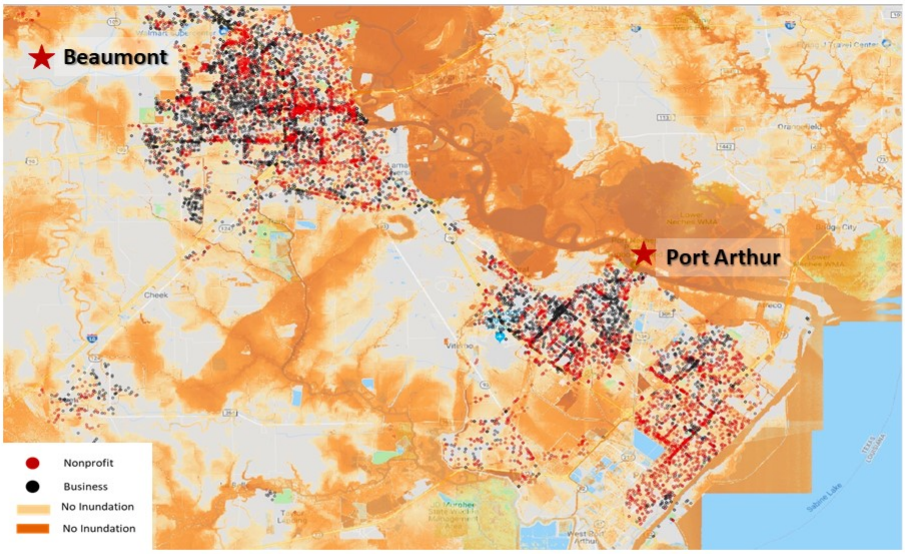


Map 4 Description: The Golden Triangle

Source: Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS; generated by HRCC; Arc Gis; (29 September 2020).

The area received its name in the early 1900s as it acquired most of its prosperity from oil in the region. The Port Arthur/Beaumont area has a combined land area of 151.7 square miles. Port Arthur, a port city, is located along Sabine Lake approximately 15 miles from the Gulf Coast. Beaumont is just 27 miles from Port Arthur and contains two major thruways' (I-10 and HWY 90). Both areas contain linkages to the busy ship channel (Sabine-Neches Waterway). The area is prone to both technological and natural disasters due to its proximity to the coast as well as the prevalence of industrial facilities. Prior to Hurricane Harvey, the area was affected by Hurricanes Ike (2008), Humberto (2007), and Rita (2005). This study examined the impacts of the 2017 Hurricane Harvey.

Hurricane Harvey dropped over 50 inches of rain in the Port Arthur/Beaumont area leading to flash flooding across the region (NOAA, 2018). Port Arthur alone experienced high levels of flooding as the Mayor reported that the entire city was inundated with floodwaters (Blake and Zelensky, 2017; Bromwich, 2017). The flash flooding led to countless road closures, including Interstate 10 the main route that connects southeast Louisiana to southeast Texas (Harrington, 2017). The rising floodwaters resulted in mass evacuations within the impacted region (see Map 5). It was estimated that one-third of all the buildings in the area were inundated with floodwater (NOAA, 2018; FEMA, 2020).



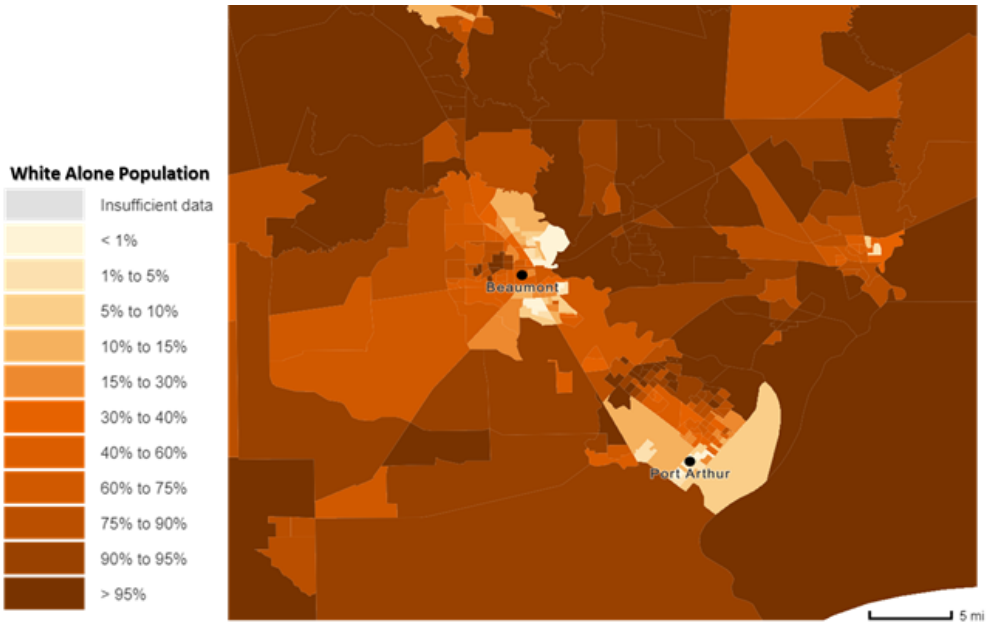
Map 5 Description: Hurricane Harvey Flood Inundation in Beaumont and Port Arthur, Texas

Source: FEMA - Harvey Flood Depths Grid, HydroShare. Dataset of gridded depth at horizontal resolution of 3 meters, published November 15, 2017, hosted at the University of Texas Advanced Computing Center (TACC). High Water Marks were obtained from the Harris County Flood Control District (HCFCD), US Geological Survey (USGS), and other inspection data.; generated by HRCC; Arc Gis; (29 September 2020).

The Federal Emergency Management Agency (FEMA) estimated that over 8,000 homes received flood-related damage (FEMA, 2020). In some cases, those who evacuated to shelters were again met with rising floodwaters and forced to evacuate the shelters (Harrington, 2017; FEMA, 2020). FEMA approved over a billion dollars for housing assistance and over four-hundred million dollars for household assistance (FEMA, 2020). Thousands of businesses were impacted forcing both temporary and permanent closures causing detrimental impact to inventory and supplies (Blake and Zelensky, 2017; Mahon, 2018). The Small Business Association (SBA) reported that over $6 billion had been approved for small businesses impacted in the region (Mahon, 2018).

Port Arthur/Beaumont has a combined population of 172,114 people, which is about 1,134 people per square mile (Census, 2010; Detailed demographics are provided in Appendix A). The area is comprised of Black non-Hispanic (29.34%), White non-Hispanic (29.34%), Hispanic/Latino (19.99%), Asian non-Hispanic (4.23%), and American Indian non-Hispanic

(0.39%). Map 6 provides a visual depiction of the non-minority vs. minority population with Port Arthur/Beaumont.



Map 6 Description: Population Map by Race White Alone
Source: U.S. Census Bureau; American Community Survey, 2010 American Community Survey 5-Year Estimates; generated by HRCC; using American FactFinder; <http://data.census.gov>; (29 September 2020).

The region gender and age demographics are representative of the state and country. The area contains persons vulnerable to disaster impacts such as those under age 65 with a disability (9.32%) and those under 65 without health insurance (26.46%). The poverty level within the area is 16.07% which is higher than the national poverty rate (12.3%). The area has a median household income of $57,952 that is lower than that of the state ($64,034) and the country ($65,712). About 74% of those under the age of 25 have a high school diploma and 61.63% of the population over the age of 25 have college degrees or higher; these educational statistics are higher than the national educational attainment.

There are approximately 66,574 homes in the study area with an owner-occupied housing unit rate of 56.27%, which is low compared to that of Texas and the United States. The median housing value for the study site ($88,926.00) is also lower than that of the state ($128,100) and the country ($179,900). The reverse is true for the renter-occupied housing units in the area whereas the study site has a renter population of 43.73% which is higher than both the state and the country statistics. The median gross rent for the study site ($792.00) is slightly lower than that of the state ($801.00) and the country ($805.00).

Business and Economy

There are over 13,000 businesses in the study area. Slightly more than half of those institutions are owned by men (6,533) consistent with state and national statistics. Minorities own approximately 7,067 businesses and veterans own approximately 1,287 businesses. There are about 85,000 jobs in the Port Arthur/Beaumont study area with the biggest industries supporting employment are Health Care and Social Assistance (18.16%), Retail Trade (11.18%), Manufacturing (10.10%), Accommodation and Food Services (9.76%), and Educational Services (8.71%). These statistics are comparable to those of the state and the country.

The study area has a higher population of female employees (61.26%) as compared to that of the state (49.4%) and national (50.6%) averages. The workforce demographics indicate that the number of minority individual employees (31%) in the study area is slightly higher than that of state (19%) and nation (18.5%). The workforce consists of 23.9% persons under the age of 29, and 33.1% persons between the age of 30 to 54, and 43.1% persons older than 55. The population of persons older than 55 still in the workforce in the area is higher than that of the state and nation.

The educational background of the study area indicates that 12% of employees lack a high school diploma, 23% have a high school education, and 42% have an associate degree or higher. The averages associated with the educational background for the study area is higher than that of both the state and country. In terms of employee gross pay, 43% of the employees have a gross pay greater than $3,333 which is higher than that of the state and that of the country.

