Public Policy and Administration Research
ISSN 2224-5731(Paper) ISSN 2225-0972(Online)
Vol.14, No.2, 2024

An Examination of the Role Socio-Demographic Factors Play in Access to Winter Storm Uri and Major Flooding Assistance Initiatives in Lake Charles, Louisiana

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ABSTRACT

This study examines the role socio-demographic factors play in access to FEMA's Winter Storm Uri and major flooding assistance initiatives in Lake Charles, Louisiana, during 2021. The study was purely descriptive in nature. Utilizing data from FEMA disaster datasets, U.S. Census Bureau reports, and local demographic analyses, the research identifies critical disparities in assistance distribution among different socio-economic groups, housing types, age demographics, and geographic locations within Lake Charles. The study revealed that lower-income households, particularly those earning between $15,000 and $30,000 annually and below $15,000, received the largest shares of FEMA assistance. Middle to higher-income brackets received comparatively smaller proportions, indicating potential inequities in recovery support allocation. The study further revealed that houses and duplexes bore the brunt of damages, underscoring vulnerabilities in single-family dwellings to natural disasters. Mobile homes and apartments also faced significant damage, highlighting the need for targeted support and resilient infrastructure investments in these communities. Again, the study further revealed that middle-aged adults and households with children constituted a significant portion of assistance recipients, reflecting heightened economic burdens and familial responsibilities exacerbated by disaster impacts. Single guardian-led households, especially renters, encountered barriers in accessing assistance, emphasizing challenges related to housing tenure and financial stability. Also, the study found that assistance distribution varied significantly across different zip codes, with areas like 70601 and 70607 receiving the highest percentages of aid. This geographic disparity underscores localized impacts and varying recovery needs, necessitating tailored recovery strategies to address specific community vulnerabilities. The findings highlight the complex interplay of socio-demographic factors in shaping access to disaster assistance in Lake Charles, Louisiana. Effective disaster response and recovery efforts should prioritize equity, inclusivity, and community resilience, focusing on policy adjustments, infrastructure enhancements, and targeted support programs to mitigate vulnerabilities and promote long-term recovery among socially vulnerable populations. This study informs future disaster preparedness planning and resource allocation strategies aimed at building resilient communities in the face of natural disasters.

Keywords: Lake Charles, LA, Natural Disaster, Disaster Recovery, Winter Storm, Flooding, FEMA, Socio-demographic, Socially Vulnerable Population, Disparities, Assistance, and Programs

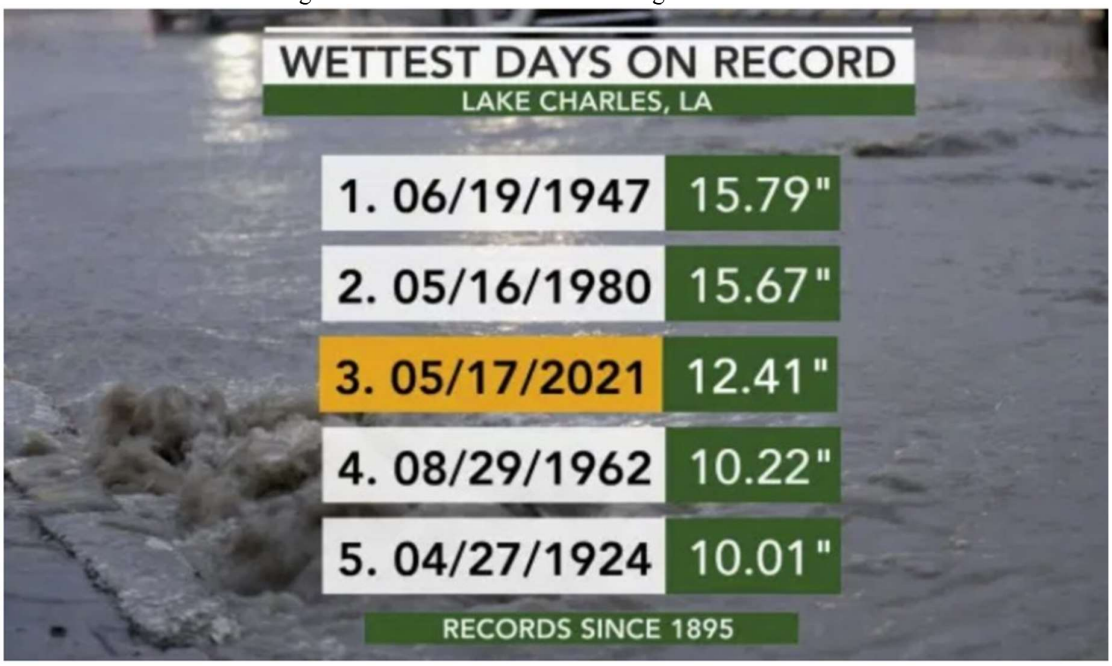
DOI: 10.7176/PPAR/14-2-07
Publication date: July 30th 2024

INTRODUCTION

Disasters, defined as severe events causing extensive physical damage and financial losses to houses, critical infrastructure, transportation networks, agriculture, and businesses (Schneider, 2018), disrupt communities and exacerbate pre-existing socio-economic disparities. Natural calamities like Winter Storm Uri and major flooding often magnify these disparities, disproportionately impacting vulnerable populations. In 2021, Lake Charles, Louisiana, confronted significant devastation from these events, prompting substantial relief efforts led by FEMA. Lake Charles, located in Louisiana, is the state's fifth-largest city and serves as the seat of Calcasieu Parish. Positioned along Lake Charles, Prien Lake, and the Calcasieu River, the city is a prominent center for industries such as petrochemical refining, gambling, tourism, and education.

Lake Charles hosts institutions like McNeese State University and Sowela Technical Community College, making it a vital regional educational and economic hub (City of Lake Charles, 2014; US Gazetteer Files, 2020). The metropolitan area, known as the Lake Area, derives its name from the numerous lakes and waterways that characterize its landscape (City of Lake Charles, 2014). Lake Charles and its surroundings have a history marked by natural disasters. Over the years, the city has experienced various instances of flooding, influenced by both natural factors and human activities (see Figure 1 for more details). Figure 1 reveals the wettest days on record for Lake Charles, Louisiana.

