



Who Receives FEMA Individual Assistance After Disasters?

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Introduction

- The **Federal Emergency Management Agency (FEMA)** provides monetary support to individuals affected by natural disasters
- Individual Assistance (IA):** food, temporary shelter, home repair and/or rental assistance to meet basic needs and supplement disaster recovery efforts
- Prior research using the OpenFEMA dataset revealed inequitable access to IA financial awards, but less is known about who is likely to be eligible for and receive these awards ^{1,2,3}
- There are differences in the allocation of federal disaster assistance (e.g., minor home repair amounts) between advantaged and disadvantaged groups at the zip-code level ⁴
- It remains an open question whether the discrepancies in IA allocation are due to demographic (e.g., race), geographic (e.g., county, state), or programmatic factors (e.g., level of damage)

Research Question

Who is likely to be eligible for and receive different types of Individual Assistance, considering disaster type, individual demographics, home damage information, and geographic context?

Three Datasets

Individual Assistance Applications

~20 million applications between 2002-2024



- Applicant Characteristics (*Age, Income, County**)
- Eligibility for Assistance (*Food Need, Transition Shelter*)
- Assistance Received (*Repair Assistance Amount*)
- Unique Disaster Number*

Disaster Declaration Summaries

4,840 federally declared disasters between 1953-2024



- 25 disaster types, including: Fire (*N = 1580*), Severe Storm (*N = 1057*), Flood (*N = 884*), Hurricane (*N = 442*), Tornado (*N = 178*)
- Unique Disaster Number*