Methods

Sampling Strategy

The unit of analysis for this study is organizations (businesses or nonprofits) located in the combined study area of Port Arthur/Beaumont. To identify a list of eligible businesses for the study a business listing was purchased from ReferenceUSA for the year of 2016 – the year before Hurricane Harvey - for the area. ReferenceUSA is a corporation who specializes in obtaining commercial and residential listings from across the United States (Reference USA, 2017). The corporation collects data listings from the Census Bureau and then performs a triple telephone verification process to ensure that the business/residence is still in existence. The company provides listings for a wide range of corporations located in the U.S. and has been in existence since 1992. The list of businesses contained information regarding the business name, complete address, type of business, phone number, and ReferenceUSA unique identifier. The list was also provided with geocodes attached to each business.

This study primarily focused on businesses from the following six economic sectors: wholesale/retail, manufacturing/construction, services, finance/insurance/real estate, and other (agriculture, forestry, fishing, mining, transportation, communications, and utilities). Businesses from these economic sectors were divided into these categories based on their North American Industry Classification System (NAICS) code. We grouped businesses into these economic sectors following similar methods in other disaster economic research (Dahlhamer, Tierney, and Webb, 1999; Dahlhamer and D'Souza, 1997; Webb, Tierney, and Dahlhamer, 2000). Prior to purchasing the list, we asked ReferenceUSA to remove all ATMs, schools, colleges, and universities, tutoring agencies, health services, public administration, justice/public order/safety, religious institutions, water and sewer companies, and libraries. We also requested that sole proprietors and those having fewer than two employees be omitted from the sample prior to receiving the list from ReferenceUSA. The removal of these businesses was conducted following the procedures outlined in the 2002 Tierney business study. Using this method ensured that our research addressed small businesses with two employees or greater, following the Tierney 1997 study.

The potential study population included 4,286 businesses for Beaumont and 952 for Port Arthur. The list obtained from ReferenceUSA contained 22 types of business, those listed by variant NAICS codes, outlined in Appendix C. To develop a sampling strategy, we collapsed the original sector listing into six categories for the purposes of this study. These six categories were based off an adapted version of a business study conducted by Tierney (2002). We used an adapted version of that study because our categories were variant in total numbers. To ensure a balanced sampling frame we added an additional category, not in the original study.

We used a three-stage proportionate stratified random sampling design to select businesses to target for the study, in which the size of each stratum is proportionate to the size of the population. Using this sampling design, we drew a sample size of 600 businesses with a target sample of 300 under a 90% confidence interval and a 5% margin of error. The stratification categories were flooded/not flooded, business type, and location (Webb, Tierney, Dahlhamer, 2002; Tierney, 1997). The first stage of the design aggregated businesses based on their flooding impact (flooded or not flooded). The second stage was based on the type of business indicated by their NAICS code grouped in one of the six categories described above. The third stage aggregated businesses based on their location either Beaumont or Port Arthur (Webb, Tierney, Dahlhamer, 2002; Tierney, 1997). See Table 1 for detailed sample information.

Table 1: Sampling Frame for Beaumont and Port Arthur Texas

	Beaumont Not Flooded (n)	Beaumont Flooded (n)	Beaumont Total (n)	Port Arthur Not Flooded (n)	Port Arthur Flooded (n)	Port Arthur Total (n)
Wholesale and retail sales	26	31	57	3	12	16
Manufacturing, construction, and contracting	8	9	17	1	3	4
business and professional services	29	35	64	4	8	12
finance, insurance, and real estate	24	22	45	4	7	11
Other: agriculture, forestry & fishing, mining, transportation, communications, and utilities	7	9	15	3	10	13
Professional and Management	18	26	44	2	4	6
Sample Total	112	131	243	15	42	57

A similar procedure was used for drawing the nonprofit sample. To identify a list of eligible nonprofits for the study two nonprofit listings were collected. The two sources for the data were Taxexemptworld.com and ReferenceUSA. Taxexemptworld.com is a corporation who specializes in obtaining listings for nonprofits from across the United States. The corporation collects data listings from the IRS and then performs a verification process using their submitted

990 forms to ensure that nonprofits are still in existence. The company provides listings for a wide range of nonprofits and charities located in the United States and has been in existence since 2005. ReferenceUSA is a corporation who specializes in obtaining listings for corporations and residential listings from across the United States, as previously described.

After combining the datasets, the list contained 1,563 nonprofits for Beaumont and 456 nonprofits for Port Arthur. Duplicates as the result of combining the datasets were removed. The final data set had a listing of 1,012 in Beaumont and 336 nonprofits in Port Arthur. The combined dataset contained 16 types of nonprofits listed by 501(c) codes (Table D1). For this study we only kept organizations that were recorded as having a designation of 501c3, which are charitable, religious, scientific, literary, and other organizations.

We used a two-stage proportionate stratified random sampling design to draw a sample size of 400 nonprofits with a target sample of 250 under a 90% confidence interval and a 5% margin of error. The stratification variables were flooded/not flooded and city again following the previous literature on organization sampling (Webb, Tierney, Dahlhamer, 2002; Tierney, 1997).

The final listing contained information regarding the nonprofits' name, complete address, IRS code, phone number, and Tax-EIN number. See Table 2 for complete stratification. After drawing the target sample we cleaned the sample using the following cleaning method to verify the existence of nonprofits in our sample by using a combination of Google Search: www.google.com, Guide Star: https://www.guidestar.org/search, White Pages: https://www.whitepages.com/search/FindPerson, and Facebook: www.facebook.com. If an organization's existence could not be verified using one or more of these sources, we removed the organization from the sampling frame. After conducting a thorough cleaning the final sample contained 200 nonprofits.

Table 2: Sampling Frame for Nonprofits

	Beaumont Not Flooded (n)	Beaumont Flooded (n)	Beaumont Total (n)	Port Arthur Not Flooded (n)	Port Arthur Flooded (n)	Port Arthur Total (n)
Charitable, religious, scientific, literary, and other organizations	65	125	190	7	53	60

We designed a survey instrument to assess the following variables: disaster damage and organizational interruption, employee impacts, recovery, finance and mitigation, business demographic information, social networks, risk perception, and preparedness/mitigation behavior (Bourque, Regan, Kelley, Wood, Kano, and Mileti, 2013; Webb, Tierney, and Dahlhamer, 2002; Haynes, Danes, Schrank, and Lee, 2019; Tierney, 1997). To ensure reliability and validity we chose to follow the examples set forth by other disaster business studies, and the Charleston, SC study. Following those examples, we incorporated those questions into our survey design (Creswell, 2013; Babbie and Mouton; 2001).

The survey instrument contained a mix of closed and open-ended questions that assessed the organization's behavior pre-and post-hurricane (Creswell, 2013; Babbie and Mouton; 2001). We chose to use a mix of closed and open-ended questions so that we could obtain both qualitative and quantitative data needed to assess each identified variable (Creswell, 2013; Babbie and Mouton; 2001). Closed-ended questions measured perception and behaviors taken over time.

Binary, ordinal, and categorical questions measured disaster impact and how that risk impacts their behavior. Closed-ended Likert scaled questions assessed the following variables: damage and organizational interruption, employee impact, recovery, finance, and mitigation (Creswell, 2013; Babbie and Mouton; 2001). Categorical questions, extracted from previous organizational studies, collected information regarding business demographic information (Webb, Tierney, Dahlhamer, 2002; Haynes, Danes, Schrank, and Lee, 2019; Tierney, 1997; Creswell, 2013; Babbie and Mouton; 2001). Open-ended questions assessed specific recovery and disaster impact information that can obtain a range of different answers (Creswell, 2013; Babbie and Mouton, 2001). The full survey can be found in Appendix E.

The final survey was uploaded into Qualtrics web survey platform for ease of data collection on electronic tablets in the field. This method reduces the time associated with later data entry from paper surveys and the possibility of unintentional data entry errors. Before administering the survey in the field, the survey was pretested by seven faculty members at Texas A&M, three graduate students, and four undergraduate students.

Training Module

To ensure adequate survey administration we built a surveyor training course to train our survey team and placed each surveyor through a Survey Bootcamp. The Survey Bootcamp was pivotal in ensuring that surveyors understood how to administer the survey either in-person or via telephone. This study used Qualtrics as a data collection tool to record survey responses - the Survey Bootcamp discussed required protocols to record the data accurately into Qualtrics. The Survey Bootcamp consisted of a 2-hour informational training, 2-hour practice scenarios, and 1-hour real survey practice. Each surveyor had to undergo the training and complete the IRB training course. To date we have trained eight undergraduate students, one master's student, two Ph.D. students, and two planning specialists.

Data Collection

Primary Data Collection

We collected primary data from survey and telephone data collection techniques following a modified version of Dillman's (1978) "total design method" (Dillman, 2000; Dillman 1978, Dillman, Smyth, and Christian, 2014). Although the strategy is typically used for mail and telephone surveys, we adapted the method for the purposes of in-person fieldwork and telephone surveys. To collect in-person surveys we transported one to two teams of at least two people in each team into the field once a week for 5 weeks. One team was responsible for collecting nonprofit data while the other team was responsible for collecting business data. Each team was given a box with surveys, consent forms, debriefing forms, an electronic tablet, and a digital map of places to visit powered by ESRI Collector App and Google My Maps. We used the rule of three for visiting sample units and replaced those who were unable to be located or had declined to participate.

The teams surveyed Monday through Thursday (8:30 am to 5:00 pm). Each day the team would visit a select list of businesses and nonprofits based on geographic location. The teams were instructed to keep a running list of all business visited as well as a short description of what occurred at the business (i.e., need a replacement sample unit, completed, need to revisit). As a thank you for completing the survey, the team left behind disaster information sheets along with contact information for Texas Sea Grant.

Every afternoon the team would debrief on the present-day events, finalize data entry into Qualtrics, write field notes, and update the survey collection sheet.

