According to a new study at the South Texas Economic Development Center, property damage affected the way businesses in Aransas County financed their rebuilding efforts, including application for government aid, which in turn affected the ability of businesses to resume operation after a temporary closure due to Hurricane Harvey. Members of the Rockport-Fulton Chamber of Commerce and women were more ready to reopen their businesses. Loss of employees posted a challenge for affected businesses to recover.

On August 25, 2017, Hurricane Harvey made first landfall near Rockport in Aransas County. As a 1-in-50-year storm in South Texas, the Category 4 tropical storm has generated a wealth of data for researchers and policymakers to better understand the aftermath of a major disaster and to design plans for future storms. Celia of 1970 was the last hurricane that hit the Coastal Bend directly.

On August 25, 2017, Hurricane Harvey made first landfall near Rockport in Aransas County. As a 1-in-50-year storm in South Texas, the Category 4 tropical storm has generated a wealth of data for researchers and policymakers to better understand the aftermath of a major disaster and to design plans for future storms. Celia of 1970 was the last hurricane that hit the Coastal Bend directly.

By applying statistical methodology to both survey and field data of local businesses, one study at Texas A&M University-Corpus Christi explores factors that affected business recovery in Aransas County through Harvey’s one-year anniversary. A comparison with the experience from Hurricane Katrina of 2005—the costliest storm in history—helps us better understand how to make our communities more resilient to similar disasters in the future.

Business return decisions are key to community recovery after a natural disaster. Following Hurricane Katrina, New Orleans’ residents were more likely to return to a neighborhood in which more businesses were already open. Meanwhile, the local clientele also played a vital role in many local businesses’ survival over time.

Immediate Impacts

What has determined business reopening over time? Above all, interruptions of lifeline infrastructure, such as power, water supply, roads and telecommunications, are detrimental to
business and community recovery. On the heels of Hurricane Katrina, the entire city of New Orleans was literally “closed” for at least one month due largely to flooding that slowed down restoration of community infrastructure and lifeline services.

Yet physical damage and lifeline disruptions inflicted mostly a short-term effect on businesses. In the case of Harvey, infrastructure was largely restored within a month among areas in South Texas, but it took much longer time for the southeastern portions of Texas that sustained primarily flood instead of wind damage.

Some businesses are inherently more susceptible to physical damage than others. Unlike many service-based businesses, retail stores are vulnerable to damage to inventory stocks. Likewise, structural damage tends to have a greater impact on the operation of hotels and motels than other businesses. Disaster-related property losses also adversely affect businesses’ financial conditions.

Some businesses, notably retailers and restaurants, rely on their suppliers, so disruptions in supply chains can also hamper their operations. On the contrary, “home-based” businesses were found to be less likely to be closed immediately following Hurricane Katrina, as they tended to be less vulnerable to property damage than their counterparts in a business district.

Business Survey
In mid-January 2018, about half a year after Harvey made landfall, the Rockport-Fulton Chamber of Commerce conducted a survey of local businesses. This survey concerned the immediate impact of the storm on individual businesses, how they had recovered, and any assistance they had received.

The composition of survey respondents’ businesses is representative of the area’s business population. Out of the total, 25% belong to the retail trade sector, and another 21% of them represent businesses in the accommodation and food services sector.

Similarly, 31% of the survey sample represents female-owned businesses, which is comparable to the local business population. By contrast, only 4% of respondents in the sample are Hispanics. According to the 2016 Census data, Hispanics make up 28% of all businesses in Aransas County.

According to the survey, the vast majority (90%) of businesses in Aransas County sustained property damage, either to building structure or contents that include equipment, furnishings and inventory stocks. Most of respondents who reopened their businesses within 15 days after Harvey experienced minimal or no property damage.

Other than damage to business property, one survey question concerns the share of staff that was negatively impacted by Harvey. While 42% of respondents indicated a workforce loss of more than 90%, 27% of them indicated no more than 10% due in part to the fact that many of these businesses were non-employer firms.

Property Damage
Given the importance of disaster-related losses to business survival, the researcher at Texas A&M University-Corpus Christi explored the extent of property damage by comparing the property values of businesses in the Chamber survey sample. The change in the property value of a business was measured by the difference between its total market values in 2017 and 2018, as assessed by the Aransas County Appraisal District.

Harvey caused a reduction of 15% in Aransas County’s business property values. In the survey sample, the business with the most structural damage (>95% loss) also sustained the largest amount of property damage over $12 million. The average amount of reduction in appraised values between 2017 and 2018 was $213,565, which included $189,308 in “real” property and $24,257 in “personal” property.

Clearly, the delay in business reopening was directly related to the extent of property damage. The vast majority of businesses that resumed operation within one month after Harvey experienced “minor” damage (<25%) to their properties.