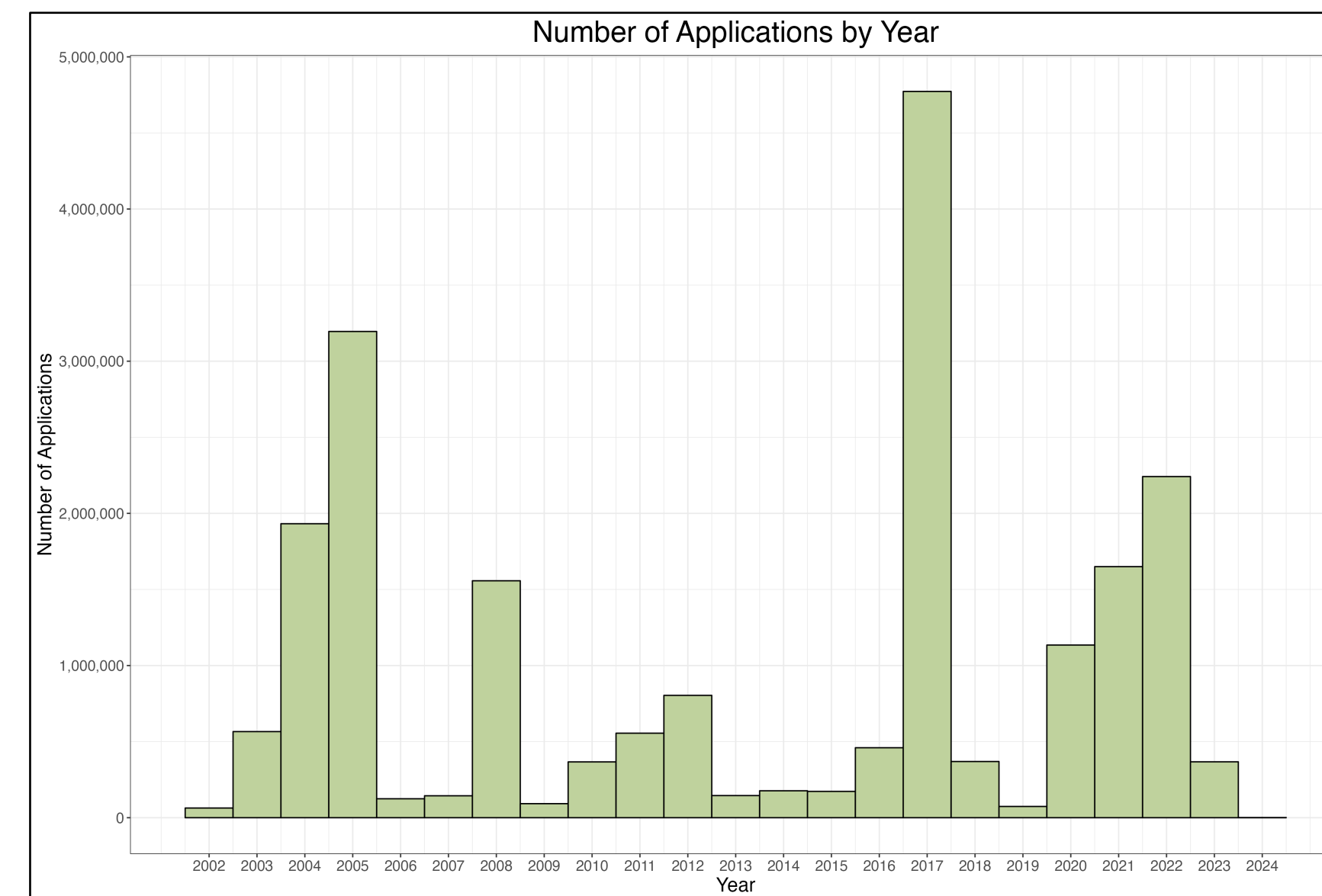
American Community Survey

41,868 county-level demographic estimates between 2010-2022

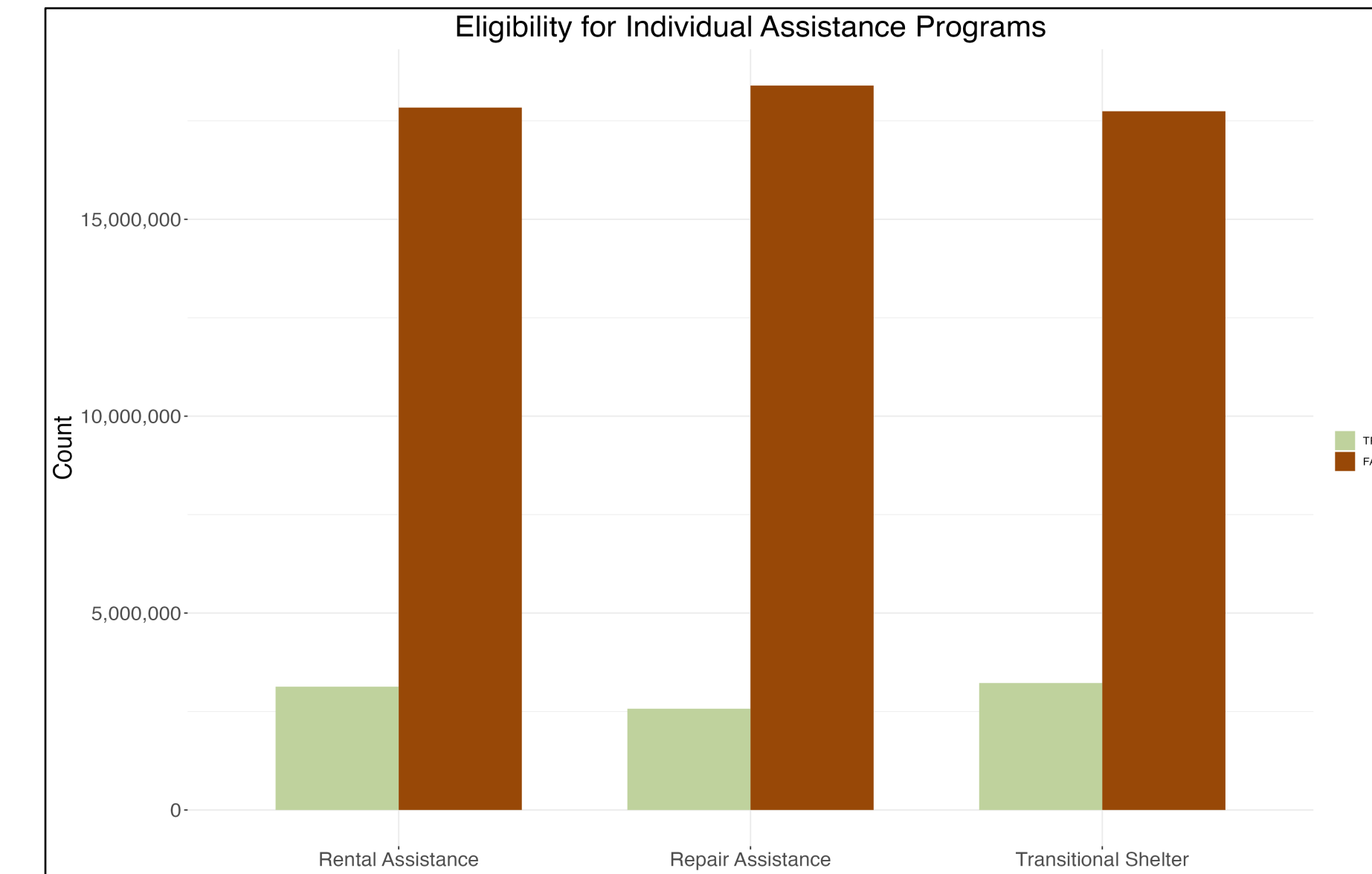


- 5-year "period" estimates = increased statistical reliability
- County-level* (*N = 3,220 - 3,222; varies by year*)
- Counts for 6 race categories: *American Indian, Asian, Black, Native Hawaiian, Other, White*