Figure 1: Historical Trend of Flooding in Lake Charles



wettest days on record for Lake Charles, Louisiana. Picture via Accuweather

In 2020, Lake Charles, Louisiana, endured a series of catastrophic hurricanes that profoundly affected its infrastructure, economy, and communities. Hurricane Laura, a Category 4 storm, made landfall on August 27 with sustained winds of 150 miles per hour and a storm surge that inundated coastal areas (see Figure 2 for more details) (NOAA, 2020). The impact was devastating: roofs were torn off, trees uprooted, and numerous homes and businesses were severely damaged (CNN, 2020). The storm's ferocity caused extensive power outages and disrupted essential services, compounding the challenges faced by residents already grappling with the COVID-19 pandemic (NYT, 2020).

Just six weeks later, Hurricane Delta struck Lake Charles on October 6, 2020, as a Category 2 hurricane with winds up to 100 miles per hour (see Figure 2 for more details) (NOAA, 2020). Despite being slightly weaker than Laura, Delta exacerbated existing damage and stretched emergency response capabilities. The timing of Delta's impact compounded recovery efforts, further straining resources and infrastructure already compromised by the earlier storm (Reuters, 2020).

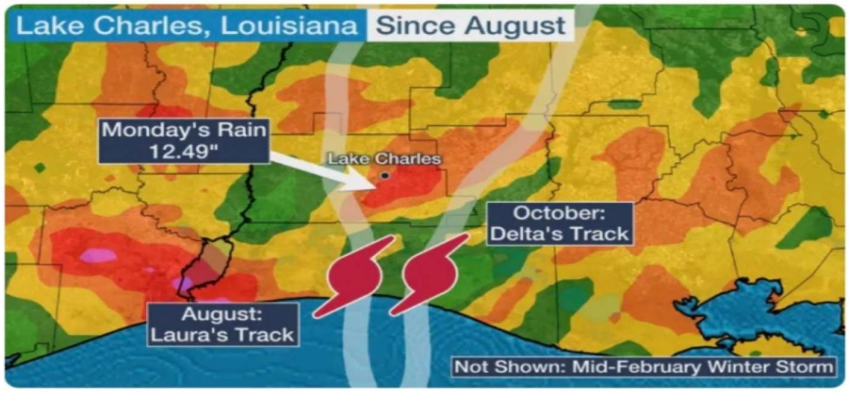
The successive strikes of Hurricanes Laura and Delta highlighted Lake Charles' vulnerability to severe weather events and underscored the critical need for robust disaster preparedness and response strategies (FEMA, 2020). These events tested the resilience of local communities and underscored the importance of coordinated efforts in disaster recovery (ABC News, 2020). Recovery efforts continued well into 2021, complicated by additional challenges posed by Winter Storm Uri and subsequent flooding events (CBS News, 2021). These hurricanes serve as potent reminders of the region's exposure to natural hazards and underscore the necessity of adaptive measures to mitigate future risks (NPR, 2021). By learning from these experiences and applying lessons in disaster resilience, Lake Charles and its residents can enhance preparedness and response capabilities, ensuring greater community safety and well-being in the face of adversity.

Figure 2: Hurricane Paths for Laura and Delta Hitting Southwest Louisiana (i.e., Lake Charles)

Picture via NBC2.com

Winter Storm Uri, which struck in February 2021, left a trail of extensive damage across Lake Charles, Louisiana. The storm brought unprecedented freezing temperatures that caused widespread infrastructure issues, particularly the freezing and bursting of water pipes in homes and businesses (Hirji & Sacks, 2021). This led to significant water damage and disruption of essential services, exacerbating the challenges already faced by the community recovering from previous hurricanes. Compounding these issues, historic rainfall in May 2021 further intensified the city's flooding problems (Hirji & Sacks, 2021). The combination of saturated ground from previous storms and the additional rainfall resulted in widespread flooding across Lake Charles. This flooding impacted homes, businesses, roads, and public infrastructure, further straining recovery efforts and highlighting the city's vulnerability to severe weather events. Figure 3 provides a detailed visual representation of how Hurricanes Laura and Delta tracked across Lake Charles, Louisiana, during the tumultuous period of 2020-2021. It includes maps showing the paths these hurricanes took as they approached, made landfall, and moved through the region.

Figure 3: 2020-2021 Flooding, Tracking of Hurricanes Laura and Delta in Lake Charles, LA



Orange and red shadings show where the heaviest rain fell on Monday. The tracks of hurricanes Laura and Delta are also shown.

Source: Accuweather

Notwithstanding the disaster situation in Lake Charles, the frequency and severity of large-scale disasters in the United States have notably increased over recent decades (Wallemacq, 2018). In 2017 alone, the country experienced ten major disasters, including hurricanes Harvey, Irma, and Maria, resulting in approximately $265 billion in damages and widespread displacement (FEMA, 2017). Again, since 2017, over three hundred presidentially declared disasters have affected all fifty states and U.S. territories (Nowicki, 2022). This trend continues to escalate, posing profound consequences for individuals and families (Gall et al., 2011). Unfortunately, these hazard losses disproportionately burden communities with limited capacity to prepare for, respond to, and recover from such disasters. Understanding the interplay between social vulnerability indicators, disaster impacts, and government assistance is crucial yet underexplored (Emrich et al., 2022).

According to Cutter et al. (2003), vulnerable populations are particularly susceptible to the adverse impacts of natural disasters due to factors such as socioeconomic status and housing vulnerability. Lake Charles, a region historically prone to extreme weather events, exemplifies these challenges, with communities differing markedly in their ability to cope and recover from disasters (Smith, 2010). Interestingly, research indicates that socially vulnerable groups—such as low-income individuals, minorities, English learners, and people with disabilities—are particularly susceptible to disaster effects (Nowicki, 2022). While a conceptual understanding of factors contributing to vulnerability exists, more research is needed to understand how these factors manifest during the recovery process, particularly in the distribution of limited federal disaster recovery funds.

To date, limited research has systematically connected underlying social vulnerabilities with the distribution of federal disaster assistance, providing an incomplete understanding of how socioeconomic conditions influence equitable recovery (Emrich et al., 2020). Without further exploration and research, cities like Lake Charles will continue to grapple with devastating impacts without full federal financial support. Therefore, this study aims to analyze FEMA data on Winter Storm Uri and major flooding assistance in Lake Charles through a descriptive analysis, aiming to provide insights into the allocation and effectiveness of federal disaster assistance.

