



WHITE PAPER

OCTOBER 2022

- Low-income renters face pressing challenges in maintaining housing stability after a disaster
- Severe flooding disasters are followed by increases in evictions
- States could adopt disaster mitigation and recovery provisions to spur affordable housing designs.

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HOW CAN GOVERNMENTS ADAPT TO MEET AFFORDABLE HOUSING NEEDS AFTER DISASTERS?

As severe disasters increase and intensify, federal, state, and local governments are continuing to adapt their responses. The needs of low-income renters are particularly acute. Three recent studies by some of the authors of this working paper analyze the intersection of environmental disasters and the shortage of affordable housing in the United States, investigating in particular the effect of flooding disasters on low-income renters. The studies find that severe flooding disasters increase eviction rates and lead to an increase in state allocation of affordable housing funding, but that fewer than half of states include disaster related provisions in their plans for allocating tax credits for affordable housing. These studies chart a path for future research and policy debate about how federal, state and local government can best support the housing needs of those vulnerable to disasters. Given states' reliance on the Low-Income Housing Tax Credit (LIHTC) program as a tool for disaster recovery, we recommend adjusting the LIHTC program and other sources of federal assistance to renters so that additional resources are predictably available to affected states after disasters. We also recommend encouraging states to include disaster mitigation and recovery provisions in their LIHTC allocation plans in order to spur affordable housing designs capable of better mitigating and responding to increasing local hazards. These studies demonstrate what is at stake when gaps between need and public programs persist, creating barriers to post-disaster recovery for low-income renters that exacerbates wealth and racial inequality. By outlining these policy gaps and their urgent consequences, these studies chart a path for future research and policy debate about how federal, state and local government can best support those vulnerable to disasters.

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Environmental and Housing Disasters and Those Most Vulnerable to Them

Stable housing is a central platform for the well-being of individuals and households (Bratt, 2002), and yet housing unaffordability and insecurity remain structural problems in housing markets in the United States (Collinson et al, 2016). Housing insecurity is driven by high housing costs relative to income, poor housing quality, and neighborhood instability, among other catalysts, and is associated with poor mental and physical health for families (Burgard et al, 2012). Low-income renters face substantial housing cost burdens given the diminishing supply of low-cost rental units (Joint Center for Housing Studies, 2020). Two out of every five renter households in 2019 paid more than 35% of their gross income for rent, leaving little left over for other necessities (U.S. Census Bureau, 2020). For every 100 households with incomes at or below the area median income, there were only 59 units affordable to them, on average (Department of Housing and Urban Development, 2020).

Understanding disasters as more than discrete environmental events, but rather as social processes shaping families' exposure to and ability to recover from hazards over the long term (Arcaya et al., 2020), the increase in environmental disasters reinforces pre-disaster patterns of racial and class inequality (Lee & Van Zandt, 2019). As climate change contributes to more severe disasters across the world (Field et al, 2014), the value of losses from severe weather or climate-related disasters in the United States has climbed to unprecedented levels (National Centers for Environmental Information [NOAA], 2021). Disasters from 2015 to 2017 alone, primarily hurricanes, wildfires, and coastal or riverine flooding, extensively damaged more than 500,000 units of rental housing and displaced 324,000 renters (FEMA, 2018; Joint Center for Housing Studies, 2020; NOAA 2021; Perls, 2020).

Disaster and Housing Policy Context

The government response to major disasters generally entails collaboration between federal, state, territorial, tribal, and local agencies. Often conceptualized around four steps—disaster mitigation, preparedness, response, and recovery—federal disaster programs allow states, territories, or tribes and households to apply for financial assistance for projects that reduce the risk of future damage and support recovery from a previous disaster.

Generally, states, tribes, and territories apply after a disaster to the Federal Emergency Management Agency (FEMA) to request a presidential disaster declaration and various forms of federal aid. The Robert T. Stafford Relief and Emergency Assistance Act of 1998 authorizes FEMA to provide up to \$35,000 to families whose homes are rendered uninhabitable by a disaster to rent alternate housing for up to 18 months and to repair owner-occupied private residences. In situations where households are unable to use financial assistance either because of challenges securing housing that can accommodate their needs or limited inventory on the private-housing market, the Stafford Act authorizes FEMA to provide for up to 18 months of temporary housing, which often takes the form of manufactured housing. Not all federally declared disasters qualify households for housing assistance, and the specific forms of assistance vary by region and declared event.