Individual Assistance Applications Dataset

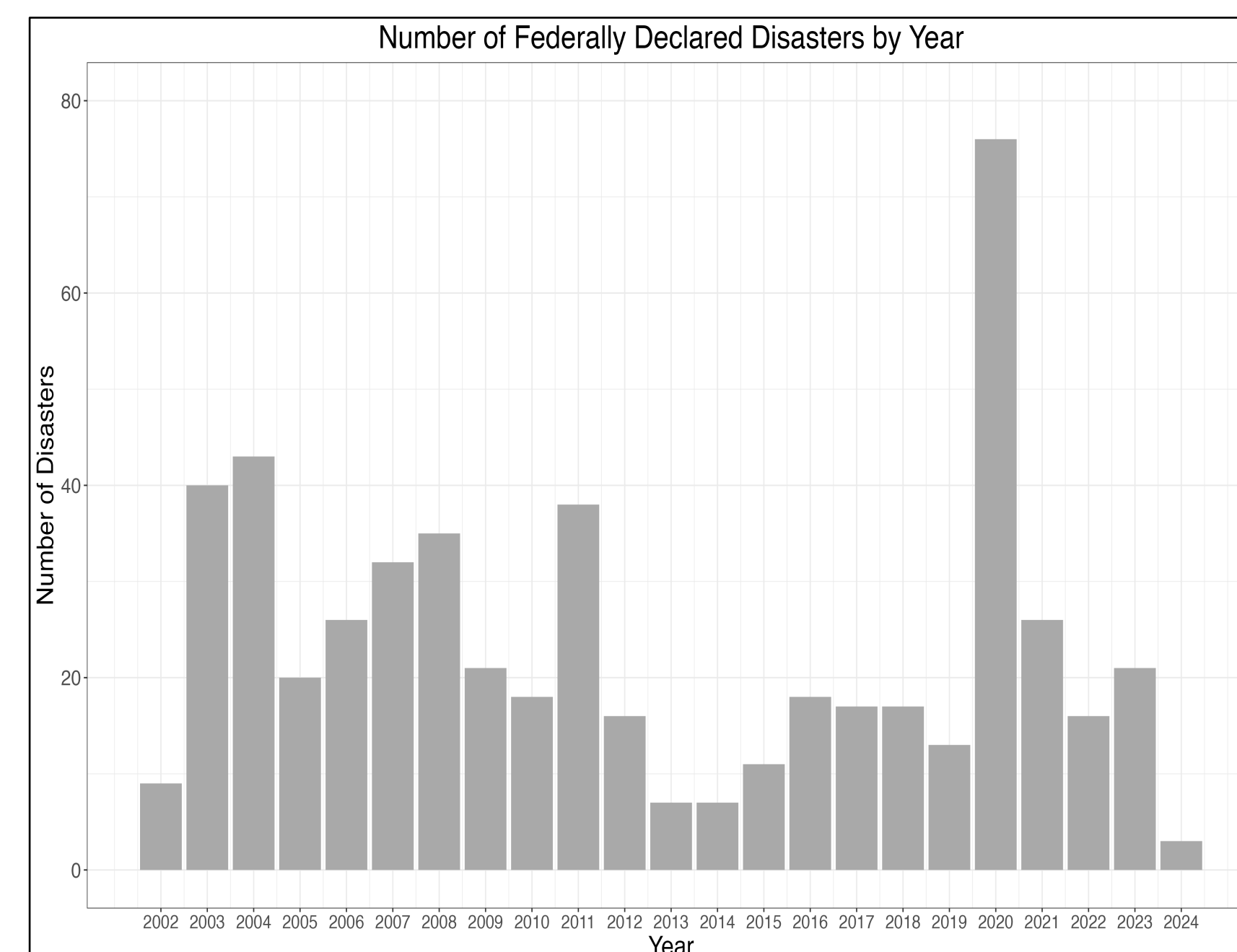


FEMA received the most applications in 2005 (*N = 3,195,448*) and 2017 (*N = 4,772,845*). In a single year, 2005 had the most Category 5 hurricanes (Emily, Katrina, Rita, Wilma) and 2017 had 10 hurricanes, including 3 major hurricanes (Harvey, Irma, and Maria).^{5,6}