LITERATURE REVIEW

Disaster Relief and Emergency Assistance

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, enacted in 1988, enables the Federal government to assist state and local governments and their citizens during disasters beyond their capacity to handle. The Act establishes procedures for Presidential declarations of disasters, outlining the nature and extent of Federal aid and eligibility criteria. FEMA coordinates disaster response efforts under the Department of Homeland Security (FEMA, 2023). Governors of affected states are responsible for requesting Presidential declarations, which can extend to states, territories, and eligible entities like the Marshall Islands and Micronesia. Federal programs are activated upon declaration to aid in response and recovery efforts based on assessed needs (FEMA, 2023). FEMA's assistance under the Stafford Act is categorized into Individual Assistance for households, Public Assistance for infrastructure and emergency services, and Hazard Mitigation Assistance to reduce future disaster impacts. The type of aid deployed depends on the disaster's characteristics and assessed damage, guiding FEMA's tailored response (FEMA, 2023).

Accessing Disaster Recovery Assistance

Accessing disaster recovery assistance in the United States presents challenges that perpetuate existing inequalities. Marginalized communities face significant obstacles due to eligibility limits, procedural inequities, and complex application processes (American Flood Coalition, 2020). Post-disaster aid often fails to adequately meet the needs of socially vulnerable groups, leading to slower and incomplete recovery (SAMHSA, 2017; Mickelson et al., 2019). Research emphasizes the role of socioeconomic factors, demographic conditions, and governance quality in shaping recovery outcomes (Emrich, 2022).

Individuals must first register with FEMA to access federal aid, which assesses damages and verifies identities. The Individuals and Households Program (IHP) provides cash assistance to cover storm-related expenses, supplemented by insurance payments and Small Business Administration loans (Billings et al., 2019). However, low-income populations face disincentives and challenges in completing applications accurately (Sloan & Fowler, 2015; Kaiser Family Foundation Episcopal Health Foundation, 2017). Despite investments and advancements in disaster recovery policies, marginalized communities bear disproportionate losses from natural disasters (UNDRR, 2020).

Barriers to Social Vulnerability

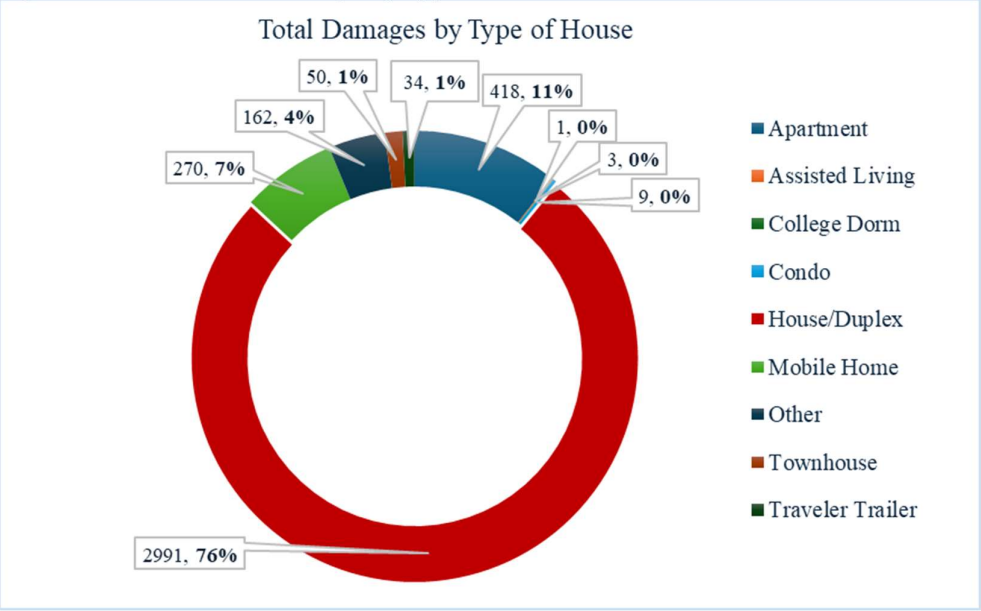
The concept of social vulnerability in disaster contexts significantly impacts recovery outcomes, influenced by various barriers. Research suggests that aid distribution may be inequitable due to inadequate consideration of social vulnerabilities (Emrich, 2022). Wilson et al. (2021) identify housing tenure and socioeconomic status as key barriers affecting vulnerable populations. Housing tenure, which encompasses ownership versus renting, plays a crucial role in accessing federal aid and rehabilitation programs, with homeowners often having more options and support compared to renters (Lee & Van Zandt, 2019; Mickelson et al., 2019). Despite limitations in aid amounts, programs like the Individual Assistance Program provide crucial short-term relief for homeowners, mitigating long-term displacement (Fussell & Harris, 2014; VMAP, 2021).

METHOD AND MATERIALS

This study employs a descriptive research design with a specific focus on the role socio-demographic factors play in access to FEMA's Winter Storm Uri and major flooding assistance initiatives in Lake Charles, Louisiana, during 2021. The descriptive approach aims to systematically describe and quantify FEMA assistance patterns, trends, and distributions across various socio-demographic variables, including income levels, housing types, age groups, and geographic locations within Lake Charles. The primary data source for this study is FEMA's disaster datasets for the year 2021, which provide comprehensive information on the distribution of assistance, including financial aid, housing support, and infrastructure investments following Winter Storm Uri and major flooding in Lake Charles. The datasets include detailed records of assistance recipients categorized by socio-demographic variables such as income brackets, housing types, age groups, and zip codes. The study utilizes descriptive analysis techniques to examine the distribution of FEMA assistance programs across the socio-demographic factors of socially vulnerable populations. Statistical methods such as percentages, frequencies, tables, and graphs are employed to identify disparities in assistance distribution and assess the role socio-demographic variables play in access to disaster aid. The descriptive design and analysis of FEMA's 2021 disaster datasets provide a robust framework for understanding how socio-demographic factors influence access to Winter Storm Uri and major flooding assistance initiatives in Lake Charles, Louisiana. By examining patterns in assistance distribution across different demographic groups, the study informs targeted policy interventions and resource allocation strategies aimed at enhancing disaster resilience and equity in community recovery efforts.