The initial data collection protocol had to be adjusted because of disaster impacts from Tropical Storm Imelda and an industrial spill that occurred in the study area. In the interest of protecting our field researchers and respecting possible participants, we adjusted our data collection strategy to include a combination of telephone and in-person survey methodology. If contact could not be made over the phone, then organization was moved to a "visit-in-person" list. The "visit-in-person" list was attempted once a week. If organizational existence could not be confirmed or participation was denied during the phone call or in-person visit the organization was replaced by another sample unit.

Secondary Data Collection

Table 3: Timeline

Date	Task
Spring 2019	Survey Development
June 2019	IRB Approval
July 2019	Preliminary Fieldwork
Fall 2019	Fieldwork (In-person)
Spring 2020	Field work (In-person and Telephone)
March 2020	Fieldwork Paused (COVID-19)

Secondary data collection was obtained from Reference USA, a FEMA - Harvey Flood Depths Grid data set from HydroShare, US Geological Survey (USGS), FEMA flood insurance rate maps (FIRMS) that indicated the floodplains in the area, and the US Census' 2018 TIGER (Topologically Integrated Geographic Encoding and Referencing database) and population demographic files. Population data obtained from the Census has been collected to identify the sociodemographic backgrounds of the people living and working in the study area.

When the COVID-19 pandemic expanded to Texas, we paused data collection and are currently working to readjust our data collection strategy to accounts for this. Table 3 outlines the timeline of the research project to date.

Preliminary Results

Respondents

At the time of fieldwork pause, we had sampled 368 organizations out of the initial 500 target organizations. We contacted 265 organizations out of the 265 organizations contacted, 90 organizations refused participation, 79 organizations asked us to revisit and 96 organizations completed the surveys: 66 businesses and 30 nonprofits. Of the small businesses sampled the ownership structure primarily consisted of single owners, partnerships, and corporations. The sample contained 34% minority-owned business (i.e., racial-ethnic minority, woman, or veteran-owned), and 69% minority-led nonprofit.

Risk Perception

We asked the respondents to identify their perception of risk before Hurricane Harvey (see Table 4). Most respondents were not at all concerned with the likelihood of hazard impacts, except for loss of infrastructure services including electric, phone, and other basic services. Minority-owned or -led organizations had higher risk perceptions than non-minority organizations related to flood water inundation, severe damage, and inventory loss.

Table 4: Risk Perceptions

Question	Number of Survey Respondents (n)	Very (%)	Somewhat (%)	Neither (%)	Not (%)	Not at All (%)
As the storm was approaching how likely did you think it was that your organization…						
Would be Inundated with flood waters*	93	12.9	17.2	10.8	20.4	37.6
Would be severely damaged or destroyed*	93	11.8	11.8	5.4	25.8	44.1
Would lose inventory or supplies*	93	12.9	15.1	5.4	19.4	45.2
Would experience disruption to electrical, telephone, and other basic services	92	40.2	26.1	4.3	7.6	20.7
Would be unable to reopen	92	12.0	18.5	6.5	17.4	43.5
As a result of Hurricane Harvey…						
How concerned are you about the possibility of another hazard occurrence?	93	47.3	34.4	4.3	7.5	6.5
How concerned are you about losing your inventory and supplies in the event of another hazard impact? *	92	38.7	22.6	9.7	10.8	16.1
How concerned are you about experiencing disruption to electrical, telephone, and other basic services *	93	58.1	22.6	5.4	5.4	8.6
How prepared are you in the event another hazard occurs?	92	51.1	31.5	6.5	3.3	6.5
How well do you know how to access hazard related resources and information?	93	62.4	16.1	2.2	4.3	12.9
Rate the possibility of experiencing severe damages to your organization again. *	93	35.5	31.2	14.0	7.5	10.8

* Indicates minority significance (all minority organization types were grouped together due to small sample sizes).
Gray color indicates the highest response categories.

Next, we asked the respondents about their risk perceptions post-Hurricane Harvey impact (see Table 4). Risk perceptions increased dramatically due to Harvey, with the most common response to these questions being “very concerned”. Minority-owned or -led organizations were more worried about the loss of inventory and disruption to basic infrastructure services like electric and phone. In fact, all those organizations responded with very concerned (69%), somewhat concerned (26%), or neither (5%). They also rated the possibility of severe damages occurring again as higher than other organizations. We also asked respondents how prepared they were in the event of another hazard and how well they know how to access hazard-related resources and information. The results indicated that respondents felt more prepared now since Harvey.

Hazard Mitigation Activities

We asked the respondents to identify what mitigation activities they had completed before and after Hurricane Harvey (see Table 5). The most undertaken mitigation activities included backing up important documents (63%), maintaining off-site back-ups (57%); and developing an emergency response plan (51%). In fact, those were the only three mitigation activities out of 15 possible activities that more than half of the organizations had completed prior to Harvey. The least likely completed activities were structural mitigation including building elevation (4%), dry proofing (4%), flood proofing (8%), or using landscaping to reduce flooding (4%). When asked about their actions taken after Hurricane Harvey, the percent of respondents completing every activity increased except for structural elevation.

Importantly related to planning, for those that had completed response, continuity, or recovery plans, they overwhelmingly (more than 90%) felt these plans sped their own recovery operations. This result shows the importance of organizational-level disaster planning processes.

There were significant differences in minority organizations and non-minority organizations for a few mitigation actions. Minority organizations were less likely to receive disaster-related information before Harvey, less likely to make plans for a temporary location pre-Harvey, and less likely to do structural flood proofing to the building before Harvey. Minority organizations were more likely to lift inventory and supplies off the ground, board up windows and brace shelves, and purchase increased insurance before Harvey. Most of these demographic differences remained post-Harvey except that there was no longer a difference post-Harvey in receiving disaster-related information nor boarding up windows.

Table 5: Hazard Mitigation Activities Pre- and Post-Harvey

Question	Number of Survey Respondents (n)	Before		After	
		Yes (%)	No (%)	Yes (%)	No (%)
Before Hurricane Harvey, did you…					
Attend disaster preparedness meetings or training (in person/online)	92	25.0	72.8	38.7	61.3
Receive disaster related information	91	42.9*	56.0	60.9	38.0
Backup all important documents (offsite or cloud)	92	63.0	37.0	75.3	24.7
Make plans for a temporary location	92	37.0*	60.9	44.6*	55.4
Maintain offsite backups	92	56.5	43.5	61.5	38.5
Develop an emergency response plan	91	50.5	47.3	62.5	35.2
If so, do you feel the emergency response plan enabled you to recover your operations more quickly than if you had no plan?	*45; 53*	*91.1*	*8.9*	*92.5*	*7.6*
Develop a business continuity plan	91	40.7	57.1	51.6	46.2
If so, do you feel the business continuity plan enabled you to recover your operations more quickly than if you had no plan?	*37; 46*	*91.9*	*8.1*	*93.5*	*6.5*
Develop a disaster recovery plan	89	40.4	57.3	47.8	50.0
If so, do you feel the disaster recovery plan enabled you to recover your operations more quickly than if you had no plan?	*36; 43*	*94.4*	*5.6*	*95.4*	*4.7*
Lift inventory and other supplies off the ground	92	42.4*	56.5	54.3*	45.7
Board up windows, brace shelves, etc.	91	24.2*	72.5	39.8	59.1
Purchase increased insurance	85	14.1*	77.6	18.8*	74.1
Elevate the height of the building's foundation	92	4.3	92.4	2.2	94.6
Increase landscaping as a form of mitigation practice	91	4.4	92.3	7.7	90.1
Dry proofing the structure of the building	91	4.4	92.3	7.8	90.0
Flood-proofing the building's structure	91	8.8*	87.9	12.1*	85.7

* Indicates minority significance
Gray color indicates the highest responses by organizations

Damage and Business Interruption

We asked the respondents to identify the amount of damage received as well as the levels of interruptions they experienced to their business (see Table 6). Over half of the organizations surveyed indicated that floodwaters did not touch their building (64.5%), but minority organizations were much more likely to report floodwaters touching the building (47% of minority organizations compared to 24% of non-minority organizations). For those that experienced floodwaters, the overall average flood height was 1.5 feet, with a minimum of 4 inches and a maximum of 8 feet. Minority organizations reported on average higher floodwaters (1.9 feet compared to 0.9 feet for nonminority organizations).

Fewer than half of respondents reported damage from Hurricane Harvey. The most common type of damage was building damage (43%) and the least common damage was to documents (23%). Minority organizations reported more damage on almost all categories including to their building (55% versus only 33% of non-minority organizations), building contents (41% versus 24%); machinery/equipment (37% versus 16%); and documents (34% versus 14%).

Table 6: Damage from Harvey

Question	Number of Survey Respondents (n)	No Damage (%)	Minor Damage (%)	Moderate Damage (%)	Severe Damage (%)	Completely Damage (%)
What kind of physical damage (if any) was caused by Hurricane Harvey and how severe was the damage?						
Building*	93	57.0	12.9	15.1	7.5	7.5
Contents*	92	68.5	5.4	7.6	7.6	10.9
Inventory	92	69.6	6.5	5.4	6.5	12.0
Machinery/equipment*	92	75.0	3.3	7.6	5.4	8.7
Important (hard copy) documents*	92	77.2	4.3	2.2	6.5	9.8

* Indicates minority significance
Gray color indicates the highest responses by organizations

The most frequently reported infrastructure disruptions were electricity (72%) and water (55%) loss. Internet (50%), sewer (48%), and landline phones (44%) were also commonly interrupted. Gas (27%) and cell phones (25%) had the least reported interruptions. Minority organizations more frequently reported many of these infrastructure interruptions including more electrical outage, gas outage, and interruption of landline phone, cell phone, and internet services.

