Federal Emergency Management Agency's Hurricane Recovery Aid Allocation

Kendyl Smith

Indiana University O'Neill School of Public and Environmental Affairs

Abstract

Following Hurricane Katrina, there was a public perception of inequality in Federal Emergency Management Agency aid. There is evidence to show that historically FEMA has been inclined to provide aid to certain demographics over others. This study determines if white communities receive greater financial recovery resources following a Hurricane event. Using data from the distribution of FEMA public assistance-funded projects and demographics from the US Census this research conducts an analysis of the percentage of non-white residents within a county to determine if there is a relationship with the amount of FEMA aid a county receives. This study will be focused on hurricane events occurring in the years 2000-2020, which is unique from most prior research which focuses on a single hurricane's disaster aid. Controlling for population size in a given county will determine if race is a potential factor in FEMA aid allocation. The results showed that generally FEMA does not favor counties based on a certain racial composition. At the county and state level as well as over time FEMA mostly distributes aid for public recovery projects based on the level of damage to a particular area. Although, there may be some bias in counties with mid-range damage levels.

Acknowledgements

Diane Henshel, Patrick Carlin, Giaden Halfman, Allison Schnable, Matthew Baggetta, Mallory Dreyer

Introduction

In 2005 Hurricane Katrina first hit the gulf coast, causing 186.3 billion dollars in damage and taking 1,833 lives (NOAA, 2022). The City of New Orleans and many communities were devastated by the impact and awaited emergency response support from the federal government. The government was unable to serve all victims at the same time or to accommodate everyone in the same way in the aftermath. This forced officials within the Federal Emergency Management Agency, or FEMA, to make decisions that consequently prioritized some displaced individuals over others. Eighteen days after Katrina first made its way into the south Michical Brown, FEMA director, resigned due to outrage over his response to the disaster (Rushton, 2015). In February of 2008, FEMA was at the center of controversy as a journalist, Becky Gillete found high levels of formaldehyde within trailers provided by FEMA for temporary housing (Rushton, 2015). These failures and many others created distrust for FEMA and inspired many activists to speak out against the agency's actions during Hurricane Katrina and recovery.

What would FEMA become?

Following the aftermath of Hurricane Katrina, and discoveries made by Gillete there was a wave of public backlash at the way FEMA had conducted disaster recovery. Academics and the media called attention to the failure of FEMA to aid victims and especially people of color. In 2006, CBS reported that following a seven-month investigation into the actions of FEMA during Hurricane Katrina many options for FEMA reform were being discussed, the most severe of which is the replacement with the National Preparedness and Response Authority (Jordan, 2006). Senators who were calling for the abolishment of the FEMA agency believed that rebuilding a new disaster relief agency from scratch was the best way to fix the vast incompetencies

demonstrated in Hurricane Katrina. This was not unreasonable considering FEMA had just recently become an agency under the Department of Homeland Security when it was created by President George W. Bush three years prior to Katrina (FEMA, 2021). However, critics of this plan argued that the creation of a new agency would only serve to shuffle government resources around and not address the root issues. As an old agency under a new department FEMA needed to reassess its operations and build back its reputation by making procedural and managerial changes that would regain the public's trust.

FEMA policy has changed over time.

The decision was made to reform FEMA policies rather than create a new agency, and that reform process is still continuing today. Until 2021 FEMA had a policy of requiring applicants to provide formal proof of homeownership to prevent fraud. However, in practice, this policy cut off many African American families from receiving aid whose homes had been passed down for generations after the abolition of slavery. According to the Washington Post, greater than one-third of southern Black-owned land is informally passed down (Dreier 2021). The Washington Post conducted an analysis of this issue using FEMA rejections and found that this type of denial is twice as likely in black communities than in white communities (Tran, 2021). Policies like this are easy to overlook as barriers to minorities because they often seem logical to policy makers who do not have the perspective of minority groups. However, overlooking the disproportionate limitations this places on certain communities can result in long-term compounding effects, especially in areas that have recurring hurricane and flooding events. As recurring property flooding is increasing by an additional 5,000 homes annually, it is more important for federal agencies to not only be aware of the discriminatory policy but proactively

be working to implement better practices that include all groups of people in need after a natural disaster (PEW Chartiable Trusts, 2016).

Despite policy changes there is still believed to be aid allocation issues.

Although positive changes have been made, policies whether intentional or not are still embedded in FEMA recovery protocol that result in differential aid allocation to different demographics. However, there is not always agreement on how to change these policies to be inclusive while still providing proof of need. Americans are often skeptical that without formal documentation the government will be taken advantage of. The ingrained value that "stealing" from the government is wrong is especially heightened when people believe that a low-income person or minority is the one doing the "stealing". To justify changing policy to benefit those who it has historically secluded there must first be evidence that current procedures are creating a significant burden for one group which is hindering equal access to the resource. In this case, the point of this research is to determine if racial disparities in aid allocation have existed in the past, if they have made a change over time, and to what extent if any they still exist today.

