

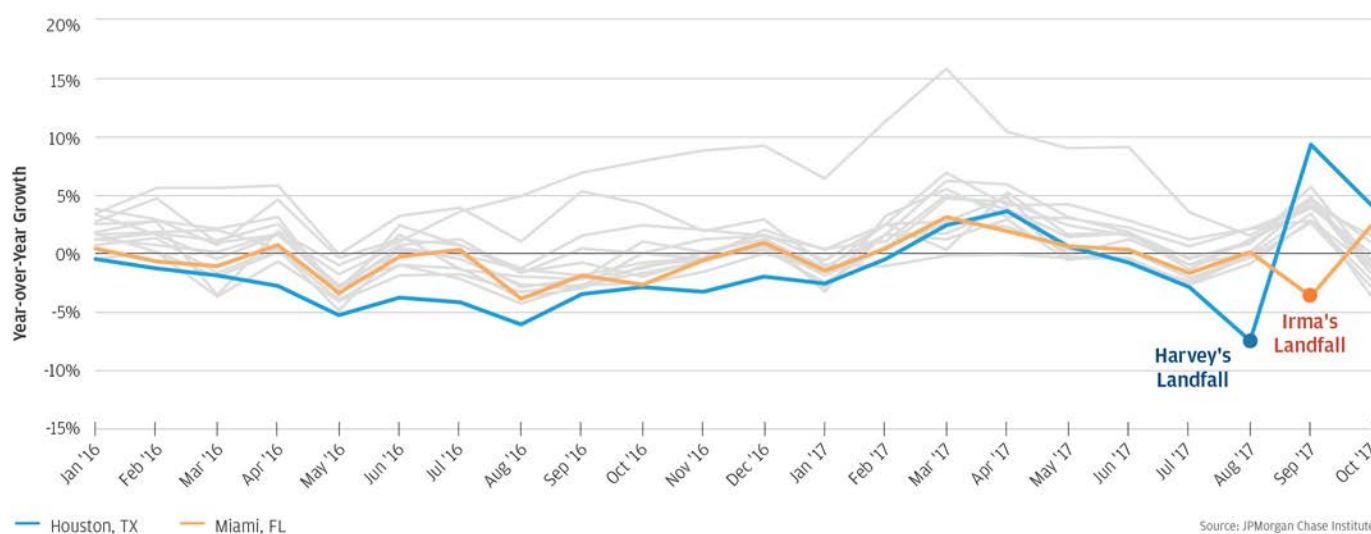
Local Consumer Commerce in the Wake of a Hurricane

Diana Farrell, Marvin Ward Jr.

[A number of natural disasters](#) made national headlines in 2017, including but not limited to, Hurricanes [Harvey](#) and [Irma](#). Harvey made landfall near Corpus Christi, Texas on August 25th, followed by Irma's landfall at Cudjoe Key, Florida on September 10th. Houston and Miami, two metro areas we track, were in their path. The cost of these storms was significant, including loss of life, damage to public health and safety infrastructure, and the destruction of durable capital assets. Estimates of the damage costs from Harvey and Irma were \$125 and \$50 billion, respectively.¹ The storms also damaged short-term economic activity through the slowing of local commerce. To better understand the impact and scope of the local commerce slowdowns in these areas, the JPMorgan Chase Institute leveraged the monthly [Local Consumer Commerce Index](#), our measure of de-identified year-over-year consumer spending growth across 14 metro areas.

Local consumer commerce in the Houston metro area declined by 7.5 percent between August 2016 and August 2017 (the Harvey "landfall month"). Recovery began in September 2017 (the Harvey "recovery month"), when local commerce in Houston registered a year-over-year growth rate of 9.3 percent. The increase in spending by consumers at Houston businesses in the recovery month more than offset the decline in spending from the landfall month. The impact of Hurricane Irma [differed from that of Hurricane Harvey](#). In September 2017 (the Irma "landfall month"), local commerce in Miami declined by 3.7 percent. By contrast, October 2017 (the Irma "recovery month") saw year-over-year growth of 2.4 percent.