Organizations reported whether and when they closed due to Harvey impacts (Figure 1). Slightly less than a quarter of organizations did not close for Harvey, and of those that did, the majority closed before Harvey made landfall. When asked what prompted the closure, respondents indicated that pre-flooding and the risk of flooding was the primary factor (57.5%). In most cases the final determination of closure was made by the business owner or organizational leader (72.9%) (as compared to local officials). Most organizations (68.1%) indicated that closure was not required due to damages to their organization caused by Hurricane Harvey.

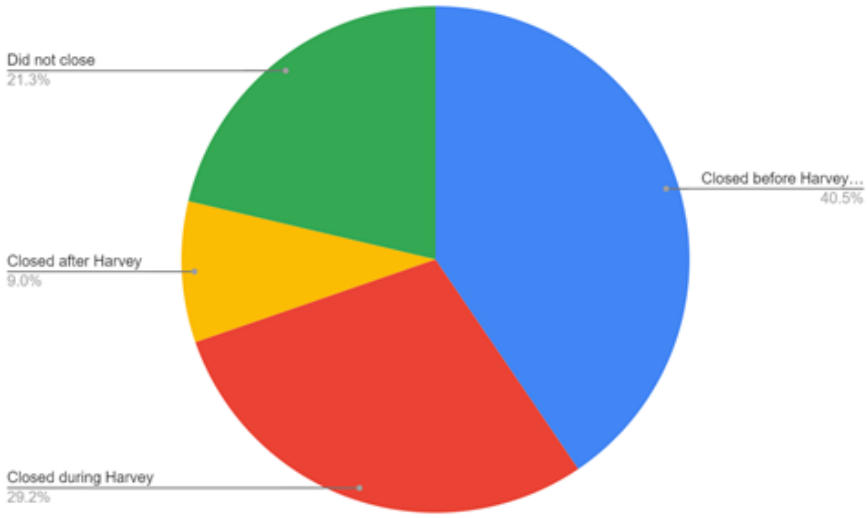


Figure 1. When and Whether Organizations Closed

When asked which statement most influenced their decision to close their organization, the most common reason was hearing an announcement of hurricane “watch” or “warning” (36%), followed by previous experience (20%), hearing authorities’ recommendations (14%) and concern about protecting the organization from impacts (14%). Social cues such as seeing other organizations close or people in their social networks evacuating were not that impactful on their decisions (Figure 2).

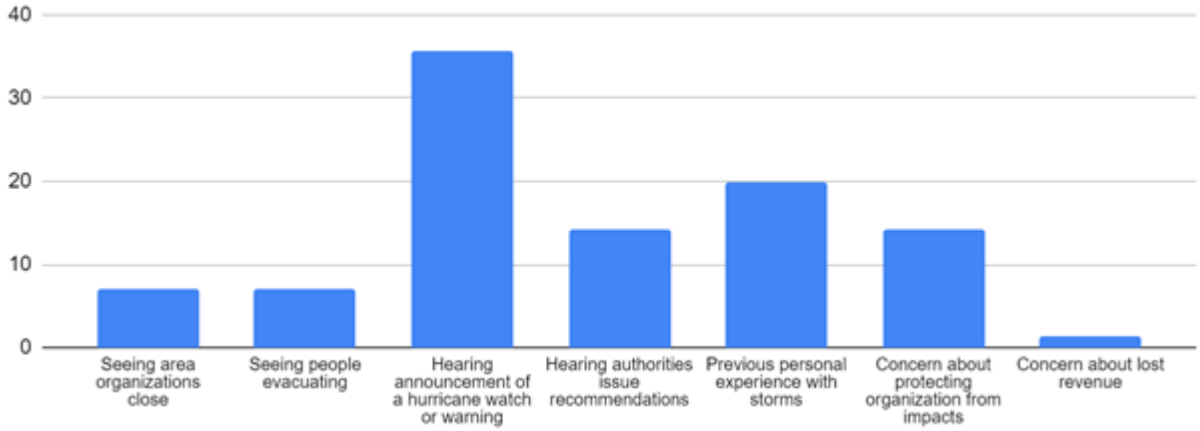
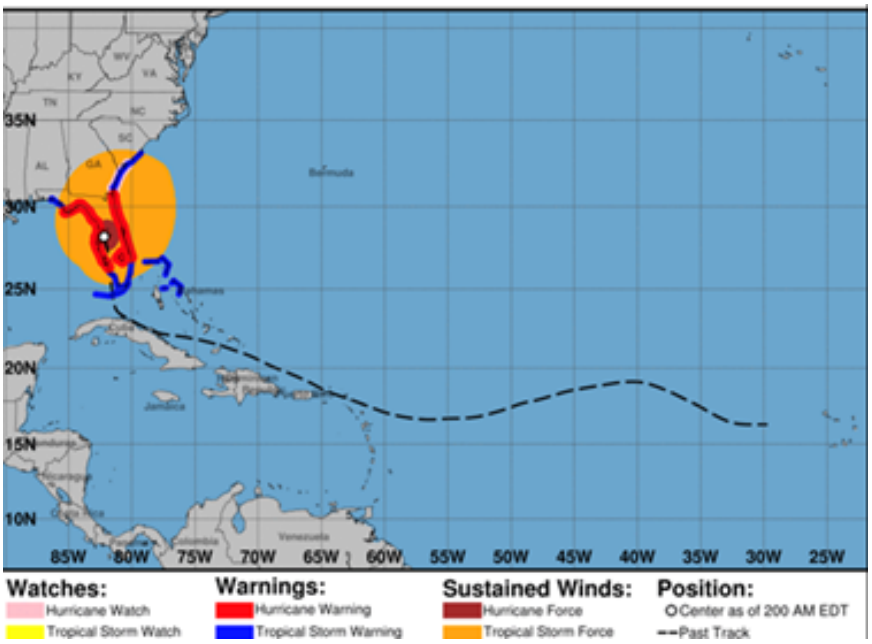


Figure 2. What influenced organizational closure decisions

When shown an example of a NOAA map (Map 7), only 20% of organizations said the map influenced their decision to close.



Map 7. NOAA Hurricane Track Map Example

Respondents indicated many road networks issues near their organization that would impact customer, client, or employee access. Most respondents reported street or sidewalk closures (62%), flooded but still passable streets (58%), severely flooded streets (57%), delay in supply deliveries (61%), and flood waters impacted the surrounding neighborhood (80%). Again, we see differences by minority or nonminority status of the organization on some of these impacts; specifically, more minority organizations reported street or sidewalk closures (76% to 53% of nonminority) and severe street flooding (68% compared to 52%).

Employees' ability to report to work is important to business operation (see Table 7). The most common factors affecting employees' ability to return to work were road network problems (81.5%), damage to their home (64.1%), need to fix homes (60.9%), transportation problem (57.6%), forced to evacuate homes (55.4%), and personal vehicle problems (50%). Fewer than half of organizations reported caregiving conflicts, long-term health impacts, or physical or mental health issues affecting employee performance.

Some organizations did report having employees work additional hours before (26%), during (24%), and after Harvey (39%). Minority organizations were more likely to need employees for extra hours after Harvey (49% versus 32% of nonminority organizations). About 42% of organizations had an alternate work location available for employees, with minority organizations less likely to have this option (35% to 49% of nonminority organizations). Minority organizations more often reported physical and mental health issues impacting their employees.

Table 7: Employee-Related Questions:

Question	Number of Survey Respondents *(n)*	Yes *(%)*
Transportation problem	92	57.6
Personal Vehicle problems	92	50
Need to fix homes	92	60.9
Forced to evacuate leaves homes	92	55.4
Caregiving responsibilities (children, elderly, sick)	92	39.1
Disaster-related physical health issues*	92	16.7
Disaster-related mental health issues *	92	16.3
Road network problems	92	81.5
Damage to home	92	64.1
Are you aware of any employee long-term health effects arising from the event (e.g. cardiovascular disease, mobility issues)	92	10.9
Was there an alternative work location available for employees to work while the primary location was closed?*	91	41.8
Did employees have to spend extra hours at work before the event?	92	26.1
Did employees have to spend extra hours at work during the event?	92	23.9
Did employees have to spend extra hours at work after the event?*	92	39.1

* Indicates minority significance
Gray color indicates the highest responses by organizations

As an indication of overall operational impacts, we asked businesses if they experienced a change in their business gross recovery and nonprofits if they experienced a change in their organization's donations and/or external funding. About 40% of businesses reported revenue decreases and about 28% of nonprofits reported fewer financial resources (Figure 3). This varied by minority status, with 58% of minority businesses reported decreases compared to 29% of nonminority businesses and 30% of minority-led nonprofits reporting decreases compared to 22% of other nonprofits.

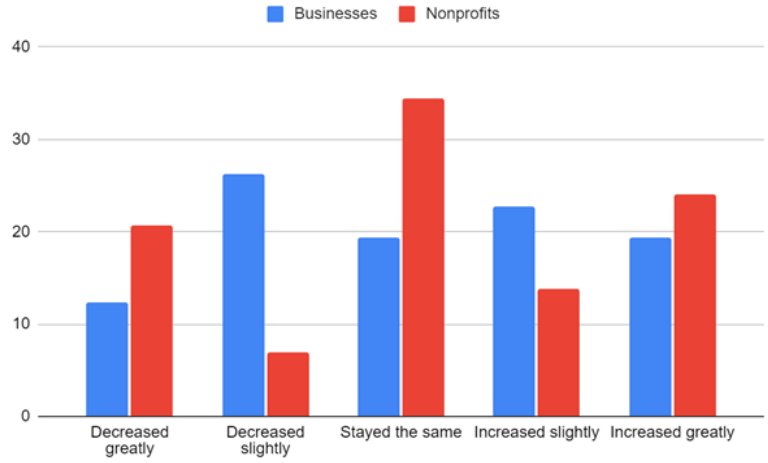


Figure 3. Change in revenues for businesses or financial resources for nonprofits.