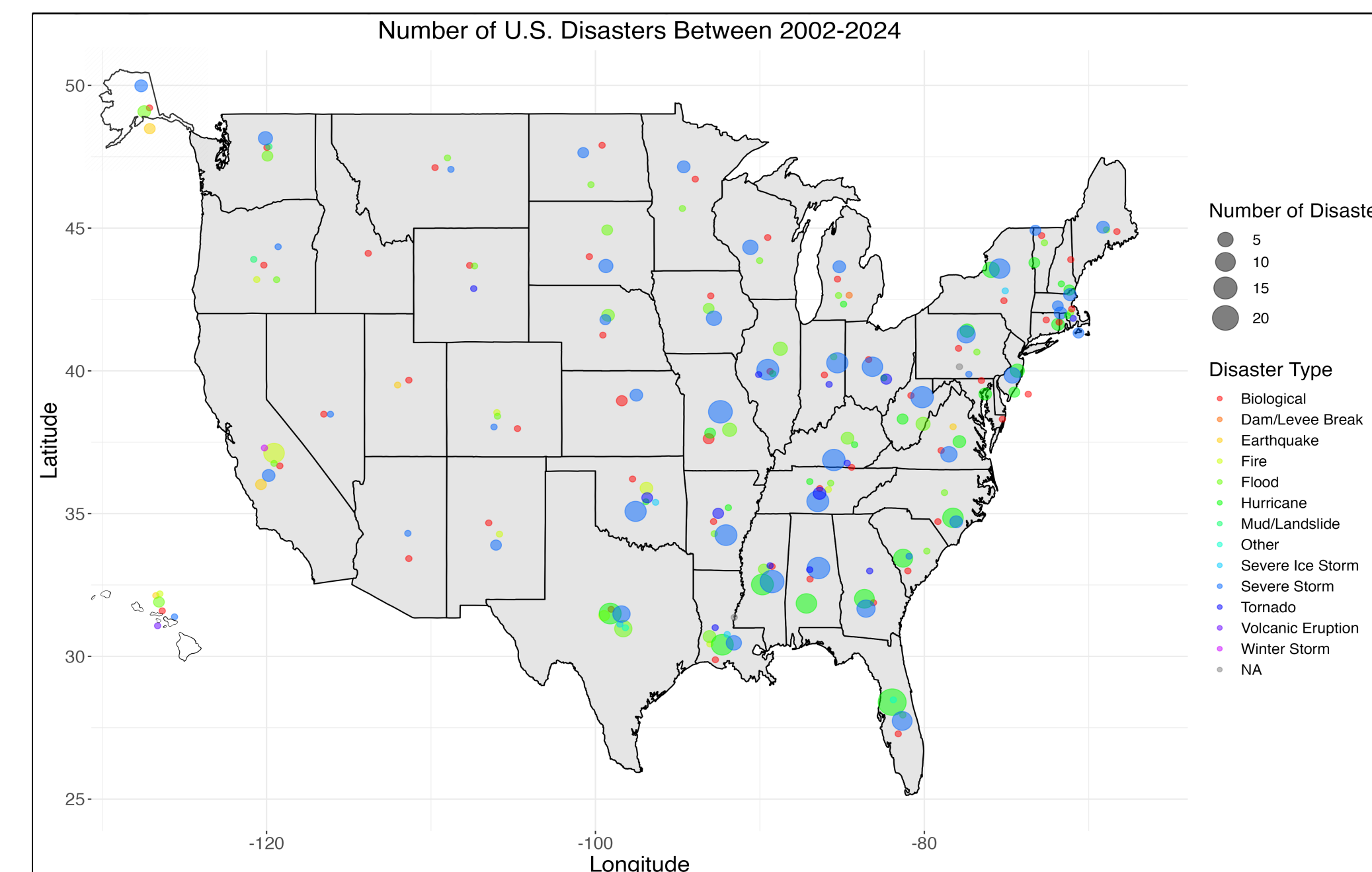


Most applicants are not eligible for Transitional Shelter, Repair Assistance, or Rental Assistance. To be eligible for IA grants, FEMA must be able to verify applicants' identities and that they are U.S. citizens, and that expenses are directly caused by a declared disaster. It is unclear how FEMA makes these determinations, but a central aim of this project is to explore the variables that predict eligibility.