Figure 1: Following their respective landfalls, Hurricanes Harvey and Irma caused steep declines in Local Commerce



The magnitude of the net spending decline in the wake of a hurricane can be seen when comparing Houston and Miami to the 12 other metro areas we track. In the period between January 2014 and July 2017 (the month before Harvey's landfall), growth in Houston was fairly correlated with growth in other metro areas. The same could be said of Miami's relationship to the 12 other LCC metros over the period between January 2014 and August 2017. As can be seen in Figure 1, the arrival of the hurricanes disrupted this relationship significantly. In the landfall months for both Harvey and Irma, most metros saw higher local commerce growth than the preceding month, while Houston and Miami saw substantial declines.

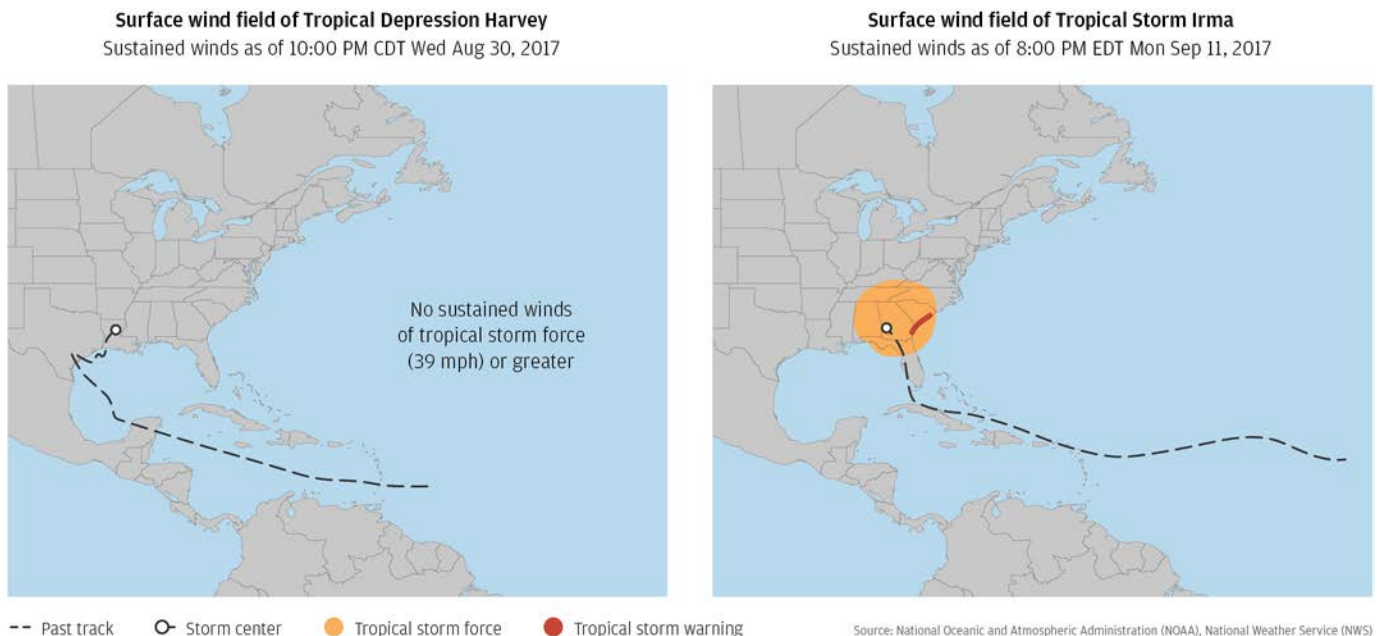
On average, in the period between January 2014 and July 2017, local commerce growth in Houston lagged the average growth from the 12 other LCC metros by approximately 1.1 percentage points. Over the January 2014 to August 2017 period, Miami led other metros by approximately 0.4 percentage points. Figure 2 shows the magnitude of the drop in landfall months, relative to other metros. Houston lagged the remaining LCC metros by 8.1 percentage points, and Miami lagged by 8.2 percentage points. In the recovery months that followed initial landfall, Houston and Miami led the remaining cities by roughly 4.8 and 3.2 percentage points, respectively.