Importance of FEMA Aid on Disaster Recovery

Prior to analysis on the distribution of aid, it is important to first justify that FEMA aid has an impact on recipients. After a natural disaster, there are an assortment of recovery efforts from the government at all levels, nonprofits, and local community contributions that all affect recovery after a hurricane. These factors together could render FEMA aid useless compared to the magnitude of other recovery techniques. Establishing that FEMA aid individually is beneficial to a community creates a need for equitable allocation. When communities lack the internal necessary resources to recover and provide temporary accommodation for people forced

to displace that is when it is most important for FEMA to step in.

Several studies have sought to map the impact of receiving FEMA aid on disaster recovery. A study titled "Does post-disaster aid promote community resilience? Evidence from federal disaster programs" analyzed SBA loans, loans granted to small businesses by the Small Business Administration which works in conjunction with FEMA for disaster aid. They found that for every dollar given in SBA loans $10 of flood damage was mitigated (Davlasheridze & Miao 2021). The study also found that federal loans and grants will help mitigate future property damage losses in the following years (Davlasheridze & Miao 2021). This finding suggests historical policies placing limitations on minorities can have a greater impact over time. Communities that have been able to mitigate damages have been building climate resilience over time, while those who can't receive aid have been experiencing worsening effects. In coastal communities that are annually flooded, it can be difficult to recover without outside resources before the next hurricane season. At the end of the study, the authors call for future research that accounts for the differences in aid benefits when given to socially vulnerable communities compared to those who are more advantaged. This idea of different risk mitigation benefits across different demographics is one of the aims of this research.

Another study conducted by the same researchers looked at hurricanes from 1989-2009.The findings also support the idea that FEMA post-disaster aid does help to reduce damages to property (Davlasheridze et al. 2017). The researchers looked at ex-post facto mitigation, disaster recovery that takes place after the damage is done, and proactive mitigation, damage prevention measures taken prior to damage incurred. The study found that both ex-post facto mitigation and proactive mitigation were effective in damage prevention, however, proactive mitigation has almost double the return rate (Davlasheridze et al. 2017). This further

solidifies the benefits of long-term FEMA aid.

Establishing that FEMA aid is effective in helping communities, individuals, and businesses reduce the damages and cost of a disaster suggests that those who receive less aid are less able to recover. Therefore, if FEMA exhibits patterns of reduced aid to minority communities this will result in harm to a community, especially in locations that are recurring disaster zones. Hurricanes often strike in many of the same communities annually meaning that communities that receive greater aid will be more able to build damage resistance over time. If patterns of allocating lesser funds to communities with a greater composition of minorities are found, this will show that it is more difficult for minority communities to recover and prepare for future events.

Prior Research on Demographics' Effect on Aid and Recovery

The above studies showed the impact that receiving FEMA aid can have on a community's ability to recover post-disaster. Prior research also establishes evidence of disproportionate FEMA aid distribution based on recipient demographics. Researchers in the study "Let the rich be flooded: The distribution of financial aid and distress after Hurricane Harvey" hypothesized that lower-income areas would receive fewer FEMA loans and grants following Hurricane Harvey in Huston, Texas (Billings et al. 2022). They recorded the percentage of people who were approved for FEMA aid compared to the number who applied within a census block and to the median household income of the census block (Billings et al. 2022). To do this, the researchers studied Individual and Household Program grants (IHP) and Small Business Administration loans (SBA). The research found that the highest-income census blocks were about 30% more likely to receive a FEMA IHP grant than the lowest-income block

(Billings et al. 2022). Similarly, the highest-income census blocks were about 10% more likely to receive an SBA loan than the lowest-income block (Billings et al. 2022). This led the researchers to the conclusion that FEMA IHP grants and SBA loans are regressive in nature. However, because of the limitations of this study, it is difficult to determine if this is actually a result of discrimination on FEMA's end or a result of unequal access to necessary documents, the assistance of lawyers, and personal accountants. Although, these factors are certainly an extension of wealth that allows them to be able to afford extra assistance. Many other resources that are found in wealthy areas can make it easier to recover at a community level as well. Libraries in wealthy areas provide a place for displaced people to apply for FEMA resources. Community centers can also be a luxury for those who are forced to relocate from their homes. Affluent communities will have the advantage of individuals with the means to help not just themselves recover but have additional funds to rebuild the community as a whole.

Additional research conducted at Purdue University seeks to answer three things; what are the business and owner characteristics associated with loan applicants, loan approval, and loan size focused on SBA loans (Josephson et al., 2016). The researchers found that only about 13% of businesses received a loan with the mean loan size being $112,976 and a median of $45,000 (Josephson et al., 2016). The demographics of the business owners showed that women were more likely to receive a loan but in smaller amounts (Josephson et al., 2016). However, this can be deceiving because they also found that women were more likely to apply for aid.

This research supports the claims that certain characteristics are favored in aid reception. Although both of these studies look into the demographics which receive the most aid, there is no prior research that analyzes patterns both across multiple hurricane events and at the community level. By looking at hurricanes from 2000-2020 this research will determine if there

is a pattern of aid allocation disparities and be able to quantify to what extent the aid distribution has changed over time.