Disaster Declaration Summaries Dataset

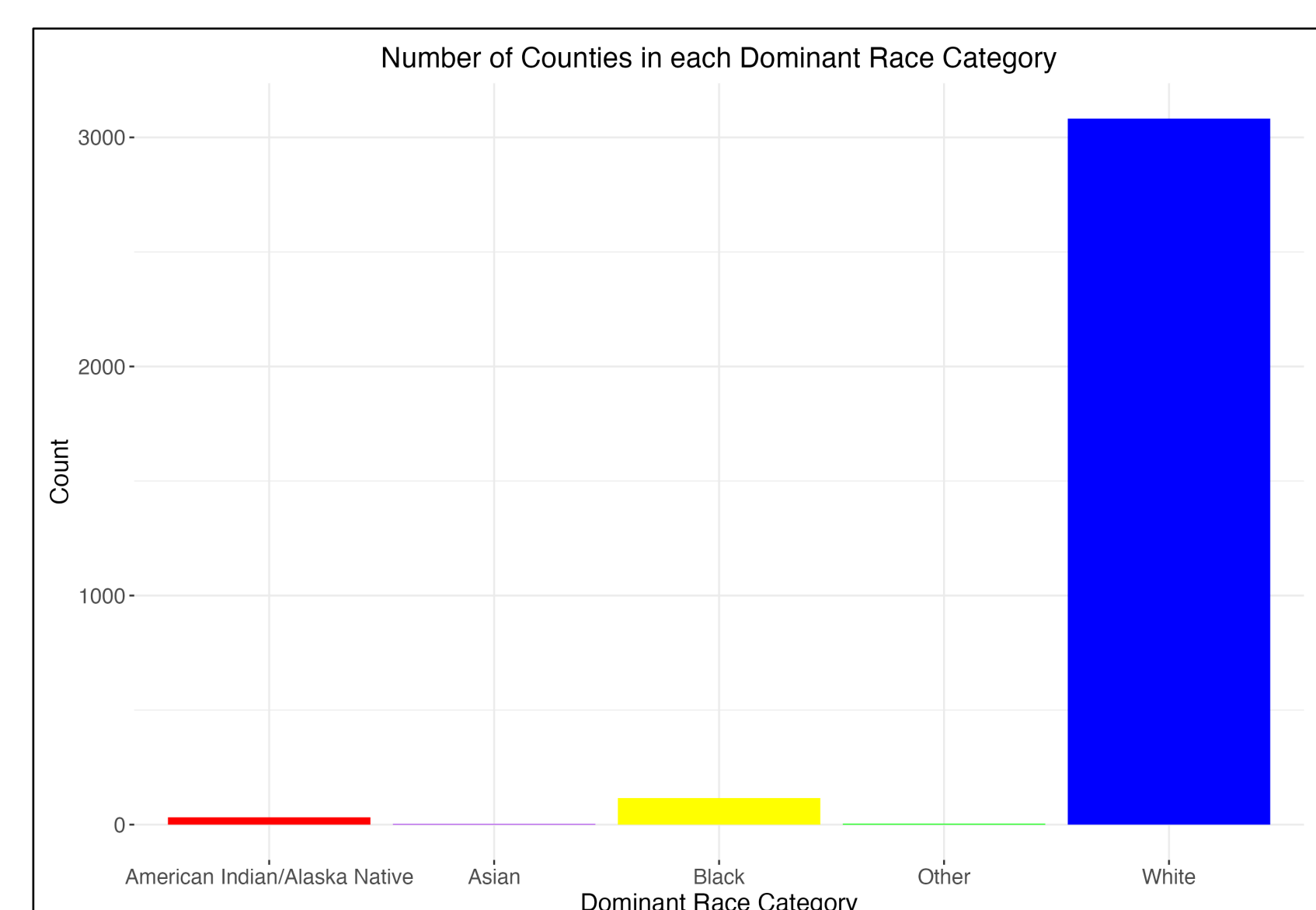


The most federally declared disasters were in 2020 (*N = 76*), followed by 2004 (*N = 43*), and 2003 (*N = 40*).