RESULTS AND DISCUSSION

Figure 1: Maximum Total Damages by Type of House



Type of Household	Apartment	Assisted Living	College Dorm	Condo	House/Duplex	Mobile Home	Other	Townhouse	Traveler Trailer
Total Damages	418	3	1	9	2991	270	162	50	34

Figure 1 illustrates the varying degrees of damage to different Lake Charles, Louisiana, housing types caused by Winter Storm Uri and major flooding. Houses/duplexes suffered the most, with 2,991 damages (76%), highlighting their vulnerability due to their prevalence and potential location in flood-prone areas. Apartments accounted for 418 damages (11%), reflecting their density and multi-story design's impact. Mobile homes, with 270 damages (7%), showed significant susceptibility due to construction and anchoring. Other housing types, including various unspecified structures, had 162 damages (4%). Townhouses (50 damages, 1%), college dorms (34 damages, 1%), and both assisted living facilities and condos (1 damage each, 0%) experienced minimal damage, suggesting either their resilience or lower numbers in affected areas. The analysis of Figure 1 provides a comprehensive understanding of how different housing types in Lake Charles were affected by Winter Storm Uri and major flooding. By recognizing the disparities in damage and implementing targeted strategies, policymakers and community leaders can enhance resilience and reduce the impact of future natural disasters on all residents.

Figure 2: Total Housing Units in Lake Charles

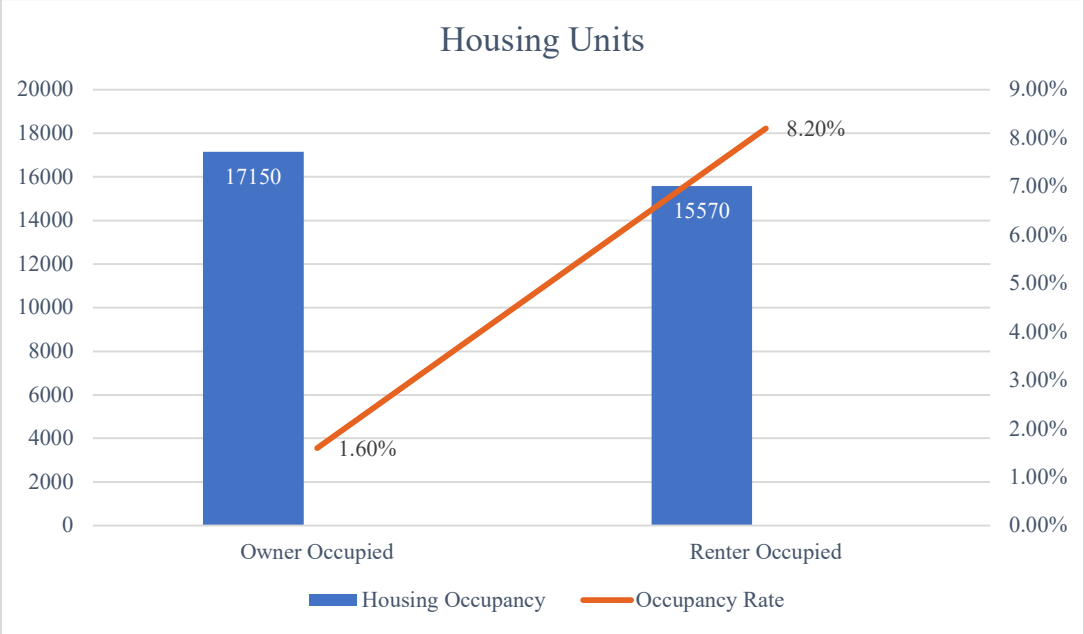


Figure 2 provides a comprehensive view of the housing units in Lake Charles that participated in the Winter Storm Uri and the major flooding assistance initiative in 2021. It shows the distribution between owner-occupied and renter-occupied households, highlighting insights into the housing dynamics of the socially vulnerable population in 2021. Figure 2 reveals that 32,710 housing units in Lake Charles participated in the Winter Storm Uri and major flooding assistance initiative in 2021. Out of the 32,710 socially vulnerable population classified under the total housing units, 17,150 of which are occupied by owners and 15,570 by renters. Also, Figure 2 further reveals that the owner vacancy rate is 1.6%, while the renter vacancy rate is 8.20%. Figure 2 reveals critical information about the housing units in Lake Charles that participated in the Winter Storm Uri and major flooding assistance initiative, emphasizing the distribution between owner-occupied and renter-occupied units and their respective vacancy rates. This analysis underscores the need for targeted, inclusive assistance programs that address the unique challenges homeowners and renters face in socially vulnerable populations. By understanding and addressing these dynamics, disaster response and recovery efforts can be more effective and equitable, ultimately leading to a more resilient community.

Figure 3: Per Capita Income, Household Median Income and Poverty

Figure 3.a. Per Capita Income

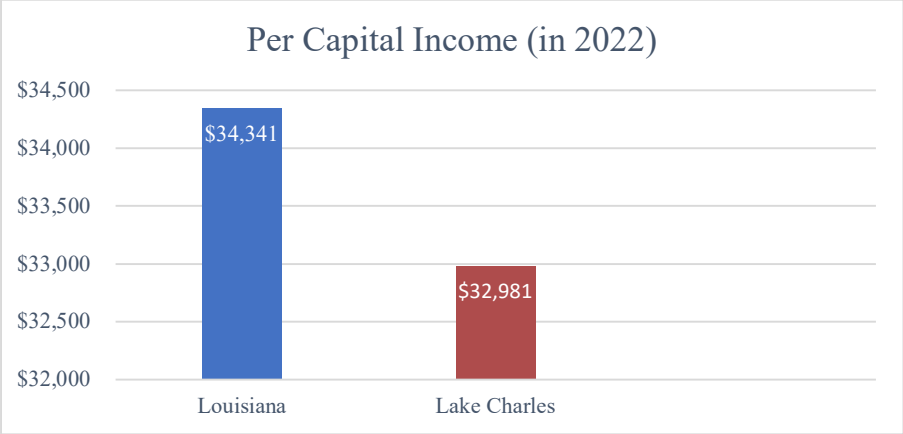


Figure 3a presents a comparative analysis of the per capita income between the state of Louisiana and the city of Lake Charles based on data from the U.S. Census Bureau. This figure highlights the economic disparities within the state, focusing on the annual and daily income differences between the broader state population and the residents of Lake Charles. Figure 3a highlights the per capita income disparity between Louisiana and Lake Charles, with the state's average annual income at $34,341 and Lake Charles at $32,981. The difference of $1,360 annually, or $3.73 daily, underscores the economic challenges faced by Lake Charles residents. Addressing this disparity through targeted economic development, income support programs, cost of living adjustments, and community investment is crucial for improving the financial well-being and economic stability of the city's population.