One outlier was a retail business, which ceased operation despite minimal property damage. On the contrary, most businesses that were open within half a year despite “major” property damage (>50%) belonged to the construction sector. The two businesses that sustained more than 75% damage (“complete loss”) were closed permanently. By the end of one year following Harvey, over 85% of the businesses had returned.

The accompanying map on the last page indicates the geographic locations of businesses in the survey sample along with their property damage levels. The majority of those businesses are clustered within the more populated areas of Rockport and Fulton, and 26% of which are within the downtown area of Rock-
port called the Heritage and Arts District. It is evident that those closer to Harvey’s path sustained relatively more damage.

**Federal Aid**

In addition to insurance payments, the capability for individual businesses and the broad community to recover from a natural disaster can be enhanced by financial resources from such sources as the Federal Emergency Management Agency (FEMA), Small Business Administration (SBA), and philanthropic organizations.

In the Rockport-Fulton business survey, 66% of respondents indicated that they had business insurance as a source to rebuild their business. The next popular (43%) source to fund property damage was windstorm insurance. Another 23% of them indicated retained earnings or business savings.

While 49% of respondents registered with FEMA for assistance, only 7% received FEMA’s disaster aid and 16% received SBA’s Disaster Assistance Loans. Another 10% of business owners received private donations, such as the Rebuild Texas Fund, Red Cross, and Coastal Bend United.

According to the survey, 56% of business owners applied for FEMA’s Individual Assistance program, but only 20% of them in fact received aid in the form of FEMA grants or SBA loans. The most popular reason for not receiving federal assistance was that their applications were denied. Likewise, although 71% of business owners carried insurance coverage, 47% of them rebuilt their businesses with payments from insurance claims for windstorm, flood, or business damage.

Government aid affects a business’ ability to recover from a disaster. Yet evidence is mixed among research studies that evaluate the efficacy of government disaster relief programs in promoting community recovery. The A&M-Corpus Christi study resolves this dilemma through the finding that those who registered with FEMA and subsequently received federal assistance were worse off in the first place.

Property damage was the root cause, not FEMA. When statistical analysis does not control for the effects of property damage, the finding of a negative impact of federal aid on business recovery is potentially flawed.

**Business Attributes**

Controlling for property damage, the construction industry in Aransas County was found to recover from Harvey more rapidly than other industries. It is well known that rebuilding activities after a disaster benefit construction firms the most. On the contrary, hotels and motels were less likely to be open after Harvey because their business was more vulnerable to structural damage.

By the end of 2018, about half of hotel and motel rooms in Rockport were still under repair. Likewise, damage to contents, particularly inventory stocks, affected retail stores’ ability to resume operation.

The prospect of tourism in the wake of a major disaster might also have influenced the decision to resume operation in those industries relying on out-of-town visitors. Displaced residents, who adversely affect the local market base, might have also affected the sustainability of retail businesses. Harvey’s impact on a business’ staff also affected its ability to resume operation.

**Demographics**

Regarding business-owner attributes, there was a strong gender effect among businesses within six months after Harvey. Women
tend to be back in business after a disaster more rapidly than their male counterparts. This finding is also in line with an earlier observation that federal disaster assistance helped raise the post-disaster resilience of female-owned businesses while lowering the resilience of male-owned businesses.

Members of the local chamber of commerce also tended to resume operation sooner than non-members. This finding highlights the role of social bonds or networks in business recovery.

**Resilience**

The business reopening rate of Aransas County above 80% one year after Harvey was remarkably high, especially relative to the aftermaths of Hurricane Katrina. In New Orleans, 39% of businesses returned 10 months after Katrina, and the rate increased only to 66% another year later.

Other than being much smaller, the seemingly more “resilient” Rockport-Fulton business community relative to New Orleans could be explained by differences in mitigation activities and other community services.

Among alternative measures of disaster resilience, the Baseline Resilience Indicators for Communities (BRIC) capture each county’s vulnerability to natural disasters and its capacity to recover. Aransas County, in particular, receives a relatively high score for the “institutional” category, although its scores for other aspects, such as economic, social, and infrastructure are lower than the U.S. average as well as New Orleans.

The most noteworthy contribution of this new study is the finding of demographic effects. The particular effects of local chamber membership and female business-owners on the operating status of businesses highlight the role of social networks in community resilience to natural disasters.

Still keep in mind that the findings within one year following Harvey are limited to the early stage of business recovery. A large number of small businesses in New Orleans were closed a decade later even though they survived immediately following Katrina.

So a better understanding of business success in the long run would benefit from observing the changing performance of different businesses over time.

**Reference**


---

**Business Sample in Aransas County**