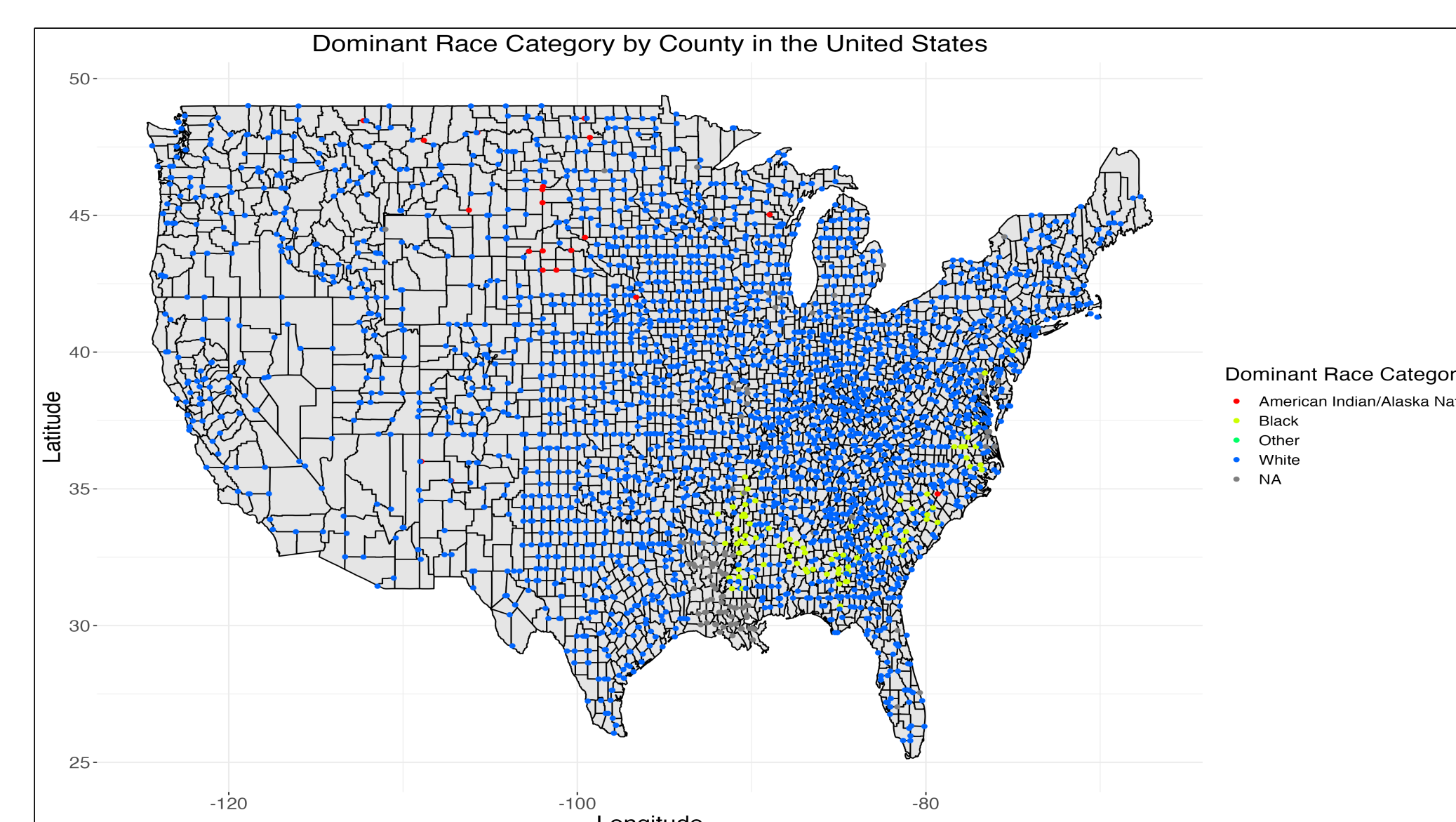


In this 22-year period, most applications for Individual Assistance programs were received following Hurricanes, however, more Severe Storms were declared as disasters in the United States.⁷

American Community Survey Dataset



Most U.S. counties are predominantly White (*N = 3,028*), whereas fewer are predominantly Black (*N = 116*) or American Indian/Alaska Native (*N = 32*).



U.S. map depicting predominant race category in each county. Majority of counties in the U.S. are predominantly White. When completing the American Community Census Survey, people report their race by selecting a single race category that they belong to (i.e., "race alone population").⁸

Discussion

Planned Analyses:

- Calculate odds ratios (separated by disaster type) to determine the likelihood of:
 - being eligible for Individual Assistance (IA) programs
 - receiving Individual Assistance (IA) financial awards
- Explore covariates that may contribute to eligibility or receiving of IA financial awards, including:
 - Applicant information (e.g., age, income level)
 - Demographic information (at the county-level, from U.S. Census American Community Survey dataset)
 - Geographic information (e.g., county, state, pop. density)
 - Programmatic information (e.g., damage level)

Future Directions:

- Incorporate odds ratios into a predictive algorithm for estimating post-disaster recovery resource access for households
- Explore these datasets with a machine-learning approach

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