Organizational Recovery

Organizational representatives were asked the current state of their recovery. Most organizations (72%) indicated that they were fully recovered. This differed significantly between minority and nonminority organizations, with only 62% of minority organizations indicating that they were fully recovered compared to 92% of nonminority organizations. This self-reported recovery status was the strongest minority to nonminority difference in this study (Figure 4).

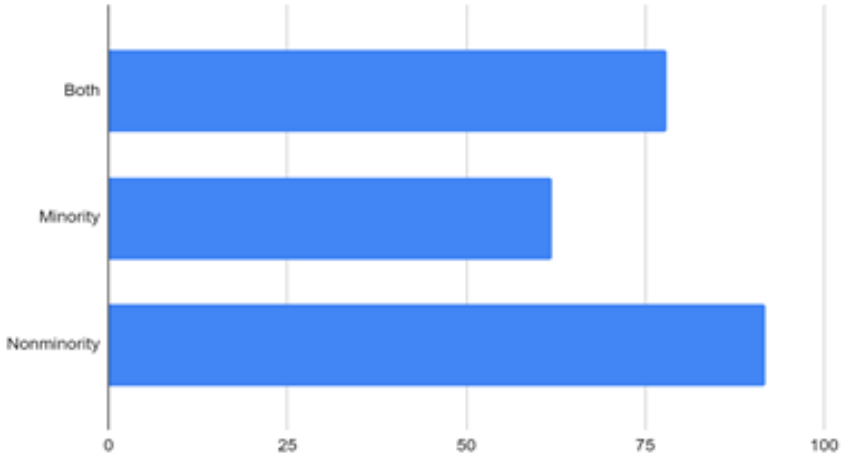


Figure 4. Minority versus Nonminority Organization Self-reporting "Fully Recovered" at the Time of Data Collection

Organizational operational status varied over time and across metrics (Figure 5). Immediately after Harvey, 37% of organizations reported they were open at full capacity with 24% reporting their operations ceased and the rest operated at half or less capacity. Of those who had ceased operations, more than half were able to reopen within 2 weeks.

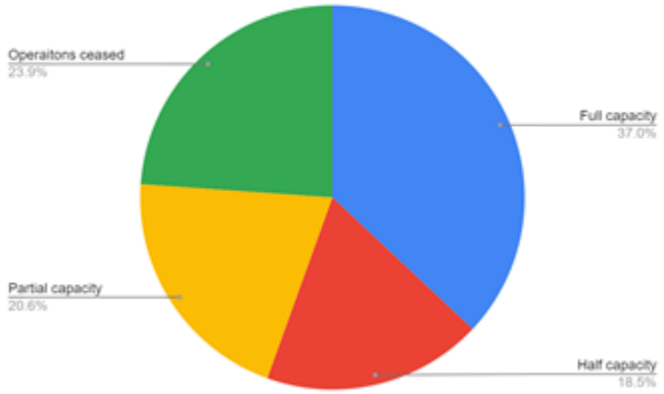


Figure 5. Operations Status Post-Harvey

In terms of organizational recovery, we asked organizations about change in customers (for businesses) and change in clients and volunteers (for nonprofits). About 50% of businesses saw an increase in customers due to Harvey and about 32% saw a decrease in customers (Table 8). Similarly, nonprofits also saw increased demand for services, with 62% seeing an increase in clients due to Harvey and 57% seeing an increase in volunteers (Table 7). Minority businesses were more likely to state a loss in customers (50% versus 24% of nonminority businesses). In terms of profitability, only about a third of businesses indicated no change due to Harvey and 20% indicated that their profitability was greatly affected by Harvey. For nonprofits, 55% said Harvey did not alter their impact and mission, but 27% said that the hurricane greatly affected their impact and mission.

To assess supply chain effects on recovery, we also asked respondents their agreement to the statement: "We now source from more suppliers outside our city than we did before the disaster?" Most respondents (53%) indicated that they neither agree nor disagree, while the remaining respondents were equally split between agreement and disagreement.

Table 8: Organizational Recovery, Change in Organizational Demand

Question	Number of Survey Respondents (n)	Yes (%)
Due to Hurricane Harvey, did this business experience an increase in customers	63	50.8
Due to Hurricane Harvey, did this business experience a decrease in customers *	62	32.3
Due to Hurricane Harvey, did this NPO experience an increase in clients	29	62.1
Due to Hurricane Harvey, did this NPO experience an increase in volunteers	28	57.1

Gray color indicates the highest responses by organizations

Table 9: Flood Insurance Experience

Question	Number of Survey Respondents (n)	Yes (%)	No (%)	Don't Know (%)
Were you required to have flood insurance?				
Building	88	26.1	54.5	19.3%
Content	88	25.0	55.7	19.3%
Business Interruption	88	21.6	59.1	19.3%
Did you have flood insurance?				
Building	89	46.1	39.3	14.6%
Content	89	47.2	39.3	13.5%
Business Interruption	89	40.4	42.7	16.9%
Did you file a claim?				
Building	89	19.1 (44% of those reporting flood waters)	64.0	16.9%
Content	89	18.0 (41% of those reporting flood waters)	65.2	16.9%
Business Interruption	87	13.8 (25% of those reporting flood waters)	67.8	18.4%

* Indicates minority significance
Gray color indicates the highest responses by organizations

Table 10: Reported Use of Other Recovery Financing Sources		
	Number of Survey Respondents *(n)*	Yes *(%)*
Did you apply for any of the following assistance in recovery?		
FEMA	90	6.7
SBA	90	3.3
Other federal or state funds	90	1.1
Local government funds	89	0
Financial assistance from any church or other NGOs (non-government organization)	90	6.7
Cleanup or repair help from a church or other NGO?	90	2.2
Loan from a Bridge Loan program	90	0
Private/bank loans	90	0
Crowdsourcing online?	90	1.1
Fundraisers (in person/online)	90	3.3

Recovery Finance

Economic resources to cover disaster costs and recovery needs can come from a variety of sources such as insurance, savings, or aid from governmental or nongovernmental programs. Insurance is usually the first line of funding used for disaster recovery, and in floods or water events, specific flood insurance is required to cover those impacts. We asked businesses if they had flood insurance and if they were required to have it. About one-quarter of organizations reported that they were required to have insurance, and importantly about 20% of respondents did not know if they were required to have flood insurance. Interestingly, more organizations had flood insurance than reported being required to have it. In fact, 46% of organizations reported having flood insurance for their building. Again, a large minority of respondents did not know if their organization had flood insurance (13%). (see Table 9). Very few from the entire sample filed claims, though, but this is likely since many organizations studied did not experience flood waters in their building. Of those that reported flood waters touching their building, 44% filed a claim for the building, 41% for the contents, but only 25% for business interruption. Many of these claims had provided money at the time of the survey (82% of building claims, 81% of contents claims, and 67% of interruption claims). Beyond insurance, the large majority of organizations did not apply nor receive assistance from other sources (Table 10).

Lessons Learned and Best Practices

This study faced a wide range of challenges halting its overall progression and completion prior to making contact to the entirety of the original sample. One challenge we faced throughout the project was that businesses often had a higher response rate than nonprofits. To account for this challenge, we adapted the nonprofit data collection to a more inductive qualitative interview strategy. We were strategic regarding when the survey was administered, finding that the early days of the week had more refusals or asks to return later than days later in the week. Due to funding and student variability per semester, the survey team had a high turnover rate and we trained multiple people to enter the field. Finally, the study area experienced multiple disasters since Hurricane Harvey: Tropical Storm Imelda, an industrial spill, and COVID-19. Respondents who had experienced compounded hazards demonstrated inabilities differentiating between hazard occurrences, damages, and interruptions caused by specific hurricanes. Adapting to COVID-19 societal disruptions came with its own set of challenges increasing the organizational refusal rates.

To increase our response rates, we developed the following creative strategies we decided to:

- Visit businesses Tuesday – Thursday, as we found that businesses visited on Monday and Friday are least receptive.
- Visit nonprofits later in the afternoons, as we found that nonprofits are typically administering services in the morning.
- When cold-calling or cold-knocking on business we found that emphasizing our relationship with Texas A&M University increased our response rate, as many business owners have a social relationship with the institution.
- Emphasizing the notion of a student-led project increased the studies response rates, as business owners wanted to help students pursue their academic advancement.

Broader Impacts

As part of the organizational recovery research, we were able to collaborate with the DeBakey Institute to obtain undergraduate research students. The DeBakey Research Institute is designed to provide and execute leadership opportunities, increase research productivity, network with leaders in research, and provide research opportunities for undergraduate students. The program also allowed for the development of an organizational recovery research course for undergraduate students whereas students were ably taught to identify and demonstrate appropriate research methodologies while collaboratively working with other researchers. In addition, students were taught how to identify, and practice research ethics while conducting ongoing research projects. By the end of the course students were able to define, articulate and use terminology, concepts, and theory related to disaster recovery research. Ultimately broader impacts enabled students to be able to obtain knowledge related to disaster recovery and apply it to their future research projects.

