**Motivation and Summary**

Our group was first interested in looking at the effects of climate change, but then through discussion we decided to look at socio-economic effects on communities as a result of natural disasters. We began by looking at a variety of disaster types, including floods, fires, hurricanes, tornadoes, and wildfire. It became clear right away that we needed to narrow the scope to one disaster type, so we chose hurricanes. We then chose 5 hurricanes which represented events over a 25 year period and varying parts of the country. After all of our initial analysis our group plan was to dive deeper into 2 specific hurricanes to tell the story of how these cities were affected and recovered from these hurricanes. We ended up choosing hurricane Sandy in 2012 and hurricane Harvey in 2017.

The socio-economic indicators we chose to look at were demographics, housing, employment, and crime. Demographics include population numbers, household income, divorce rate, poverty rate, and mobility rate. We also chose to look at the amount of aid that FEMA gave to each community to see if that also had any effect on the community.

For hurricane Sandy it was difficult to choose one community, because it effected almost the entire eastern coast. We ended up choosing Atlantic County, as most other studies we located agreed that the area sustained the most damage. For hurricane Harvey, instead of just looking at the city of Houston, we decided to look at Harris county so that we would be looking at the county level for both storms.

We expected to find that each indicator would confirm our assumption that the natural disaster would disrupt the community for at least one year after the storm, showing incremental improvement in the following years.

**Data**

Demographics, housing and employment data were all obtained from the Census website utilizing the API.

FEMA data was obtained from the FEMA website.

Crime data were obtained from the state police websites for Texas and New Jersey.

Some problems that arose were that some datasets were incomplete, and some were an inconsistent format year-over-year. The inconsistent formatting problem was solved by spending a lot of time cleaning data, and the missing data could not be overcome.

**Data Analysis and Discussion**

Each member of the team took a different indicator and did independent data analysis. We each used Jupyter notebook to create charts and we each discovered that our assumption about the long term effects of the disaster were wrong. None of the indicators we looked at indicated that the storm had any damaging effect on the community as a whole.

A conclusion that we came to was that while damage from a hurricane is extensive, communities have the capacity and resiliency to deal with it and carry on. We also concluded that the billions of dollars in aid given by FEMA had significant impact on the speed of recovery.

**Additional questions**

After reaching this conclusion, we had a few other questions that could be interesting to follow up on.

1. If instead of coming once every 20 years a storm came every year, would it negatively impact the community’s resiliency? Can we find data on Caribbean islands where this is the case?
2. Exactly how much of an effect does FEMA aid have on rebuilding communities? If we were able to find community data for storms before 1979, would we come to the same conclusion?
3. We looked at community impact, but what are the other impacts from the storm? Health and mortality as a result of stress, educational attainment, generational wealth, etc. (if the data could be found)