Figure 2: The percentage point differences between Miami/Houston and the 12 other LCC metro areas



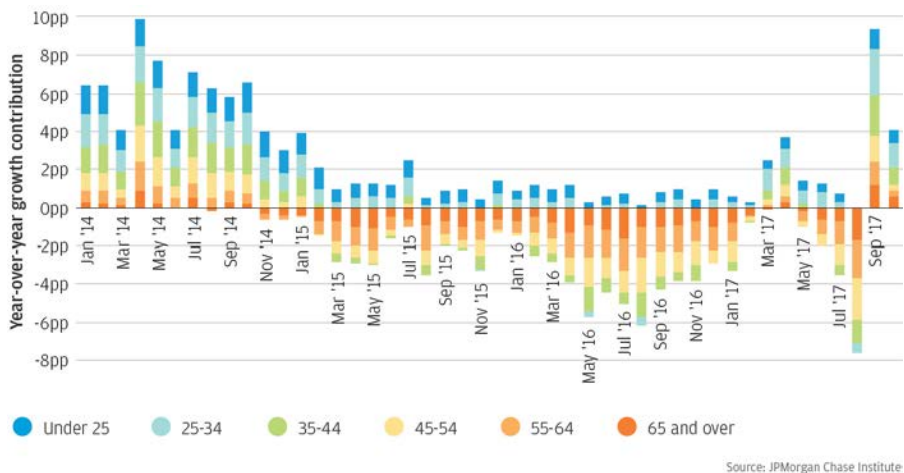
The initial declines in local commerce, relative to other metros, were similar in Houston and Miami. However, the storms differed in important ways, which may have led to some of the differences in distributional impact across metros. As can be seen in Figure 3, Harvey had a more direct and sustained impact on the Houston metro region because after the initial landfall near Corpus Christi, Harvey continued to pull water from the Gulf of Mexico as it traveled east along the coast. By contrast, Hurricane Irma travelled largely up the western portion of Florida, sparing (to some extent) Miami from the full brunt of the storm. From a measurement standpoint, it is important to remember that the LCCI is reported monthly, and these storms made their initial landfalls at different times in the month. Harvey’s initial landfall was August 25th, which means the spending drop dominates most of the observed change in spending. Irma had a different profile, making its initial landfall in Florida on September 10. Consequently, much of Irma’s recovery will be included in the net monthly figure for September.

Figure 3: Approximate Storm Paths of Hurricanes Harvey and Irma



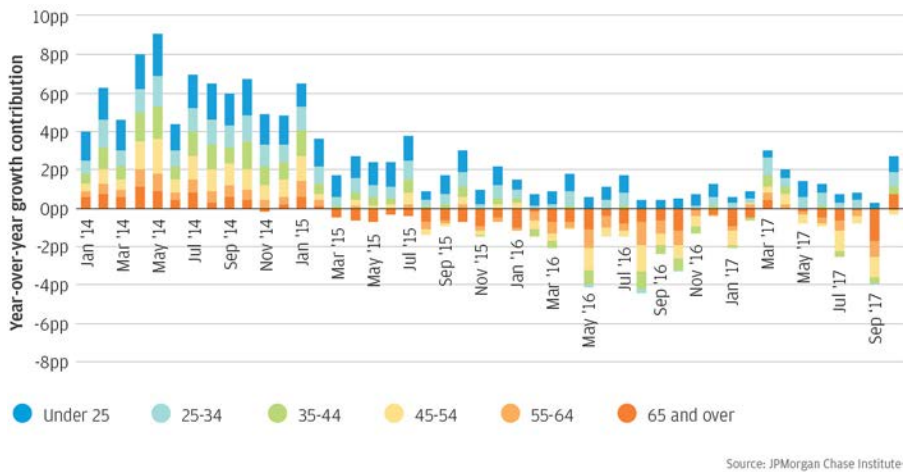
While the overall effect of the storms were similar, as measured relative to growth in other LCC metros, the distribution of impact differed. We explore some of these differences below, using data from the [Local Consumer Commerce summary file](#) we make available on the JPMorgan Chase Institute website. The summary file also includes growth splits by income and location of the consumer, as well as business size. Figures 4 and 5, along with Table 1, depict growth by age of the consumer in Houston and Miami.