Hypothesis: *As the percentage of non-white residents within a county increases federal disaster aid for hurricane recovery will decrease.*

After looking at the background of the issue and prior research, there are still pieces missing in the research on FEMA aid distribution. The goal of this study is to determine if inequality in FEMA aid allocation is prevalent and if there have been changes in hurricane recovery dollars distribution overtime. To determine this, the study asks the question: *How does the percentage of non-white residents within a county affect the Federal Emergency Management Agency's aid allocation following a hurricane event?* To assess the aid allocation, an analysis of federal government aid distribution and county demographics will be conducted. This study looks at public assistance funded assistance-funded recovery projects at a community level and across the years 2000-2020 to fill in the gaps in the previous academic analysis of FEMA aid.

Data

Variables

The research question in this study focuses on if racial demographics of a county result in a higher or lower chance of receiving Federal Emergency Management Agency aid. The independent variable is the percentage of non-white residents within a county. This variable differentiates communities based on percentage of non-white residents to help determine if there is a relationship to the aid distributed to these counties. Other races are not broken down into categories because of the multitude of ways in which the US Census has reported racial

demographics over time. This is a limitation of this study. It is also important to note that the data did not distinguish Hispanic as an ethnicity. People identifying as of Hispanic ethnicity were grouped with their "country of origin" (Ruggles et al., 2022). This effectively made it difficult to correctly group people of Hispanic ethnicity. Further research in this field would benefit from breaking the racial demographics further and by ethnicity. This would allow for a more detailed analysis of the demographic factors influencing FEMA aid allocation. However, looking at the non-white composition of the county will offer a glimpse into how FEMA aid is distributed in relation to racial composition overall. The racial demographic data from the American Community Survey were compiled in the IPUMS USA database (Ruggles et al., 2022). This data only includes counties with a population over 100,000. This means that the dataset does not include rural areas which may have an impact on the results found.

Methods

This study uses administrative data from 2000-2020. This data is collected from two government databases; Federal Emergency Management Agency, and U.S. Census Bureau. The U.S. Census Bureau data includes information from the decennial census and the American Community Survey that is compiled through the IPUMS USA database (Ruggles et al., 2022). Data from FEMA will be focused solely on public assistance-funded recovery projects. These projects typically include aid that was given to a particular town, county, school district, public utility, park, or another type of recovery of public lands. Public assistance was chosen because it would help to offset other variables that could play a role in individual or household aid. For instance, households may have different abilities or knowledge of FEMA applications that could affect their funding reception. Only focusing on public projects also keeps the analysis at the

community level. The US Census Bureau data is then matched to a county with given population and racial demographics estimates for the corresponding year.

The data on FEMA funding for individual public projects and US Census Bureau data responses were collapsed to determine the total amount for a county in a given year. From here analysis could be conducted on how racial composition affected the amount of aid allocated to a county. This included averaging each county across all twenty years to look for an overall pattern in aid allocation. The countries were also grouped by their percentage non-white residents. The groups were composed of counties with 0-19.99%, 20-39.99%, 40-59.99%, and 60-82% non-white residents. The data was also broken down over the year 2000-2020 to determine if there was a notable change over time in aid allocation. These analyses were done using the per capita aid allocated to account for county population.

Uncertainties / Limitations

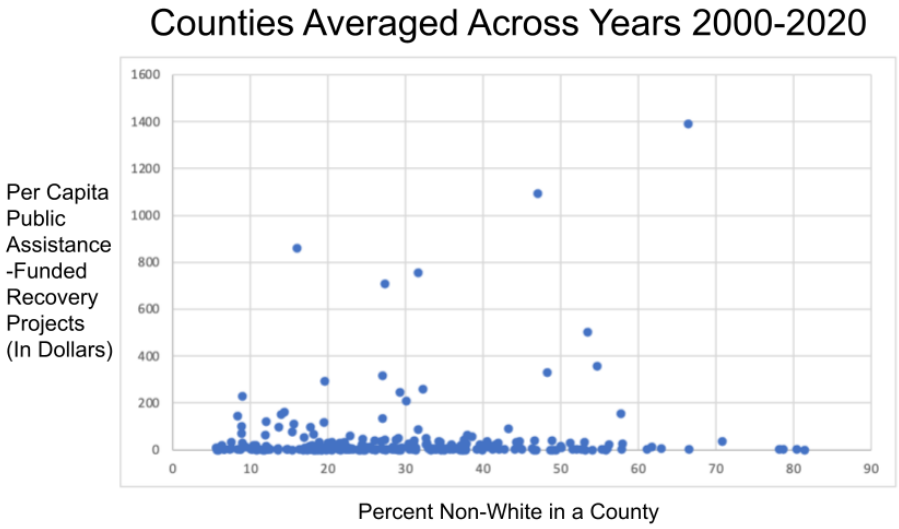
One major uncertainty of this research is the level of damage to each community. There are no records available that show the level of damage incurred by each county during the hurricane events. This information would be critical to a full analysis of the effects of race in FEMA public assistance aid allocation. Level of damage is likely to have a large impact on the distribution of aid. The only available information to offer insight into damage incurred is the total costs of a hurricane at the state level. However, this is not a good indicator of damage because it is too wide of a scale to be an effective measure of if a county received greater funding due to greater damage.