Figure 3. b. Median Household Income

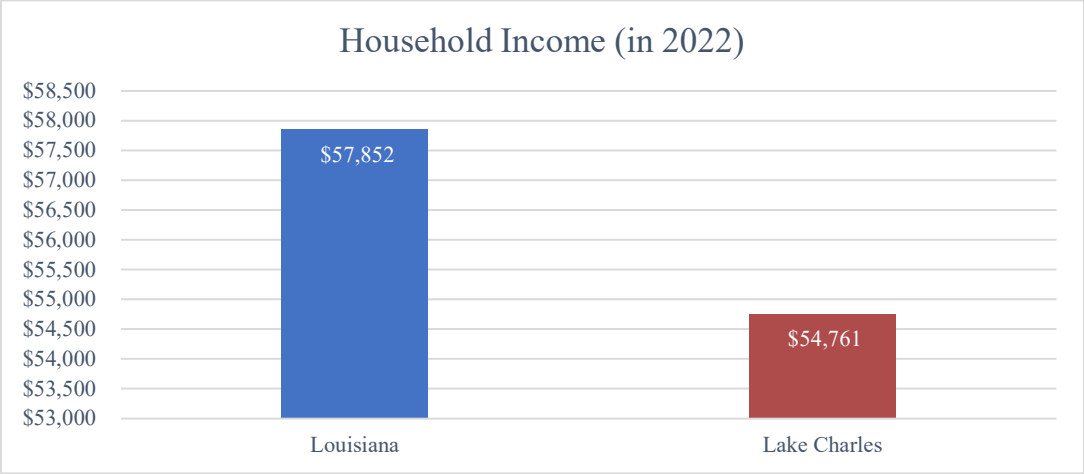


Figure 3b provides a comparative analysis of the median household income between the state of Louisiana and the city of Lake Charles. Utilizing data from the U.S. Census Bureau, this figure underscores the economic disparity between households in the state and those in Lake Charles, offering insights into the financial well-being of residents in these areas. Figure 3b highlights the median household income disparity between Louisiana and Lake Charles, with the state's median at $57,852 and Lake Charles at $54,761. The annual difference of $3,091, or $8.47 daily, underscores the economic challenges households face in Lake Charles. Addressing this disparity through economic initiatives, targeted financial support, cost of living adjustments, and community development is essential for improving the financial well-being and economic stability of Lake Charles residents.

Figure 3.c. Poverty Rate

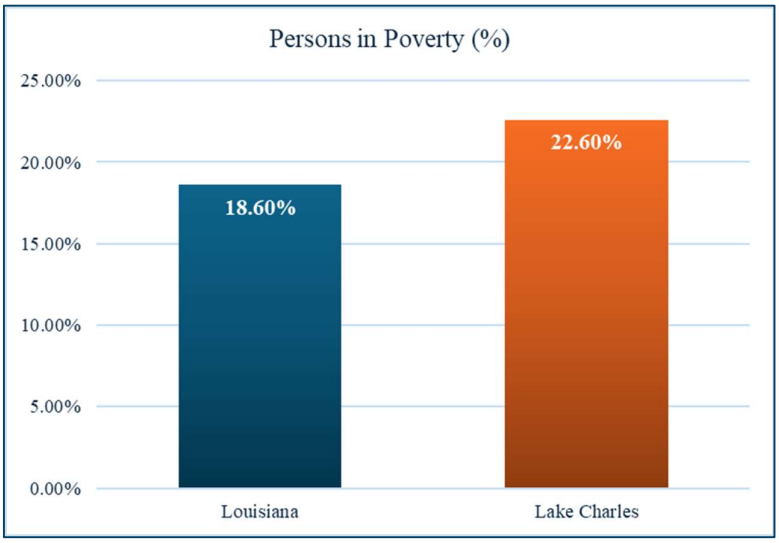


Figure 3c provides a comparative analysis of the poverty rates between the state of Louisiana and the city of Lake Charles. Utilizing data from the U.S. Census Bureau, this figure highlights the higher prevalence of poverty in Lake Charles compared to the state average, emphasizing the economic challenges this city's residents face. Figure 3c highlights the stark contrast in poverty rates between Louisiana and Lake Charles, with the state average at 18.6% and Lake Charles at 22.6%. The 4-percentage point difference underscores the heightened economic challenges Lake Charles residents face. Addressing this disparity through targeted anti-poverty programs, economic development, enhanced social services, community-based initiatives, and informed policy interventions is essential for improving the economic well-being of Lake Charles residents and reducing poverty in the city.