Conclusion

The challenges encountered in this study calls for the need for additional research. Future research questions include: (1) the burden of research sampling on respondents who experience compounded events, (2) how respondents who represent organizations like businesses and nonprofits feel about study participation in comparison to individuals affected by disaster directly, such as households. Other research interest includes examining minority recovery and impact, measuring of acute and chronic impacts, sector impact and recovery differentiation, as well as nonprofit resilience. To further examine these questions the research team has secured funding to return to the sampled organizations in this study with follow-up questions following COVID-19.

Appendix A: Demographics

Table A1: Population Demographics				
	Port Arthur/Beaumont	Charleston	Texas	United States
Per Square Mile	158.01	917.2	261,180.5	3,809,525
Total Population	172,114	351,482	25,257,114	328,239,523
Population Density	1,089.32	383.21	96.70	86.16
Female Population	51.43%	51.8%	50.4%	50.8%
Male Population	48.57%	48.2%	49.6%	49.2%
Under 18 years old	25.73%	24.1%	30.3%	26.9%
Over 65 years old	13.24%	18.7%	10.4%	13.1%
White Non-Hispanic	29.34%	66.6%	76.0%	74.2%
Black Non-Hispanic	29.34%	30.5%	12.5%	13.6%
American Indian Non-Hispanic	0.39%	0.8%	1.1%	1.6%
Asian Non-Hispanic	4.23%	1.7%	4.4%	5.6%
Hispanic/Latino	19.99%	5.4%	37.7%	16.4%
Housing				
Total Homes	66,574	170,186	9,996,209	131,791,065
Owner-Occupied Housing Unit	56.27%	60.8%	63.6%	65.4%
Renter-Occupied Housing Unit	43.73%	39.2%	36.4%	34.6%
Median Value	$88,936	$242,400	$128,100	$179,900
Median Gross Rent	$792.00	$879.00	$801.00	$855.00
Education				
Persons >25 with High School Diploma	74%	20.5%	25.6%	28.5%
Persons >25 Years Old with College Degree or Higher	61.63%	66.8%	32.2%	35.7%
Income and Poverty				
Median Household income	$57, 952	$61,028	$64,034	$65,712
Per Captia Income	$33,139	$27,831	$32,267	$35,672
Poverty	16.07%	14.7%	13.6%	12.3%

*Data Collected From:
U.S. Census Bureau; American Community Survey, 2010 American Community Survey 1-Year Estimates, Table DP05, S1501, S1101, DP04, B19301; generated by HRCC; using American Factfinder; <http://data.census.gov>; (29 September 2020).

Appendix B: Business and Economy

Table B1: Economy				
	Port Arthur/Beaumont	Charleston	Texas	United States
Total Jobs	85,653	145,333	10,130,735	114,057,307
Types of Industries				
Agriculture, Forestry, Fishing and Hunting	0.04%*	0.2%	0.6%	0.9%
Mining, Quarrying, and Oil and Gas Extraction	0.28%*	0.0%	2.0%	0.5%
Utilities	1.32%	0.8%	0.8%	0.7%
Construction	8.54%*	3.9%	5.7%	4.3%
Manufacturing	10.10%	4.8%	8.1%	9.7%
Wholesale Trade	3.89%*	3.1%	4.9%	4.4%
Retail Trade	11.18%*	12.3%	11.2%	11.3%
Transportation and Warehousing	3.43%*	3.1%	3.8%	3.4%
Information	0.96%*	2.1%	2.1%	2.3%
Finance and Insurance	2.35%	3.0%	4.5%	4.3%
Real Estate and Rental and Leasing	1.45%*	1.9%	1.7%	1.5%
Professional, Scientific, and Technical Services	4.95%	7.3%	5.7%	5.9%
Management of Companies and Enterprises	1.05%*	0.9%	0.8%	1.6%
Administration & Support, Waste Management and Remediation	4.43%*	7.8%	6.0%	5.7%
Educational Services	8.71%	10.4%	11.7%	10.2%
Health Care and Social Assistance	18.16%*	14.8%	13.4%	14.2%
Arts, Entertainment, and Recreation	0.68%*	2.3%	1.3%	1.7%
Accommodation and Food Services	9.76%*	13.5%	8.7%	8.6%
Other Services (excluding Public Administration)	3.54%	3.1%	2.8%	3.5%
Public Administration	5.19%*	4.9%	4.1%	5.3%
*Similar in Comparison to Charleston				
Age of Workforce				
Persons <29	23.9%	27.6%	24.6%	23.4%
Persons 30 to 54	33.1%	54.3%	57.9%	57.5%
Persons >55	43.1%	18.2%	17.5%	19.2%
Sex of Workforce				
Female	61.26%	52.4%	49.4%	50.6%
Male	38.74%	47.6%	50.6%	49.4%
Race of Workforce				
White Alone-Non-Hispanic	69%	69.6%	81.0%	81.5%
Black alone- Non- Hispanic	27%	27.4%	12.5%	11.5%
American Indian or Alaska Native Alone	0.1%	0.3%	0.8%	0.9%
Asian-alone Non-Hispanic	3%	1.7%	4.3%	4.7%
Hispanic/Latino	13%	2.8%	30.0%	11.8%
Education of Workforce				
Employees Without High School Education	12%	8.0%	12.5%	8.8%

Employees With High School Education	23%	19.8%	19.4%	20.7%
Employees With Associate Degree or Higher	42%	72.3%	43.5%	47.1%
Employees Gross Pay				
Employee Gross Pay $1,250.00	23%	27.4%	24.2%	25.3%
Employee Gross Pay $1,250.00	33%	38.4%	37.1%	36.8%
Employee Gross Pay > $3,333	43%	34.2%	38.7%	37.9%
Business				
Total Firm	13,957	40,742	2,356,748	27,626,360
Men Owned Firms	6,533	21,522	1,251,696	14,844,597
Women-Owned Firms	5,828	14,464	866,678	9,878,397
Minority Owned Firms	7,067	7,135	1,070,392	7,952,386
Non-Minority Owned firms	6,079	31,968	1,224,845	18,987,918
Veteran-Owned Firms	1,287	4,592	213,590	2,521,682
Nonveteran-Owned Firms	11,689	33,678	2,057,218	24,070,685

*Data Collected From On the Map, 2010;
U.S. Census Bureau; Quick Facts: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Non-employer Statistics, Economic Census, Survey of Business Owners, Building Permits; generated by HRCC; < https://www.census.gov/quickfacts/fact/table/portarthurcitytexas,beaumontcitytexas,US,TX,charlestoncountysouthcarolina/DIS010218>; (29 September 2020).

Appendix C: NAICS Listing

Table C1: NAICS Listing

Name	NAICS Listing
Agriculture, Forestry, Fishing, and Hunting	11
Mining	21
Construction	23
Manufacturing	31, 33
Wholesale Trade	42
Retail Trade	44, 45
Transportation and Warehousing	48, 49
Information	51
Finance and Insurance	52
Real Estate Rental and Leasing	53
Professional, Scientific, and Technical Services	54
Management of Companies and Enterprises	55
Administrative and Support and Waste Management and Remediation Services	56
Educational Services	61
Health Care and Societal Assistance	62
Arts and Entertainment and Recreation	71
Accommodation and Food Services	72
Other Services (Except Public Administration)	81
Public Administration	92

Table C2: NAICS Listings	
Name	**NAICS Listing**
Wholesale and Retail ales	42, 44, 45
Manufacturing, Construction, and Contracting	23, 31, 33
Business and Professional Services	51, 61, 62, 72, 81, 92, 71
Finance, Insurance, and Real Estate	52, 53
Agriculture, Forestry, Fishing, and Hunting	11, 21, 48, 49, 56, 71
*Professional and Management	54, 55
*Not in the original Tierney (2002) study	

Appendix D: 501 (c) Listing

Table D1: IRS 501 (c) listings	
501(c) listing	**Name**
501(c)(10)	Fraternal Societies
501(c)(12)	Benevolent Life Insurance Associations, Mutual Ditch or Irrigation Companies, Mutual or Cooperative Telephone Companies, or Like Organizations
501(c)(13)	Cemetery Companies
501(c)(14)	State Chartered Credit Unions, Mutual Reserve Funds
501(c)(15)	Mutual Insurance Companies or Associations
501(c)(19)	Veterans Organizations
501(c)(2)	Title Holding Corporations for Exempt Organization
501(c)(3)	Charitable, Religious, Scientific, Literary, and Other Organizations
501(c)(4)	Employee Benefit Associations or Funds
501(c)(5)	Labor and Agricultural Organizations
501(c)(6)	Business Leagues
501(c)(7)	Social Clubs
501(c)(8)	Fraternal Societies
501(c)(9)	Employee Benefit Associations or Funds
501(c)(90)	Charitable Trust

Appendix E: Survey Instrument

Organizational Background

This first section of the survey assesses basic organizational information.

Surveyor Name

- Surveyor A
- Surveyor B
- Surveyor C

In-Person Interview or Phone Interview

- In-Person
- Telephone

Is this a business or a nonprofit?

- Business
- Nonprofit

What is the name of this organization?

- _____

Business ID # (BID)

- _____

What is the organization's address?

- _____

City

- Beaumont
- Port Arthur

Result Completion Code

- Completed Survey
- Ineligible, no manager/owner to answer.
- The wrong address could not locate.
- Hard refusal
- Soft refusal set time for a future interview.
- Soft refusal left form
- Non-operational business – closed BEFORE the event.
- Non-operational – closed AFTER event / destroyed.
- No answer or response, but evidence/confirmation operating.
- No access (e.g., fence preventing entry)
- Ineligible, business (name) different than the one expected
- Need survey translated to a different language.

What is the operational status of this organization?