Another limitation of the data is that it only looks at public assistance-funded recovery projects at the county level. There are many types of FEMA aid that take place as the disaster is

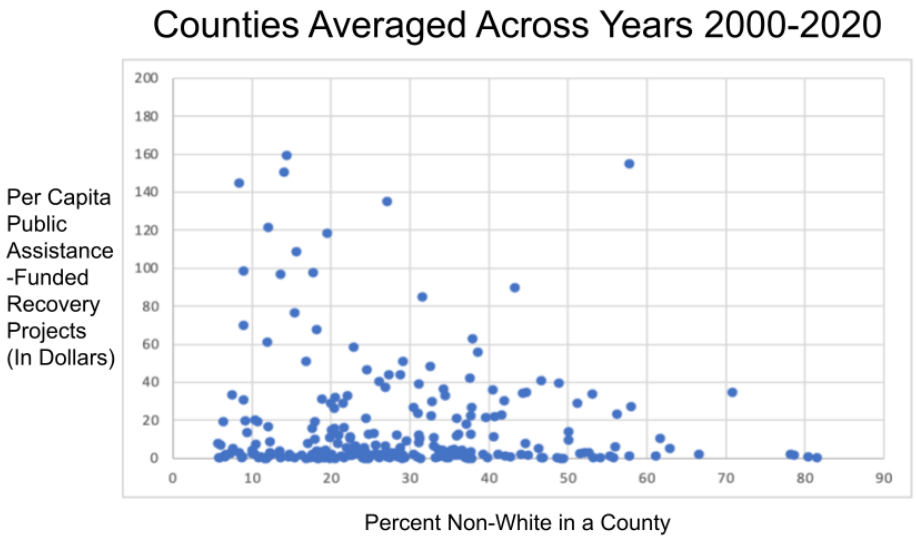
occurring such as food, housing, and relocation assistance. Onsight aid was not included in the analysis. Further analysis could look at the immediate FEMA response and the timeliness in which different communities receive aid. Retroactive FEMA aid also comes in many forms, and this study is limited to only public assistance-funded recovery projects. Looking at individual and household aid may have varying results from this study's conclusions. A truly encompassing look into the equity of FEMA hurricane aid would look at all aid from individual to statewide as well as the different types of aid provided. Grants, loans, food, shelter, rescue teams, public assistance, and any other relevant contributors to disaster recovery could all be analyzed as factors contributed by FEMA that impact the community's recovery ability.

Results

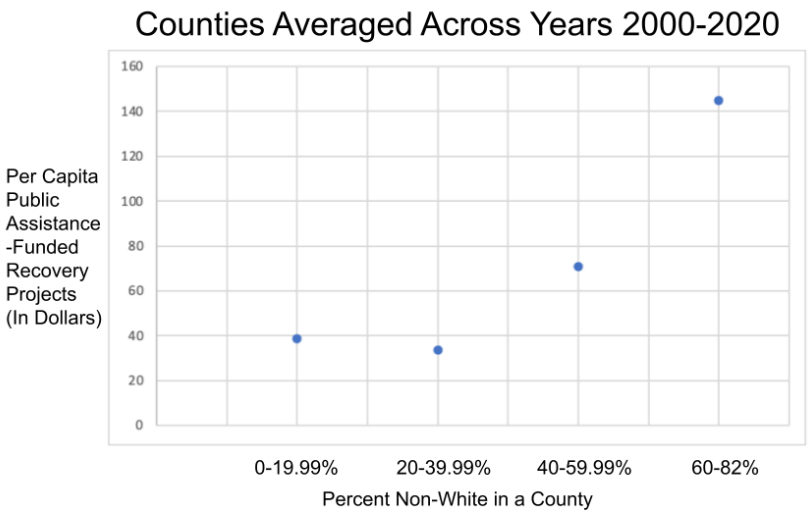
The first analysis was done at the county level to look at the average aid allocated to a county over the years 2000-2020. With an initial glance at the data it is clear that most of the counties have public assistance averaged lower than $200.00 dollars. However, there are some clear outliers in the data. Notably the county with the highest per capita aid, $1290.16 per person is Orleans Parish, Louisiana which is where New Orleans is located. The funding that is driving the high per capita assistance comes from 2005 when Hurricanes Katrina hit New Orleans. The immense amount of aid received due to Hurricane Katrina is unsurprisingly causing the county to be an outlier in the data.