Figure 4: Amount of Initial Estimated Impact

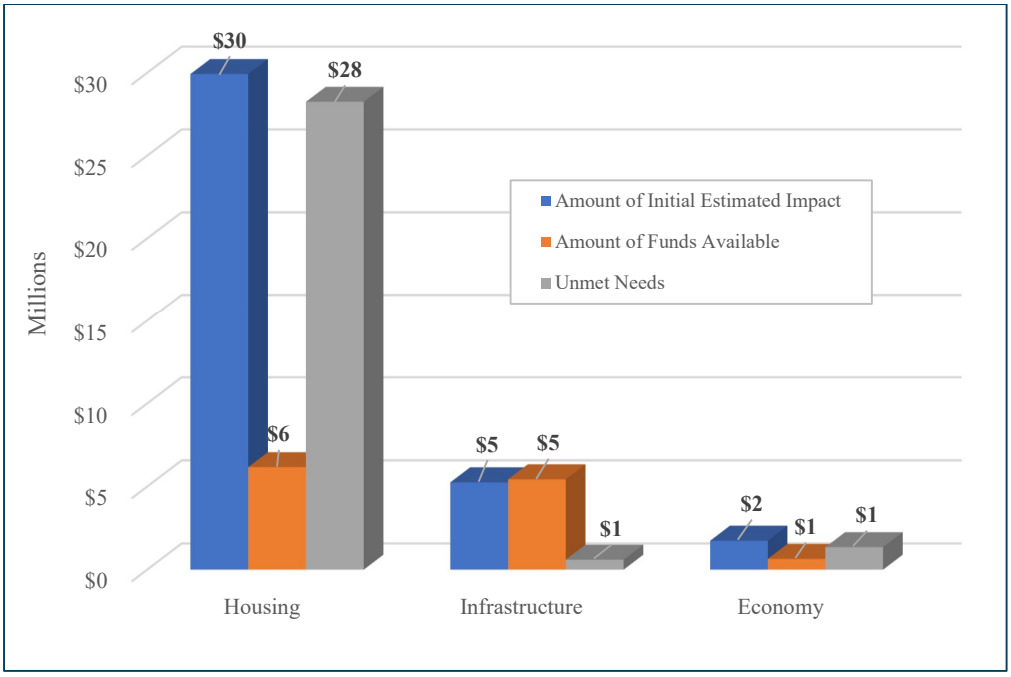


Figure 4 provides a detailed analysis of the initial estimated impact, support provided, and unmet needs in Lake Charles, Louisiana, following the Winter Storm Uri and major flooding events. The data is sourced from the FEMA disaster dataset and breaks down the financial aspects of the disaster's impact on housing, infrastructure, and the economy. It also highlights the gap between the estimated needs and the available funds for disaster relief. Figure 4 highlights the financial impact of Winter Storm Uri and major flooding on Lake Charles, with an estimated total impact of $36,928,626 across housing, infrastructure, and the economy. The available disaster relief funds total $30,312,097, leaving significant unmet needs, particularly in housing ($23,762,032) and the economy ($1,095,697). Addressing these gaps requires increased housing support, targeted infrastructure investments, economic recovery programs, comprehensive disaster planning, and active community engagement to ensure effective and equitable recovery for Lake Charles residents.

Figure 5: Homeownership by single guardian-led households in Lake Charles

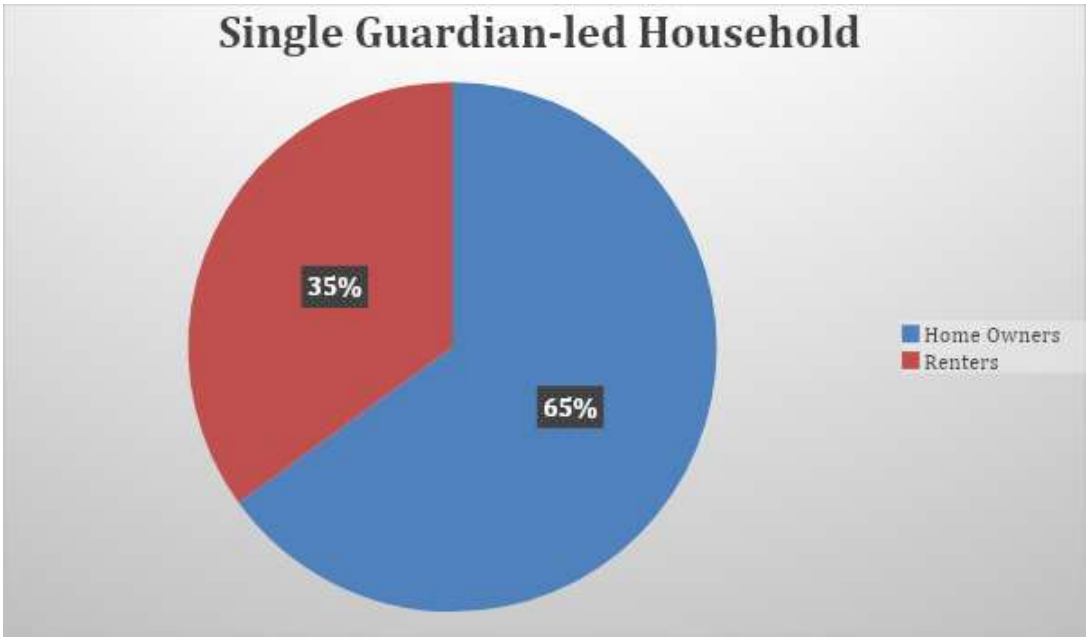


Figure 5 analyzes how single guardian-led households in Lake Charles, Louisiana, accessed assistance from FEMA's Winter Storm Uri and major flooding initiative. The data highlights the distribution of assistance recipients between homeowners and renters within this demographic group, shedding light on access disparities and support mechanisms. Figure 5 illustrates the distribution of FEMA assistance among single guardian-led households in Lake Charles, with 65% being homeowners and 35% renters. This highlights disparities in access to disaster relief, suggesting a need for targeted interventions to enhance equity and support for renters in accessing assistance programs during and after disasters like Winter Storm Uri and major flooding.