- Open
- Closed, appears damaged.
- Closed, but repairing the damage.
- Permanently Closed
- Moved to alternative location (provide address) _____
- Not sure/do not know (take notes in any information that can help us identify the status of the business
- Nonprofit status revoked.

Is this a minority-owned, woman-owned, or veteran-owned business?

- Woman-owned
- Minority-owned.
- Veteran-owned
- None

Is this a minority-led, woman-led, or veteran-led business?

- Woman-led
- Minority led.
- Veteran-led
- None

Is this organization Federally classified as such?

- Yes
- No

What is your role within this business?

- Owner
- Manager
- Owner and Manager
- Assistant Manger

What is your role within this organization?

- Board President
- Board Member
- Executive Director/Chief Operating Officer
- Associate Director
- Program Coordinator/Manager
- Employee

How many years have you been in this role?

- _____

Risk Perception

As the storm was approaching, how likely did you think it was that your organization…

	Very Likely	Somewhat Likely	Neither likely nor unlikely	Not Likely	Not at all likely	DK	NA
Would be inundated with flood waters	o	o	o	o	o	o	o
Would be severely damaged or destroyed	o	o	o	o	o	o	o
Would lose inventory or supplies	o	o	o	o	o	o	o
Would experience disruption to electrical, telephone, and other basic services	o	o	o	o	o	o	o
Would be unable to reopen	o	o	o	o	o	o	o

As a result of Hurricane Harvey…

	Very	Somewhat	Neither	Not	Not at all	DK	NA
How concerned are you about the possibility of another hazard occurrence?	o	o	o	o	o	o	o
How concerned are you about losing your inventory and supplies in the event of another hazard impact?	o	o	o	o	o	o	o
How concerned are	o	o	o	o	o	o	o

	Very	Somewhat	Neither	Not	Not at all	DK	NA
you about experiencing disruption to electrical, telephone, and other basic services?							
How prepared are you in the event another hazard occurs?	○	○	○	○	○	○	○
How well do you know how to access hazard-related resources and information?	○	○	○	○	○	○	○
Rate the possibility of experiencing severe damages to your organization again.	○	○	○	○	○	○	○

Damage and business interruption

DAMAGE AND BUSINESS INTERRUPTION - Now we would like to ask questions related to damages and business interruptions.

Did you undertake any of the following activities to prepare for potential hazards?

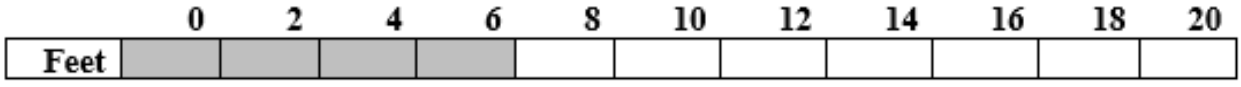
	Before Hurricane Harvey did you …				Since Hurricane Harvey have you or will you...			
	Yes	No	DK	NA	Yes	No	DK	NA
Attend disaster preparedness meetings or training (in-person/online)	o	o	o	o	o	o	o	o
Receive disaster-related information	o	o	o	o	o	o	o	o
Backup all important documents (offsite or cloud)	o	o	o	o	o	o	o	o
Make Plans for a temporary location	o	o	o	o	o	o	o	o
Maintain offsite backups	o	o	o	o	o	o	o	o
Develop an emergency response plan	o	o	o	o	o	o	o	o
**If so, do you feel the emergency response plan enabled you to recover your operations more quickly than if you had no plan?	o	o	o	o	o	o	o	o
Develop a business continuity plan	o	o	o	o	o	o	o	o
**If so, do you feel the business continuity plan enabled you to recover your operations more quickly than if you had no plan?	o	o	o	o	o	o	o	o

	Before Hurricane Harvey did you …				Since Hurricane Harvey have you or will you...			
	Yes	No	DK	NA	Yes	No	DK	NA
Develop a disaster recovery plan	o	o	o	o	o	o	o	o
**If so, do you feel the disaster recovery plan enabled you to recover your operations more quickly than if you had no plan?	o	o	o	o	o	o	o	o
Lift inventory and other supplies off the ground	o	o	o	o	o	o	o	o
Board up windows, brace shelves, etc.	o	o	o	o	o	o	o	o
Purchase increased insurance	o	o	o	o	o	o	o	o
Elevate the height of the building's foundation	o	o	o	o	o	o	o	o
Increase Landscaping as a form of mitigation practice	o	o	o	o	o	o	o	o
Dry-Proofing the buildings structure	o	o	o	o	o	o	o	o
Flood- Proofing the buildings structure	o	o	o	o	o	o	o	o

Did Hurricane Harvey flood waters touch this building?

a. Yes
b. No
c. DK
d. NA

If yes, approximately how high did the waters reach in the building:



What kind of physical damage (if any) was caused by Hurricane Harvey and how severe was the damage? (For clarification on damage levels see Appendix B with detailed damage descriptions)

	No Damage	Minor Damage	Moderate Damage	Severe Damage	Completely Damage	DK	NA
Building	o	o	o	o	o	o	o
Contents	o	o	o	o	o	o	o
Inventory	o	o	o	o	o	o	o
Machinery/equipment	o	o	o	o	o	o	o
Important (hard copy) documents	o	o	o	o	o	o	o

Now we would like to ask questions related to UTILITIES (water, electrical power, sewer, etc.) failed during Hurricane Harvey.

	As a result of Hurricane Harvey did the organization experience loss of:				If YES, how long? (no=0;dk=999)		Are Services fully repaired?		
	Yes	No	DK	NA	Hours	Days	Yes	No	N/A
Electric Power	o	o	o	o			o	o	o
** If so, did this business use a backup generator?	o	o	o	o			o	o	o
Water	o	o	o	o			o	o	o
** If so, did this business use a backup water supply?	o	o	o	o			o	o	o
Sewer	o	o	o	o			o	o	o
Natural Gas	o	o	o	o			o	o	o
Landline Phone	o	o	o	o			o	o	o
Cell Phone	o	o	o	o			o	o	o
Internet	o	o	o	o			o	o	o

Did this organization use any other backup systems besides a generator or water supply?

- Yes
- No
- DK

If [yes] please describe

e. _____

Immediately after Hurricane Harvey, operations were at what level of capacity?

- Full Capacity
- Half Capacity

- Partial Capacity
- Operations Completely Ceased

How long did it take for your organization to resume operations (in days)? (dk=999)

- _____

As a result of Hurricane Harvey has the business gross revenue

- Decreased Greatly
- Decreased Slightly
- Stayed the Same
- Increased Slightly
- Increased Greatly

Has the organization donations and/or external funding…

- Decreased Greatly
- Decreased Slightly
- Stayed the Same
- Increased Slightly
- Increased Greatly

Now we would like to ask you about any accessibility problems that this business experienced…

Now we would like to ask you about any accessibility problems that this business experienced.

				If [YES] How long? (no=0;dk=999)	
	Yes	NO	DK	Hours	Days
Did this organization experience any street or sidewalk closures?	○	○	○		
Were streets flooded, but vehicles could pass?	○	○	○		
Were streets around the organization severely flooded - vehicles could not pass through streets?	○	○	○		
Was there a stoppage or delay in the delivery of	○	○	○		

				If [YES] How long? (no=0;dk=999)	
	Yes	NO	DK	Hours	Days
supplies that interrupted organization activities?					
Did Hurricane Harvey floodwaters impact the neighborhood surrounding this organization?	o	o	o		

When did the closure occur?

- Before the event
- During the event
- After the event
- Did not close

When was the decision to close the organization made (in HOURS)? (During =0; dk=999)

- _____

What prompted the closure?

- Loss of utilities
- Flooding
- Government Mandate
- Other _____

Was closure required because the organization could not function given damages caused by Hurricane Harvey?

- Yes
- No

Who made the final determination to close the business?

- Owner
- Manager
- Local policy/requirement
- Other

Who made the final determination to close this organization?

- Executive Director/ Chief Operating Officer
- Associate Director
- Program Coordinator/Manager
- Local Policy/requirement

- Board Members
- Other _____

What was the most important information used to close your organization?

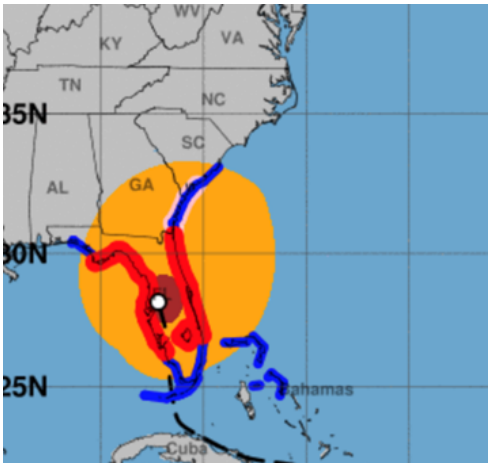
- _____

Which statement most influenced your decision to close your business?

- Seeing area organization close
- Seeing friends, relatives, neighbors, or coworkers evacuating
- Hearing an announcement of a hurricane “watch” or “warning”
- Hearing local authorities issue official recommendations
- Previous personal experience with hurricane storm conditions
- Concern about protecting your business from storm impact
- Concern about lost revenue

Did you use the below graphical information to track the event and to decide when to close?

- Yes
- No
- DK



Which of the following did you use to get your information? (Mark all that apply)

- Local network TV news
- National TV
- Weather Channel
- Accuweather
- Local Government
- Community Leaders
- Radio
- Internet Source
- Friends/Family
- Social Media
- National Weather Service (directly)

- Organizations
- Other: _____

How was the status of the organization communicated (e.g. open or not) to potential customers and the public (mark all that apply)?

