**RISKY MARKET BUSINESS**

**COMPARING HOUSING VALUE AND TENURE OF AT-RISK AREAS IN LOUISIANA**

**INTRODUCTION**

Flooding is a major source of housing damage in the US every year, with large natural disasters such as hurricanes causing most of the worst damage and incurring the largest costs. Today, the threat of climate change promises higher occurrences of these dangers as well as rising sea levels, both of which would majorly contribute to flooding and home destruction. Situated on a low-lying (and sinking) river delta, the New Orleans region of Louisiana is particularly susceptible to hurricanes and flooding, both from the ocean and from the Mississippi river. The flooding impacts of Hurricane Katrina in 2005 and the Louisiana Floods in August 2016 proved Louisiana to already be at a high risk for flooding damage. The 2016 flooding proved to be the fourth most significant US flood event ever in terms of flood insurance payouts from the National Flood Insurance Program (iii.org). This project attempts to determine whether events such as Hurricane Katrina, the 2016 floods, and the increasing publicity of climate change warnings have caused any changes in people’s behaviors regarding housing in areas that are considered at-risk of flooding.

**METHODS AND DATA**

This project considers changes in median housing values (HV) and housing tenure, specifically, the percent of residents that are renting their homes, between 2000 and 2015. At-risk areas are considered to be census tracts that are either in contact with a major river (the Red River or Mississippi River) or have an average elevation of under 10 feet. These two sets of census tracts were combined to create a layer of at-risk census tracts. 2000 and 2015 measures of median housing value and the percent of renters (PR) by census tract were then separated into at-risk or not at-risk areas for comparison. The change in mean values of house value and percent of renters between 2000 and 2015 was compared between at-risk and not at-risk areas.

**RESULTS AND LIMITATIONS**

House values were higher in at-risk areas than in not at-risk areas, and the price increase was higher between 2000 and 2015. More people rent their homes in at-risk areas than not at-risk areas, and in both areas, the percent of renters increased between 2000 and 2015. However, the percentage increase of renters in the not at-risk area was 3.25% higher than the percentage increase in the at-risk area. When considering these results, it is important to note that most of the urban areas in Louisiana are located in the at-risk areas, which may explain a large part of why home values are higher and more people rent in these areas. This study was also very limited in its data usage. There is not tenure and home value information available for all of the census tracts in Louisiana in 2000, so the studied areas omit some census tracts in both at-risk and not at-risk areas. It would also have been optimal to use spatial flooding data from hurricane Katrina or the August 2016 Louisiana floods to map at-risk areas, but these data were not readily available and so elevation was used as a proxy for flood risk.

**DIFFERENCE**

<table>
<thead>
<tr>
<th>Year</th>
<th>At-Risk HV</th>
<th>Not At-Risk HV</th>
<th>At-Risk PR</th>
<th>Not At-Risk PR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$95,927.54</td>
<td>$77,504.33</td>
<td>35.54%</td>
<td>30.41%</td>
</tr>
<tr>
<td>2015</td>
<td>$166,236.02</td>
<td>$121,351.03</td>
<td>36.94%</td>
<td>34.96%</td>
</tr>
<tr>
<td>Difference</td>
<td>$70,308.48</td>
<td>$43,846.70</td>
<td>1.30%</td>
<td>4.55%</td>
</tr>
</tbody>
</table>

**CONCLUSION**

The risk of flooding has implications for home and flood insurers and homeowners and can and should impact future residents’ decisions regarding tenure and investment in homes in at-risk areas. The results of this analysis suggest that prospective and current homeowners in at-risk areas should take greater caution in regards to the potential that homes in at-risk areas have for serious flooding damages. However, this comparison is ultimately one that would be best addressed with a regression. This analysis did not run a regression and so omitted many factors in my comparisons that would be relevant to the comparison between at-risk and not at-risk areas. Future studies in the same vein would benefit from obtaining all of the relevant data, using a regression and controlling for external factors.

---

**References:** [http://www.iii.org/fact/statistic/flood-insurance](http://www.iii.org/fact/statistic/flood-insurance)

**Data Sources:** US Census 2000, 2015 American Community Survey, 2016 Louisiana Floods 2016

**Projection:** NAD 1983 South Louisiana State Plane

**Cartography by Emma Conroy**

**Intro to GIS | GIS101 Spring 2017 | May 9th, 2017**

**Images:**

- **At-Risk Census Tracts**
- **Risk Factors**
- **Housing Characteristics Over Time (2000 - 2015)**