Figure 6: Age Group Distribution of Applicants

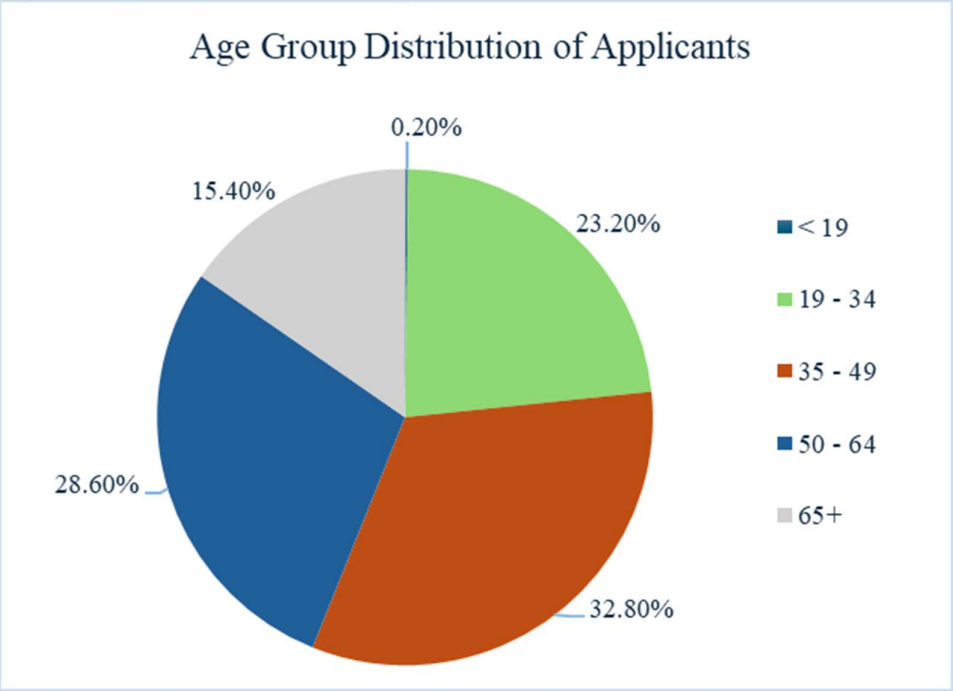


Figure 6 analyzes how different age groups in Lake Charles, Louisiana, accessed assistance from FEMA's Winter Storm Uri and major flooding initiative. The data provides insights into the distribution of FEMA assistance across various age categories, highlighting patterns and disparities in access to disaster relief based on age. Figure 6 depicts the distribution of FEMA assistance across age groups in Lake Charles, with the highest percentages going to the 35-49 (32.8%) and 50-64 age groups (28.6%), followed by younger (23.2%) and older demographics (15.4%). This analysis underscores the varied impacts of natural disasters on different age cohorts and highlights the need for tailored support programs to enhance resilience and facilitate equitable recovery for all residents affected by events like Winter Storm Uri and major flooding.

Figure 7: Applicant Distribution by Income Level

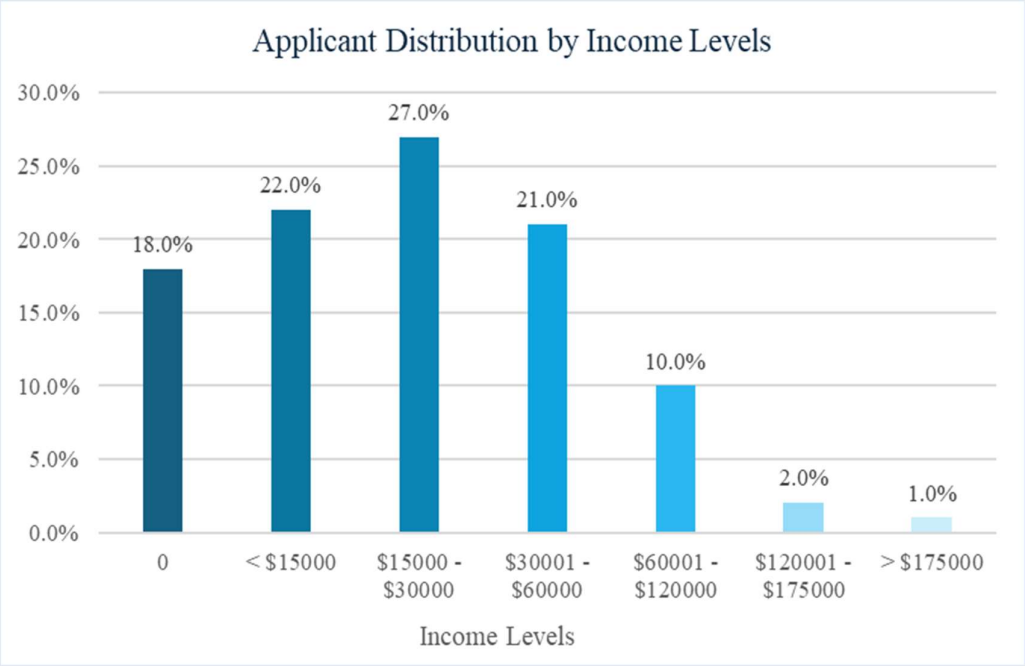


Figure 7 analyzes the distribution of FEMA assistance among different socioeconomic status groups in Lake Charles, Louisiana, following Winter Storm Uri and major flooding. The data provides insights into how income levels impact access to disaster relief, highlighting disparities and patterns in assistance allocation based on socioeconomic factors. Figure 7 reveals that about 27% of the applicants under the income or socioeconomic category of $15,000-$30,000 got access to Winter Storm Uri and major flooding assistance initiative by FEMA in the City of Lake Charles, followed by the income or socioeconomic status category of less than $15,000 which also got the second highest percentage, that is, 22% of the access to flooding assistance initiative by FEMA. It is important to note that 21% were distributed among the following income or socioeconomic status categories such as $30,001-$60,000 also receive 18% of the funding are allocated to applicants who reported no-income. The above $175,000 + income or socioeconomic status group receive 1% of the funding/assistance initiative by FEMA whereas the $120,000-$175,000 represents 2%. Figure 7 illustrates the distribution of FEMA assistance across socioeconomic status groups in Lake Charles, with higher percentages allocated to lower-income households earning $15,000-$30,000 and less than $15,000 annually. This analysis highlights disparities in access to disaster relief based on income levels and underscores the importance of targeted support programs and equitable assistance allocation to facilitate comprehensive recovery for all residents affected by events like Winter Storm Uri and major flooding.