Figure 4: Houston Consumers of Nearly All Ages Reduced Spending in August



- In Houston, none of the consumer groups made positive contributions to growth in August 2017; consumers between 45 and 54 subtracted the most from overall growth at 2.2 percentage points
- Consumers of all ages contributed to growth in September 2017, with consumers between 25 and 34 contributing the most at 2.4 percentage points

Figure 5: Unlike Houston, Some Consumers Continued to See Growth in Miami in the Landfall Month



- In Miami, while most consumers subtracted from growth in September 2017, consumers under 25 added 0.3 percentage points to growth
- In October 2017, only consumers between 45 and 64 decreased spending relative to the prior year, subtracting a combined 0.3 percentage points from growth.

Table 1: Spending by the youngest consumers grew the fastest in the recovery months

Houston (September)

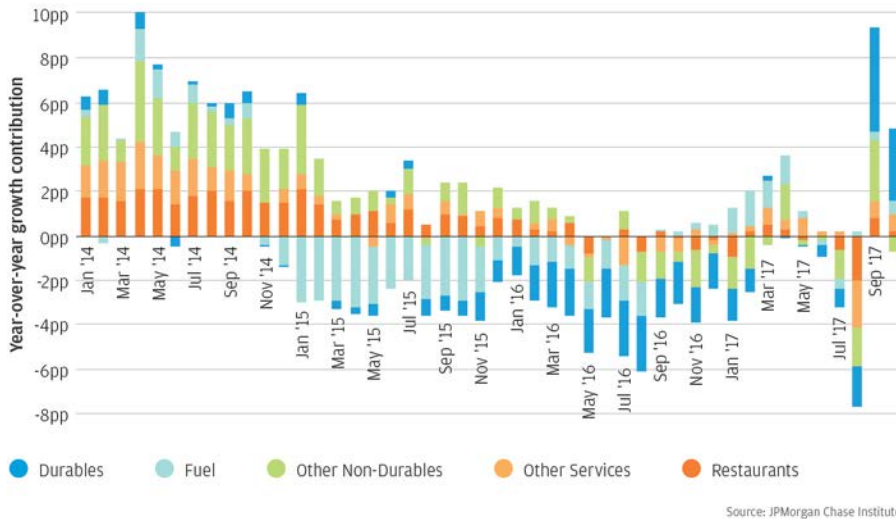
Age	Spending growth
Under 25	26.3%
25-34	14.4%
35-44	9.5%
65 and over	6.9%
45-54	6.7%
55-64	6.4%

Miami (October)

Age	Spending growth
Under 25	12.2%
25-34	5.5%
65 and over	2.9%
35-44	2.5%
55-64	-0.7%
45-54	-1.1%

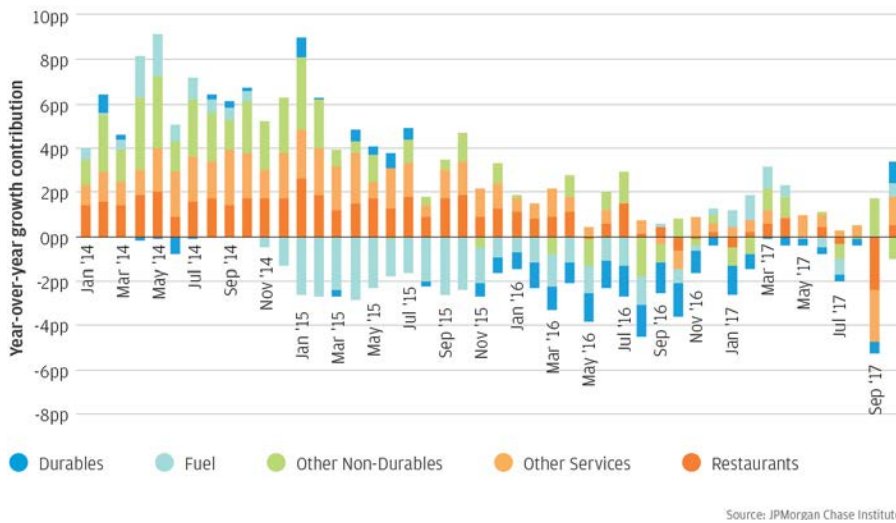
The differences between both cities were perhaps more striking when observing which types of merchants were most impacted. These differences could be driven by differences in the paths and intensity of the storms. They may also be partially explained by the timing of the storms, insofar as Miami contained more of the spending recovery in the same month as landfall.