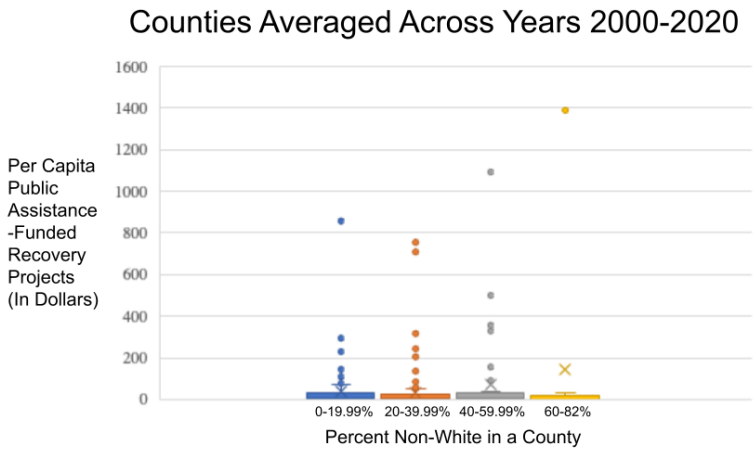


Looking at the counties with per capita public assistance-funded recovery projects at an amount less than $200.00 the data shows different trends. In this section of the data it appears that the data is sloping downwards, showing that in this range counties with a higher percentage of non-white residents are receiveing less funds. In the pervious chart which includes the highest funded counties the opposite appears to be true, counties with a higher percentage of non-white residents receive greater funds. However, when looking even further at counties with per capita funding below $50.00 there is no apparent trend. This may indicate that when the damage from a hurricane is most severe it is distributed to the counties that need it the most regardless of demographics. However, when the damage is significant but less severe it goes to counties with a lower percentage of non-white residents. Another explanation for these results may be the locations of different racial populations. Counties with a higher percentage of non-white residents could generally be located closer to the coast while counties with a lower non-white percentage are generally set further back. This would explain a difference in damage level that would result in these patterns of distribution.



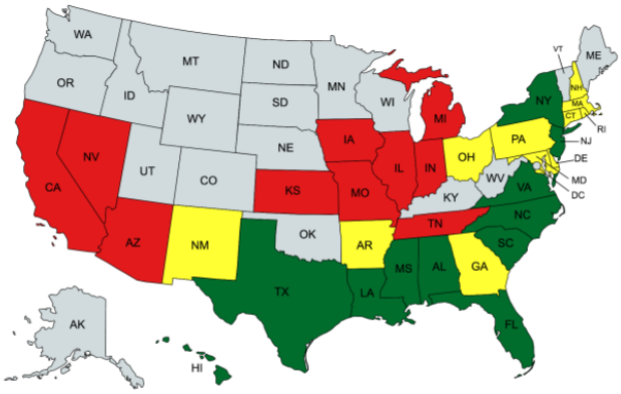
To easily visualize the aid distribution counties were grouped into 0-19.99%, 20-39.99%, 40-59.99%, and 60-82% non-white residents in a county. This data showed an overall positive trend upwards meaning that counties with a higher percentage of non-white population receive greater amounts of assistance for public recovery projects. However, this is deceptive because the outliers in the counties with a higher percent non-white are significantly pulling their average per capita aid up. When the same data was made into a box and whisker plot it confirmed this theory. The median levels of funding are much closer than the average. In addition, counties in the 60-82% non-white range, which had the highest average, had the lowest median with less than $3.00.



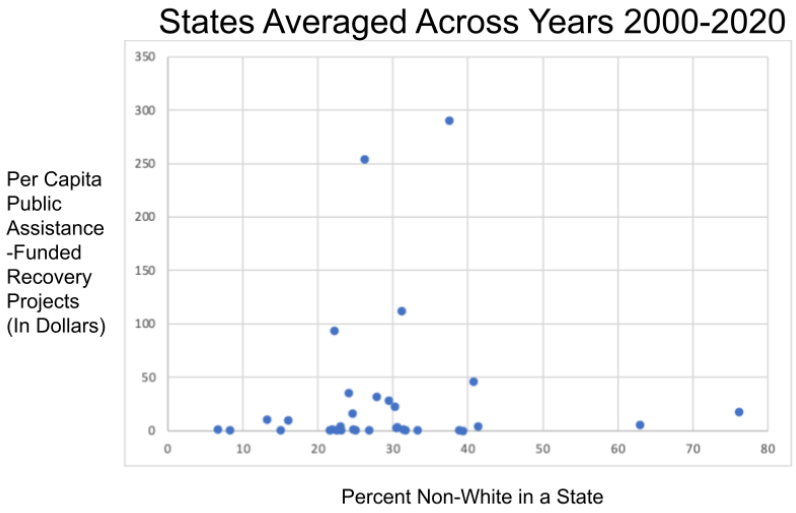


This analysis was also done at the state level to see if changing the unit of analysis would have an effect on the results. The statewide aid allocation showed similar patterns to the individual counties. Most states were clustered with per capita aid lower than $200.00 but several outliers in the 20-40% non-white population range receiving greater funds. The two highest outliers in the statewide analysis were Louisiana, with $290.02 per person, and Mississippi, with $253.87 per person. The states were grouped by highest, medium, and lowest funding, separated into thirds of the total. Grouping the states in this way showed that the states with the highest

funding are generally closer to the coast and the funding diminishes as they are located further away. This suggests that damage level and proximity to the location a hurricane hits may be the greatest determinant of FEMA public recovery projects aid.



Green states are in the top third of dollars allocated. Yellow indicates states in the middle third of funding. Red states receive the least amount of dollars for public recovery projects.