- Telephone
- E-mail
- Text Message
- Social Media
- TV
- Newspaper
- Radio
- Word of Mouth
- Other: _____

Can this organization operate without a physical location?

- Not dependent on physical location at all
- Somewhat dependent on a physical location
- Extremely dependent on a physical location

Employee related information

How long did it take after the event for employees to access this work location (in days)? (dk=999 – otherwise leave blank)

- _____

Was there an alternative work location available for employees to work while the primary location was closed?

- Yes
- No
- DK

If [YES] How far away was the alternative work location from the primary location (in miles)? (dk=999)

- _____

What type of location was used?

- Another physical location owned by the business
- Third-party provided location
- Employee's home

Did Employees have to spend extra hours at work…

	YES	NO	DK
Before the event	o	o	o
During the event	o	o	o
After the event	o	o	o

How did the organization communicate the operational status of their work schedule to employees?

- Telephone
- E-mail
- Text message
- Social Media
- TV
- Newspaper
- Other:_____

Did you experience any issues with employee's ability to report to work, once you began operations post, Hurricane Harvey?

	Employees could not report to work due to		
	Yes	No	DK
Transportation Problems	o	o	o
Personal Vehicle Problems	o	o	o
Need to fix homes	o	o	o
Forced to evacuate/leave homes	o	o	o
Caregiving responsibilities (children, elderly, sick)	o	o	o
Disaster-related physical health issues	o	o	o
Disaster-related mental health issues	o	o	o
Road network problems	o	o	o
Damage to home	o	o	o
Are you aware of any employee long-term health effects arising from the event (e.g. cardiovascular disease, mobility issues)?	o	o	o

Organizational Recovery

How has Hurricane Harvey affected the profitability of your business?

- No effect
- Somewhat affected
- Moderately affected.
- Greatly affected

How has Hurricane Harvey affected the impact (mission) of your nonprofit?

- No affect
- Somewhat affected.
- Moderately affected
- Greatly affected.

	Due to Hurricane Harvey, did this business experience			What was the % increase/decrease (no-0; dk=999)	For What periods did this business see an increase in customers? (no=0; dk=999)
	Yes	No	DK	%	Time in (days)
An increase in customers	o	o	o		
A loss of customers	o	o	o		

	Due to Hurricane Harvey, did this organization experience			What was the % increase/decrease (no-0; dk=999)	For What time periods did this organization see an increase in customers? (no=0; dk=999)
	Yes	No	DK	%	Time in (days)
An increase in clients	o	o	o		
A loss of clients	o	o	o		
An increase in volunteers	o	o	o		
A loss of volunteers	o	o	o		

Please indicate your level of agreement with the following statement: "We now source from more suppliers outside our city than we did before a disaster."

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

Where do you feel your organization stands in the process of recovery today?

- Still in operation but will never recover (please explain)
- Still in survival/response mode
- Recovering
- Mostly recovered.
- Fully Recovered

Recovery Finance and Mitigation

Now we would like to ask you questions regarding your recovery finance and mitigation. Did you…

	Have flood insurance			Required to have insurance			Filed Claim				Received Money			When did you receive the money (months after event) (no=0; dk =999)	% insurance covered (no =0; dk =999)
	Yes	No	DK	Yes	No	DK	Yes	No	Pending	DK	No	Pending	DK	Months	%
Building															
Content (Business insurance/most relevant to renters)															
Business interruption															

Did you receive any of the following assistance in recovery?

	Applied			Received			When did you receive the money (months after event) (no = 0; dk =999)
	Yes	No	DK	Yes	No	DK	Months
FEMA Financial Assistance	o	o	o	o	o	o	
SBA (Small Business Administration) Loan	o	o	o	o	o	o	
Other Federal or State Funds (specify):	o	o	o	o	o	o	
Local Government Funds (Specify):	o	o	o	o	o	o	
Financial Assistance from Any Church or Other NGOs (Non-Government Organization)?	o	o	o	o	o	o	
Clean up or Repair Help From Church or Other NGOs?	o	o	o	o	o	o	
Loan From a Bridge Loan Program*	o	o	o	o	o	o	
Private/Bank Loans	o	o	o	o	o	o	

How long do you estimate this organization could function in a deficit (in months)? (no= 0; DK = leave blank)

- _____

	Decreasing Greatly	Decreasing	Unchanged	Increasing	Increasing Greatly
Severity	o	o	o	o	o
Frequency	o	o	o	o	o

How many similar events have occurred at this location that has required your business to close temporarily (e.g. the organization was inaccessible, decided to close)? (none =0; dk=999)

	Number
Hurricane Related	
Flooding-related (Before Harvey)	
Flooding-related (After Harvey)	

Organizational information

Are there resources you have gotten from your local government that has been useful?

- Distributed Supplies
- Templates for Business Continuity Plans
- Templates for Emergency Management Plans
- Templates for Recovery Plans
- Funding Resources for staff and time
- Preparedness trainings and workshops

- Expert opinion or consultation on disaster planning
- Interagency Cooperation
- Other: _____

Business Information

In which year was the business established at this location? ____(year)
What is your primary line of business?

- Construction
- Manufacturing
- Retail Trade
- Service
- Other

	Before Hurricane Harvey (no=0; dk=999)		After Hurricane Harvey (no =0; dk = 999)	
	Part Time	Full Time	Part Time	Full Time
How many employees did/does this business have?				

How many of this business's current employees worked for this business… (no=0; dk = 999)

	Before Hurricane Harvey (no=0; dk=999)	
	Part Time	Full Time
Prior to Hurricane Harvey		

Does this business own or rent the building?

- Own (including buying the building with a mortgage)
- Rent
- Other

What was the business ownership structure before Hurricane Harvey?

- Single Owner
- Partnership (multiple owners)
- Corporation
- Franchise
- Cooperative
- Other (please specify): _____

In which year was the nonprofit established at this location? ____(year)

- Does this organization own or rent the building?
- Own (including buying the building with a mortgage)
- Rent
- Other

	Before Hurricane Harvey (no=0; dk=999)		After Hurricane Harvey (no =0; dk = 999)	
	Part-Time	Full Time	Part-Time	Full Time
How many employees did/does this nonprofit have?				

How many of this organization's current employees worked for this business…
(no=0; DK = 999)

	Before Hurricane Harvey (no=0; dk=999)	
	Part-Time	Full Time
Before Hurricane Harvey		

Did your organization experience…

	YES	NO	DK
An inability to reach clients	o	o	o
Increase demand for services	o	o	o

Did your organization have to use any of the following to recover from the disaster?

- Membership fees
- Investment income
- Fee for service goods
- Foundation Grants
- Government grants
- Government contract
- Corporate donations
- Individual Grants
- Other:_____

What type of services do you provide? (Mark all that apply)

- Religion
- Health
- Public Societal Benefits

- Environment and animals
- International Foreign Affairs
- Education, arts, and culture
- Human Services
- Food Bank
- Other: _____

Organizational Social Networks

	Yes	No	DK	N/A
During the hazard, the event did the organization experience any major security issues. (ie. looting, stealing etc.)	o	o	o	o
Did your organizations' inventory have to experience any necessary price increases?	o	o	o	o
Have you worked with local emergency management to develop a recovery plan for your organization?	o	o	o	o

Now we would like to ask you questions regarding your social networks.

	Yes	No	DK
Is the organization a member of a business network? (i.e. VOAD, chambers of commerce)	o	o	o
Is the organization a member of a business network that focuses on disaster? (i.e. VOAD, chambers of commerce)	o	o	o
Did your organization share information with other organizations related to the disaster? (i.e. VOAD, chambers of commerce)	o	o	o

Now we would like to ask you questions regarding your social networks.

	Yes	No	DK
Is the organization a member of any other organizations active in disasters? (i.e. VOAD, chambers of commerce)	o	o	o
Did your organization share information with community members related to the disaster? (i.e. VOAD, chambers of commerce)	o	o	o
Did your organization share information with other organizations related to the disaster? (i.e. VOAD, chambers of commerce)	o	o	o

Participant Demographics

The next few questions ask about your personal demographic information, not the business.

1. What is your age (in years)?
   - _____
2. What is your highest level of education?
   - Some high school but did not finish.
   - Completed High School
   - Some College but did not finish.
   - Associate Degree
   - Bachelors
   - Masters or higher degree

3. What is your race? Select one or more (check all relevant)
    - White
    - Black or African American
    - American Indian or Alaska Native
    - Asian
    - Native Hawaiian or Pacific Islander
    - Hispanic
    - Other
4. What is your household income? (per year before taxes)
    - Under $20,000
    - $20,000 - $39,999
    - $40,000-$59,999
    - $60,000 -$79,999
    - $80,000-$99,999
    - Above $100,000
5. Do you have any other comments to add?
    - _____

Thank You

If you would be willing to participate in an interview regarding your organization's efforts throughout the community recovery, please provide your contact information below:

- Name:
- E-mail:
- Phone number:
- Result Completion Code
- Completed Survey
- Ineligible, no manager/owner to answer.
- The wrong address could not locate.
- Hard refusal
- Soft refusal set time for a future interview.
- Soft refusal left form
- Non-operational business – closed BEFORE the event.
- Non-operational – closed AFTER event / destroyed.
- No answer or response, but evidence/confirmation operating.
- No access (e.g., fence preventing entry)
- Ineligible, business (name) different than the one expected
- Need survey translated to a different language.

THANK YOU VERY MUCH FOR COMPLETING THE SURVEY!

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