Figure 8: Proportion of Applicants by Zip codes in Lake Charles

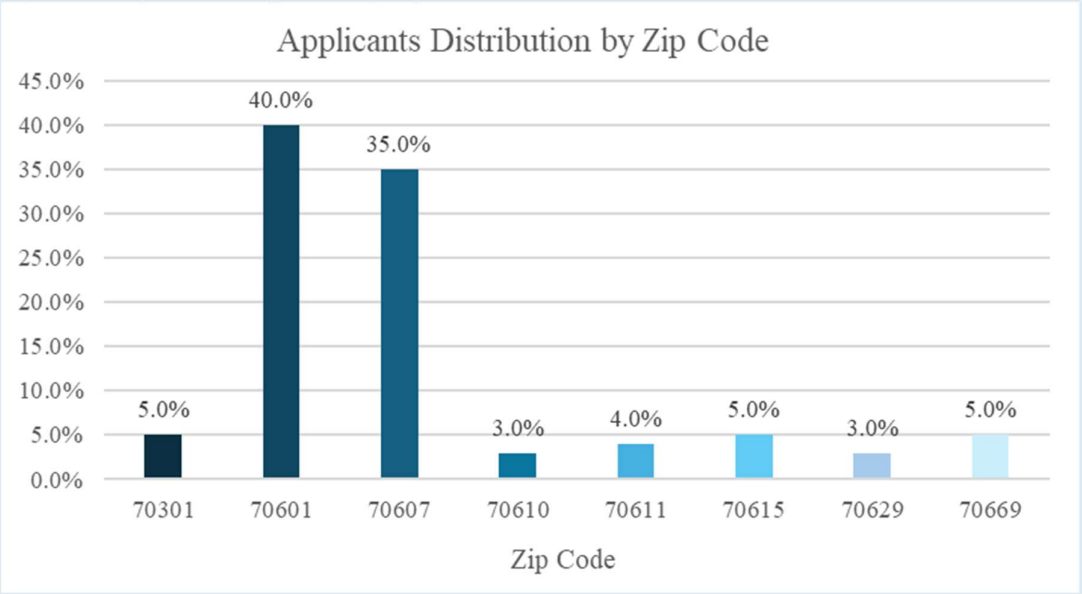


Figure 8 provides an overview of the distribution of FEMA assistance recipients across different zip codes in Lake Charles, Louisiana, following Winter Storm Uri and major flooding. The data highlights the geographic distribution of disaster impacts and the allocation of assistance to various communities within the city. Figure 8 reveals that about 45% (i.e. majority) of the applicants are located in the zip code 70601 and got access to Winter Storm Uri and major flooding assistance initiative by FEMA in the City of Lake Charles, followed by the applicants' zip code category 70607 which also got the second highest percentage (i.e., 35%) of the access to flooding assistance initiative by FEMA. The remaining 25% were distributed among the following applicants' zip codes categories such as 70610 and 70629 zip codes also receive 3% of the funding respectively, 70611 also receive 4% of the funding, while applicants residing in 70615 and 70669 applicants zip codes receive 5% of the funding/assistance initiative by FEMA. Figure 8 depicts the distribution of FEMA assistance recipients across various zip codes in Lake Charles, with the highest percentages allocated to 70601 and 70607. This analysis underscores the geographic variability in disaster impacts and recovery needs within the city, emphasizing the importance of targeted recovery strategies and equitable distribution of resources to facilitate comprehensive recovery for all communities affected by events like Winter Storm Uri and major flooding.

CONCLUSION AND POLICY RECOMMENDATIONS

The analysis of socio-demographic factors influencing access to Winter Storm Uri and major flooding assistance initiatives in Lake Charles, Louisiana, reveals significant disparities and critical insights into the distribution of FEMA assistance. Several key findings emerge from the data, highlighting the complex interplay of factors that shape access to disaster relief among the socially vulnerable population. Income emerges as a crucial determinant of access to FEMA assistance, with lower-income households disproportionately affected and receiving higher percentages of aid. The data shows that households earning between $15,000 and $30,000 annually and those earning less than $15,000 received substantial portions of assistance, reflecting heightened vulnerability and financial strain in these groups. Middle to higher-income brackets received smaller proportions, underscoring potential disparities in recovery support allocation.

The distribution of damages across housing types illustrates varying levels of vulnerability to natural disasters. Houses and duplexes, constituting a majority of affected structures, highlight the critical need for improved building codes and flood mitigation measures. Mobile homes and apartments also suffered significant damages, emphasizing the need for targeted support and resilient infrastructure investments in multi-family and mobile home communities. Age demographics and household compositions play significant roles in access to assistance. Middle-aged adults and households with children represent substantial portions of FEMA aid recipients, reflecting the economic burdens and familial responsibilities exacerbated by disaster impacts.

Additionally, single guardian-led households, particularly renters, faced challenges in accessing assistance, pointing to barriers related to housing tenure and financial stability. Geographically, disparities in assistance allocation across zip codes underscore localized impacts and varying degrees of recovery needs. Zip codes like 70601 and 70607 received the highest percentages of assistance, indicating concentrated disaster impacts and the necessity for targeted recovery efforts in these areas. Understanding these geographic disparities informs equitable resource allocation and community-specific recovery strategies.

Effective disaster response and recovery strategies necessitate policy adjustments that prioritize equity, inclusivity, and community resilience. Strengthening infrastructure, enhancing housing stability, and expanding access to financial and social support programs are crucial steps towards building resilience among vulnerable populations in Lake Charles. Engaging local communities in planning and decision-making processes can foster resilience and ensure that future disaster response efforts are responsive to diverse needs. In conclusion, the impact of socio-demographic factors on access to Winter Storm Uri and major flooding assistance initiatives in Lake Charles, Louisiana, highlights the multifaceted nature of disaster recovery. Addressing these disparities requires coordinated efforts from government agencies, community organizations, and stakeholders to ensure equitable access to resources, mitigate vulnerabilities, and foster long-term resilience in the face of future disasters. Based on the study's findings from the FEMA dataset analysis, the study recommends the following policies and strategies to help ensure equitable access to disaster assistance.

- Developing policies that address the unique vulnerabilities of each housing type can lead to more effective disaster response and recovery efforts. This includes financial support for retrofitting homes, community education programs on disaster preparedness, and investment in resilient infrastructure.
- Policymakers should review and potentially adjust policies related to disaster assistance eligibility and distribution to ensure they effectively address the needs of diverse household types, including single guardian-led households.
- Policymakers should focus on developing inclusive policies that support both homeowners and renters, with an emphasis on building resilience and reducing vulnerabilities. This can involve stricter building codes, improved emergency response strategies, and long-term recovery plans that consider the socio-economic dynamics of the affected population.
- There is the need for stakeholders to invest in community infrastructure, such as public transportation, healthcare facilities, and educational institutions, which can go a long way to enhance the quality of life and economic prospects for Lake Charles residents.
- Policymakers should focus on creating and implementing policies that address the root causes of poverty, such as wage inequality, education gaps, and lack of affordable housing. These policies should be informed by data and tailored to meet the specific needs of Lake Charles residents.
- There is the need for policy adjustments**,** thereby reviewing and adjusting policies related to disaster relief and recovery to better accommodate the needs of diverse age groups, ensuring equity and inclusivity in accessing assistance programs during and after disasters.
- Policymakers should pay special attention to equitable disaster recovery assistance allocation. They should ensure the equitable distribution of FEMA assistance by considering lower and no-income households' specific needs and vulnerabilities. This may include prioritizing financial support, housing assistance, and access to essential services.

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