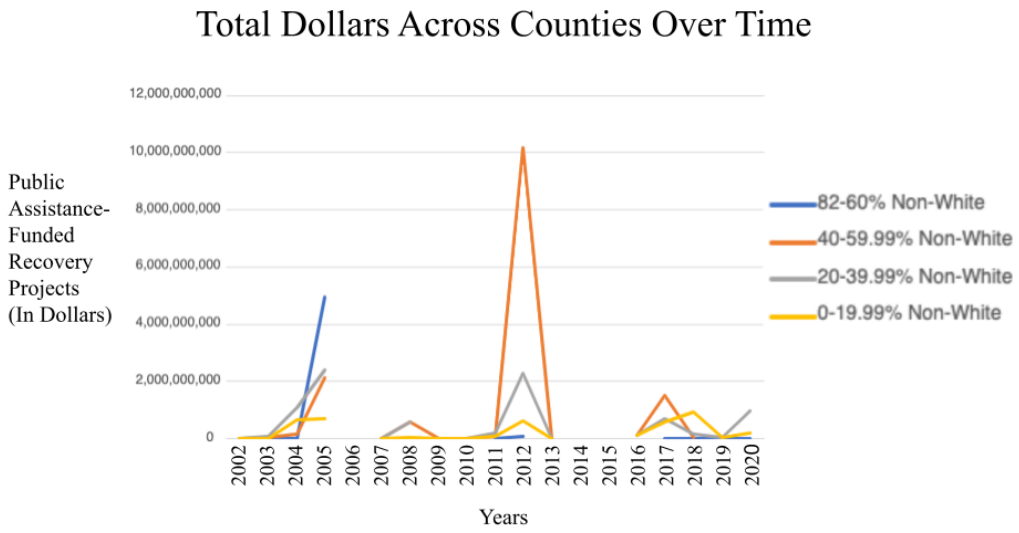
State	Average Percent Non-white by State	Average per Capita Aid by State (In

		Dollars)
California	39.35013142	0.056766246
Illinois	25.02942343	0.078494675
Iowa	8.284205341	0.080352868
arizona	21.63300261	0.088860814
Indiana	33.28217731	0.114348595
Michigan	22.46130831	0.114399698
Kansas	14.98571151	0.123373582
Tennessee	26.8153271	0.293963418
Nevada	23.13791723	0.370209041
Missouri	31.67620753	0.509703421
New Mexico	38.88561985	0.742779869
Arkansas	21.87715188	0.996919125
Massachusetts	31.4031146	1.074262339
Ohio	24.69727734	1.161697046
New Hampshire	6.607236497	1.42679712
Delaware	30.42213915	2.907642005
Maryland	30.51941484	3.080752278
Pennsylvania	23.04922585	3.677037782
Georgia	41.36815254	4.198680818
District of Columbia	62.91570407	5.06273395
connecticut	16.06171909	9.62296465

Rhode Island	13.17272259	10.30198641
South Carolina	24.66500423	15.89560781
Hawaii	76.15168574	17.54501566
North Carolina	30.22060632	22.24459475
Alabama	29.45707009	28.27913723
New Jersey	27.88673985	31.95545304
Texas	24.06549007	35.34084585
Virginia	40.77989897	45.57711992
Florida	22.20956072	93.57028913
New York	31.19646625	112.2340378
Mississippi	26.22460904	253.8661656
Louisiana	37.55456445	290.0190672

For the analysis of aid distribution over time the counties were again sorted into four groups; 0-19.99%, 20-39.99%, 40-59.99%, and 60-82% non-white population. The graph below shows the four non-white groupings over time. It is apparent that the county groupings peak mostly in the same years, the largest two years being 2005 and 2012. These correspond to the years that Hurricanes Katrina and Sandy hit in the United States, two extremely costly events. This graph supports the idea that greater funding is being received in years where there is greater damage. In addition the levels of funding to different groups may be explained by comparing to the demographics of the area that received the most damage. The data from 2005 has the greatest amount of dollars going towards Orleans Parish, Louisiana. Furthermore, in the 2012 data from

Hurricane Sandy the top three highest funded counties were Queens County, Kings County, New York County which are three major counties in New York City and Long Island where Hurricane Sandy created the most damage. This shows that in a particular year it is likely that the allocation of funding is being driven by the counties that incurred the greatest damage.



Discussion

American Culture Surrounding Aid "Deservingness" and Stereotypes

Researchers have shown that the United States Government and the public at large typically have a negative cultural view of social assistance. Many people also have an ingrained view of the "deserving" impoverished. This is typically categorized as people who can not help their unfortunate situation such as: children, single mothers, and people who are seen as down on their luck. Oftentimes people seen as "undeserving" seeking aid are coded as lazy, unskilled, and addicts, among other negative stereotypes. Additionally, prejudice plays a role in this as well, often resulting in the assumption that people of color seeking assistance are

less deserving than their white counterparts. In public opinion polls from 2000 many Americans considered Black Americans to be among the least deserving of social assistance (Gilens, 2000). This harmful stereotype is often reinforced by the media following disaster events by emphasizing looting rather than helping those in need. By analyzing FEMA interview transcripts Megan Reid, a researcher from the National Development and Research Institute, conducted an analysis of how this concept of deservingness factored into FEMA aid following Hurricane Katrina. She discovered that established ideas of "deservingness" were prominent in FEMA's process. They favored the typical middle-class nuclear family structure, as this has been historically seen as an American ideal and prompts outsiders to believe this is deserving of government dollars (Reid, 2013). Perceptions of deservingness and its role in American politics hinder the ability of minorities to receive disaster aid. A study at Duke University gave subjects the task of allocating $1,500 to two applicants each seeking $900. The difference between the two applications was the race of the individuals. The researcher also adjusted for different levels of "hard-work" the individuals exhibited. The results were that black applicants saw a statistically insignificant reward for hard work and received harsh punishments for "laziness" as compared to white applicants (DeSante, 2013).

