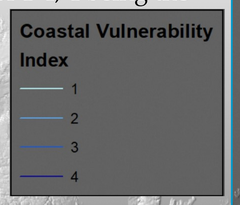
Risky Sitings: Measuring the Siting Patterns of Low-Income Housing Tax Credit Allocations Around Major Storms

Introduction: The increasing frequency of flooding and impending sea level rise inspired this research to explore if there is a spatial change in how Low Income Housing Tax Credits (LIHTC) are allocated before, during the year of, and the year after major storms. Low income people carry the largest financial burden after storms and much of that cost can be attributed to where they live. LIHTC funds millions of low income housing projects a year and has power to influence and prioritize where projects are located, and therefore influence the stability of the families they house. This research aims to see how states allocated their funds in the past, in the contest of an uncertain future.

Projected Coastal Vulnerability : The basemap displays the Coastal Vulnerability Index created by the Department of the Interior, on a scale of 1-4, 4 being the most vulnerable. There are clearly few coastal areas safe from sea level rise. This provides important context for these data from previous storms, and the future allocation of LIHTC.



Data and Methodology:

LIHTC data was used to calculate the mean centers, standard deviational ellipses, and local clustering. The variable is allocated credits, as opposed to built projects, because allocation is a better representation of a state's decisions in any given year, where development has a significant time-lag. Specific states were chosen based on available data and proximity to significant storms.

Each map is symbolized by FEMA disaster assistance data, identified by counties that requested Public Assistance, Individual Assistance, or both. If a county requested a significant amount of any one source, it was declared a disaster zone. Overall, the spatial statistics tools were used to see where states allocated and approved projects over time within the context of FEMA disaster zones.

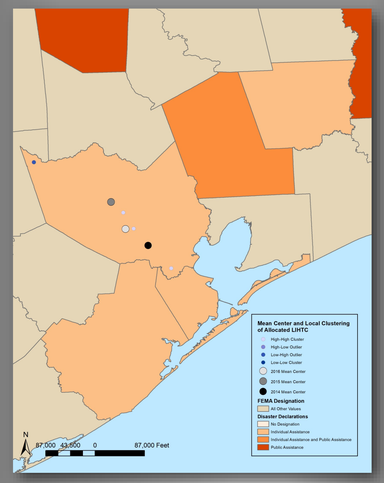
Results:

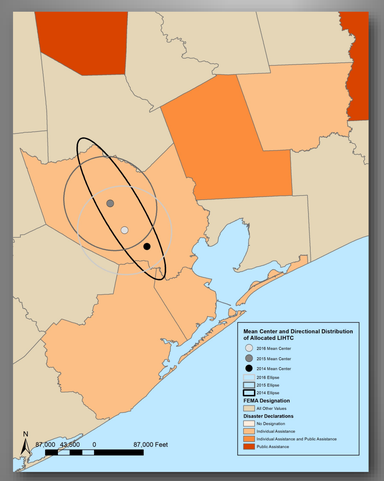
The distribution of allocated credits does not move significantly from before and after a certain storm across the three states. The ellipses tend to move towards the coastline, but do not shift significantly from the previous year. In Texas, the distribution of credits becomes more evenly distributed in the year of the storm and the year after. New York and Florida follow similar trends of greater distribution towards the dangerous coastline. There is clustering along the coast of all three states in the year following the storm, showing that significant allocations were still distributed to dangerous areas.

Limitations and Policy Implications:

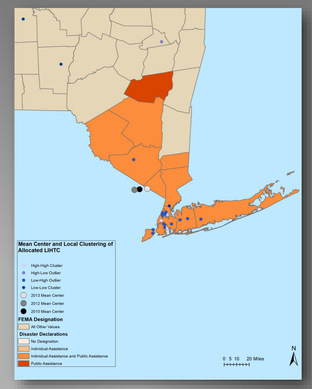
There are a multitude of political, economic, and social factors that determine the allocation of tax credits. This research did not take these factors into account, as it was focused solely on geographic distribution. Still, these maps show a pattern in the allocation of LIHTCs that lacks geographic change over time. It is necessary that this pattern change. Allocating credits in high risk or extremely vulnerable zones will be very expensive for the state and federal government and dangerous for constituents.. The more people in these areas, the more FEMA assistance will be requested—let alone the cost of displacement and other emergency services. It is in the State's best interest to think carefully about the geographic distribution of credits moving forward because it is their job to protect their constituents' safety and wellbeing.

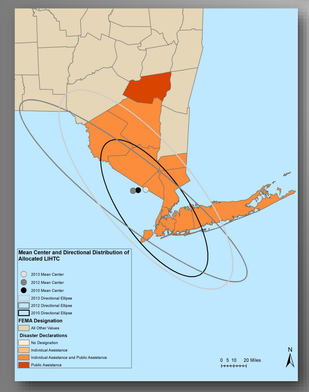
LIHTC Allocation before, during, and after 2015 Extreme Storm in Texas



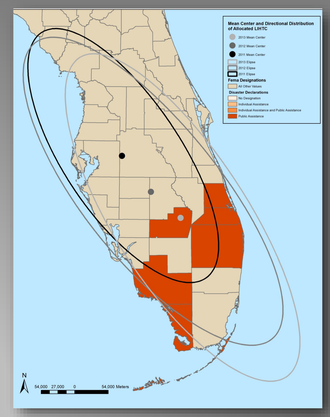


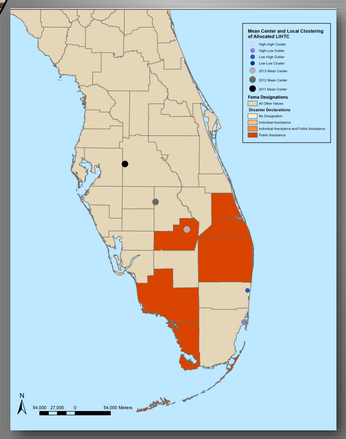
LIHTC Allocation before, during, and after Hurricane Sandy in New York





LIHTC Allocation before, during, and after Hurricane Issac in Florida





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Cartographer: Valerie Weiner 12/16/2018 UEP 232 Intro to GIS, Sources: FEMA Disaster Data, HUD LIHTC Database, DOI CVI Database
Coordinate System: Local State Plane, Projection: Transverse Mercator, Datum: North American 1983/Photos from FEMA Disaster Photo Database