Figure 6: Houston Consumers Purchased More Fuel in August 2017 than August 2016



- In Houston, spending on fuel made a positive contribution to growth in August 2017, adding 0.2 percentage points to overall growth; we believe this is a [consequence of anticipatory purchases](#)
- Spending on durables, nondurables, other services, and restaurants all declined sharply in August 2017; spending on other services was the largest drag on growth, subtracting 2.1 percentage points
- Consumers increased spending on all product types in September 2017, with durable purchases contributing the most to overall growth at 4.7 percentage points

Figure 7: Spending on Nondurable Goods Increased in September 2017 in the Miami Metro region



- Relative to the prior year, consumers in Miami increased spending on nondurable goods in September 2017 (adding 1.7 percentage points to overall growth) and decreased spending on the same product type in October 2017 (subtracting 1 percentage point from overall growth)
- Spending at restaurants declined the most out of all product types in September 2017, subtracting 2.4 percentage points from overall growth

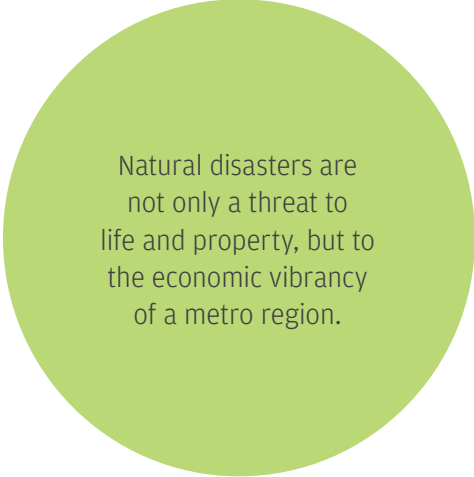
Table 2: Durable purchases grew far faster in Houston in the recovery month

Houston (September)

Product type	Spending growth
Durables	29.4%
Other Non-Durables	6.7%
Fuel	4.9%
Other Services	4.5%
Restaurants	4.5%

Miami (October)

Product type	Spending growth
Fuel	8.3%
Other Services	7.6%
Durables	7.1%
Restaurants	2.9%
Other Non-Durables	-2.3%



Natural disasters are not only a threat to life and property, but to the economic vibrancy of a metro region.

Natural disasters are not only a threat to life and property, but to the economic vibrancy of a metro region. Policy makers are often faced with the difficult task of determining where and when to allocate relief resources with limited data. By furnishing insights based upon the administrative data collected by Chase on a daily basis, the JPMorgan Chase Institute hopes to provide a helpful resource for public officials, nonprofit officers, and business owners seeking to support recovery from disaster.

Acknowledgements

We thank our research analyst, Bryan Kim, for his hard work and contributions to this research.

This effort would not have been possible without the critical support of the JPMorgan Chase Intelligent Solutions team of data experts, including Gaby Marano, Stella Ng, Michael Harasimowicz, and Bill Bowsbey, and JPMorgan Chase Institute team members including Caitlin Legacki, Courtney Hacker, Gena Stern, Sruthi Rao, Alyssa Flaschner, Jolie Spiegelman, Natalie Holmes and Kelly Benoit.

We would like to acknowledge Jamie Dimon, CEO of JPMorgan Chase & Co., for his vision and leadership in establishing the Institute and enabling the ongoing research agenda. Along with support from across the firm—notably from Peter Scher, Len Laufer, Max Neukirchen, Patrik Ringstroem, Joyce Chang, and Judy Miller—the Institute has had the resources and support to pioneer a new approach to contribute to global economic analysis and insight.

Suggested Citation

Farrell, Diana, and Marvin Ward Jr. “Local Consumer Commerce in the Wake of a Hurricane.” JPMorgan Chase Institute, 2018.

Endnotes

1 Damage Estimates from [NOAA](#).

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