Another population that gets disregarded often because of perceived "deservingness" is immigrants, especially those with limited English abilities. In 2012 Ashley Morey conducted an analysis and documented the treatment and disparities of Hispanic immigrants both documented and undocumented regarding FEMA disaster aid. She found that in California where there is a high population of Hispanics and a high risk of natural disasters such as there was little to no effort to translate disaster information into Spanish or other languages (Morey, 2012). This creates a huge barrier for non-native English speakers to receive federal help.

Morey also makes the point that during displacement from a disaster immigrants can lose their legal immigration documentation (Morey, 2012). The American perception of immigrants has led many to see Hispanic Americans in a negative light and hindered their "deservingness" of receiving aid, especially from the government. This lack of trust perpetuated by stereotypes makes it difficult for immigrants to apply for FEMA aid without documentation. In addition, replacing lost documents can also be a lengthy process that puts immigrants in a severely disadvantaged position to receive aid. These studies have shown that perceptions of minorities' "deservingness" to receive government funds plague the U.S system and are even more harmful to minorities when they are most vulnerable, following a natural disaster.

Climate Change

As our climate changes, natural disasters will become more intense and occur with greater frequency. Inequality in disaster aid distribution will have a compounding impact, as some communities are able to build resilience, and others are annually devastated by hurricanes and unable to recover. The National Centers for Environmental Information has found that as of their 2021 Climate Report the Earth's temperature has increased at an average rate of 0.32 degrees Fahrenheit per decade since 1981 (NOAA, 2021). This is a significantly higher increase in global temperature than has been observed in the centuries prior. Many scientists' research confirms that warming at this rate will have a drastic impact on the environment and in turn cause a burden to many people living in locations prone to natural disasters. Terry Dinan analyzes the potential impact of increased damage caused by hurricanes she projects to occur between 2017-2075 (Dinan, 2017). Dinan finds that hurricanes are likely to increase in the damage they cause and therefore the cost of disaster recovery. Another notable finding is that the

amount of United States citizens exposed to significant hurricane damage will increase by 600% by 2075 (Dinan, 2017). This would presumably include a much larger landmass than is affected today and will undoubtedly include a significantly larger civilian population. Due to the expected damage increases, it is important that federal agencies such as FEMA ensure that all hurricane victims are treated as equally as possible.

Scholars have already begun to research the unbalanced impact of climate change in certain states. In California, it was found that low-income people of color are already experiencing the worst effects of climate change and that trend is not projected to change (Morello-Frosch, 2009). Authors of this research suggest that climate change impacts will lead to reduced employment opportunities or cause large-scale employment shifts for industries typically dominated by low-income people of color (Morello-Frosch, 2009).

Conclusions and Implications

The results showed that at a county and state level FEMA generally does not show a pattern of providing a disproportionate amount of aid to given areas on the basis of racial composition. At the county level the data shows that FEMA provides the most funding to counties that experience the most amount of hurricane damage. At mid-range levels of public recovery assistance there many be some bias towards counties with a lower percentage non-white population. However, at the lowest levels of FEMA per capita funding no trends are apparent. When averaged across the years 2000-2020 and grouped into counties with 0-19.99%, 20-39.99%, 40-59.99%, and 60-82% non-white residents it does appear as though counties with a higher percentage of non-white residents are favored. However, using a box and whisker plot to better assess the effect of outliers shows that the medians across percent non-white groups are similar. Analyzing the data at the state level shows similar results. There is no trend shown for

favoring states based on demographics. However, there are a few outliers that receive significantly more funding, but they are consistent with the areas that incur the highest amount of damage. Over time the data shows that the city incurring the greatest damage from a hurricane in a particular year affects the amount of dollars received from FEMA. Although this does result in certain counties receiving greater amounts of aid, it is not due to their racial demographics.

Furthering the Conversation

This research only focuses on federal dollars obligated to a given county. There are many additional types of aid that FEMA and other government, nonprofit, and private organizations offer in the aftermath of a hurricane. Additional analysis should look at both ex-post facto mitigation and proactive mitigation aid amounts and the pace at which aid is distributed to different areas. There may also be discrepancies in how each sector chooses to spend its resources. Incorporating nonprofits and private funding along with government aid would better encompass the full scope of disaster recovery to determine if demographics play a role in the reception of disaster aid. Not only should further research expand beyond financial aid and beyond FEMA other research could address different disaster types. There are many natural disasters that affect the environment and the people living there very differently. Differences in natural disaster type will greatly impact how recovery efforts are handled. Hurricanes are mostly concentrated in coastal areas, analyzing inland disasters may produce different results.

Additional research should encompass other relevant social factors that have the potential to affect one's ability to receive aid. This would include educational and income factors that play a role in the individual’s and community’s ability to apply for aid and have the relevant skills to make an appealing application. This would also include a more specific breakdown of racial demographics. It would be especially important to collect data that incorporates ethnicity as well

as racial demographics. Expanding to different disaster types could also change the impact demographics have on disaster aid.

Using data over time in-depth policy analysis into which FEMA policies have been effective in boosting equality in aid allocation and would add another dimension to this research. By looking at the time the policy was implicated in relation to the respective equality seen in aid allocation could provide better insight into the effects of FEMA policy implementation. This would be important to expanding upon current policy and determining the policy areas in which FEMA is still lacking. Corresponding to FEMA policy is how the organization changes with different national administrations. Having a national political party that aligns with the state that contains the city with the greatest hurricane damage may result in a higher disaster relief funding. In-depth research on the fluctuations in state-level funding as it relates to political ties is another interesting variable that may prove to have a significant effect on Federal Emergency Management Aid allocation.

References

Billings, Stephen B., Emily A. Gallagher, and Lowell Ricketts. 2022. “Let the Rich Be Flooded: The Distribution of Financial Aid and Distress after Hurricane Harvey.” *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2021.11.006.

Davlasheridze, Meri, and Qing Miao. 2021. “Does Post-Disaster Aid Promote Community Resilience? Evidence from Federal Disaster Programs - Natural Hazards.” SpringerLink. Springer Netherlands. June 1, 2021. https://link.springer.com/article/10.1007/s11069-021-04826-2.

Davlasheridze, Meri, Karen Fisher-Vanden, and H. Allen Klaiber. 2017. “The Effects of Adaptation Measures on Hurricane Induced Property Losses: Which FEMA Investments Have the Highest Returns?” *Journal of Environmental Economics and Management* 81: 93–114. https://doi.org/10.1016/j.jeem.2016.09.005.

DeSante, Christopher D. 2013. “Working Twice as Hard to Get Half as Far: Race, Work Ethic, and America ...” Wiley Online Library . Duke University, https://onlinelibrary.wiley.com/doi/10.1111/ajps.12006.

Dinan, T. 2017. “Projected increases in hurricane damage in the United States: The role of climate change and coastal development”. *Ecological Economics*, *138*, 186–198. https://doi.org/10.1016/j.ecolecon.2017.03.034

Dreier, Hannah. 2021. “FEMA Changes Policy That Kept Thousands of Black Families from Receiving Disaster Aid.” The Washington Post. WP Company. September 2, 2021. https://www.washingtonpost.com/nation/2021/09/02/fema-policy-change/.

FEMA. 2021. *"Security of the Nation: FEMA unified under the Department of Homeland Security"*. Emergency Management Institute (EMI). Retrieved October 11, 2022, from https://training.fema.gov/70years/history/securityofthenation/#:~:text=In%202002%2C%20President%20George%20W,FEMA%20and%2021%20other%20organizations

FEMA. 2022. "OpenFEMA Dataset: Disaster Declarations Summaries - v2." Accessed March 7, 2022. https://www.fema.gov/openfema-data-page/disaster-declarations-summaries-v2

Gilens, Martin. 2000. "*Why Americans Hate Welfare: Race, Media, and The Politics of Antipoverty Policy"*. Chicago Ill.: University of Chicago Press.

Jordan, Lara Jakes. 2006. "Senate Panel Says Abolish FEMA." CBS News. CBS Interactive. April 27, 2006. https://www.cbsnews.com/news/senate-panel-says-abolish-fema/.

Josephson, Anna, and Maria I. Marshall. 2016. *"The Demand for Post Katrina Disaster Aid: SBA Disaster Loans and Small Businesses in Mississippi.*" *Journal of Contingencies and Crisis Management* 24 (4): 264–74. https://doi.org/10.1111/1468-5973.12122.

Morello-Frosch, R. 2009." *The climate gap: Inequalities in how climate change hurts americans & how to close the gap"*. University of California, Berkeley.

Morey, Ashley. 2012. "No Shelter from the Storm: Undocumented Populations and Federal Disaster Aid ." *Seattle Journal for Social Justice* II (I): 257–96.

NOAA. 2021. "Annual 2021 global climate report". National Centers for Environmental Information (NCEI). Accessed October 11, 2022, from

https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202113

Reid , Megan. 2013. “Social Policy, ‘Deservingness,’ and Sociotemporal ...” Wiley Online Library. August 28, 2013. https://onlinelibrary.wiley.com/doi/10.1111/socf.12051.

Rushton, C. .2015. “*Timeline: Hurricane Katrina and the aftermath*. USA Today”. Retrieved October 11, 2022, from https://www.usatoday.com/story/news/nation/2015/08/24/timeline-hurricane-katrina-and-aftermath/32003013/

Steven Ruggles, Sarah Flood, Ronald Goeken, Megan Schouweiler and Matthew Sobek. *IPUMS USA: Version 12.0* [dataset]. Minneapolis, MN: IPUMS, 2022. https://doi.org/10.18128/D010.V12.0

The Pew Charitable Trusts s. 2016. “Repeatedly Flooded Properties Cost Billions”. https://www.pewtrusts.org/-/media/assets/2016/10/repeatedly_flooded_properties_cost_billions.pdf

Tran, Andrew Ba. 2021. “FEMA Denials since 2010 .” The Washington Post . June 30, 2021. https://wpinvestigative.github.io/fema_ihp_denials/outputs/findings/01_map.html.