There is no established program that addresses the need for permanent rental housing after disasters. The closest existing program to a long-term housing recovery program is the periodic Congressional appropriation of Community Development Block Grant Disaster Recovery funds, which affected states can use in flexible ways to fund rebuilding and recovery. If funds are appropriated by Congress, which is uncertain after any given disaster, each state then subsequently designs its own recovery program in compliance with guidelines from the Department of Housing and Urban Development.

Though disasters disproportionately affect low-income renters, existing federal and state disaster assistance programs disproportionately benefit homeowners (Fothergill & Peek, 2004). For instance, a Government Accountability Office (GAO, 2010) study found that after Hurricane Katrina 62 percent of damaged homeowner units but only 18 percent of damaged rental units received federal assistance (GAO, 2010). Given the substantial divergence by race and income in homeownership rates, post-disaster recovery processes that disproportionately assist homeowners reinforce historical racial and economic disparities that affect low-income renter communities (Bates, 2006; Howell and Elliott, 2019).

In the absence of a program specifically targeting the permanent housing needs of low-income renters, the LIHTC program may play a significant role in filling this gap. Created by Congress in 1986 to leverage federal tax credits for private investment in the construction of affordable housing, the LIHTC program has become the primary federal tool encouraging the development of multifamily housing for low- and moderate-income households (McClure, 2008). Each year, the Department of the Treasury transfers approximately \$9 billion worth of tax credits to states and territories, and each state or territory develops an allocation plan that outlines the criteria by which the state will distribute the credits among projects proposed by developers (Ellen & Horn, 2018). Once state, territorial, or municipal housing finance agencies award the tax credits to affordable housing developers, those receiving them may construct or renovate rental properties for low-income households in compliance with affordability restrictions. To reduce a project's debt service costs and allow projects to operate with below-market rental income, these developers partner with investors who provide equity for the affordable housing development and, in exchange, receive a tax credit annually over 10 years.

Main Study Contributions

These three studies examine the United States policy landscape surrounding disasters and housing with an eye toward understanding the evolving risks low-income renters face in the climate crisis and opportunities for aligning policies to address those risks.

A perfect storm? Disasters and evictions

In "A Perfect Storm? Disasters and Evictions," published in *Housing Policy Debate* in 2022, Mark Brennan, Tanaya Srin, Justin Steil, Miho Mazereeuw, and Larisa Ovalles find that severe flooding disasters are associated with increases in evictions in the three years following a disaster. These increases in evictions post-disasters highlight the need not only for temporary rental assistance but also for permanent stable, affordable housing over the long-term.

The study combines a quantitative analysis of nationwide county-level data from 2000 to 2015 with a qualitative analysis grounded in the lived experiences of renters to determine how disasters contribute to the housing instability low-income renters already face. By looking at the lagged effect of disasters on eviction, the study’s regression analysis shows severe disasters are statistically significantly associated with an increase in evictions in the year of a disaster and the year following a disaster, even after controlling for specific county characteristics such as the share of owner-occupied homes, poverty rates, race and age, among others. Severe disasters are also weakly associated with an increase in evictions two years after the disaster. The study shows the relationship between disasters and evictions is mediated through housing market characteristics and the level of federal aid directed to renters following a disaster: evictions after disasters are higher in counties with higher median rents and are lower in counties with higher values of FEMA assistance (Table 1).

The mechanisms behind the effect are explored in the study’s qualitative analysis, which drew from 25 semi-structured interviews gathering the perspectives of renters, service providers, and landlords in Bay County and Panama City in Florida who navigated the housing shock in the wake of Hurricane Michael. Making landfall in Bay County on October 10, 2018, the storm damaged 4,623 of the 8,396 multifamily units that existed in Panama City before the storm and destroyed roughly 1,500 structures in Bay County. Thousands of households were displaced. Many of the post-disaster recovery policies focused on converting renters into homeowners, leaving few options open for those who were unhoused or could not afford to buy homes. A barrier for some small landlords in accessing FEMA aid was a lack of documentation of clear title to the land, one of several requirements for the distribution of federal aid. Renters were also unable to access aid due to informal leasing practices, which affected their ability to establish proof of residence. Many renters who were evicted after the storm then faced the additional obstacle of having an eviction record that made it even more difficult to obtain alternate housing. Every Bay County resident interviewed for the study confirmed that the housing landscape after Hurricane Michael has been challenging to navigate and expensive, and almost all believed they were in a qualitatively worse housing situation after the storm.

Table 1: Disasters and Evictions

Dependent	Model 1.1		Model 1.2			
	Evictions		Evictions			
	Estimate	SE	Estimate	SE		
Severe Disaster	98.82	*	41.17	95.46	*	44.01
Severe Disaster (t-1)	115.08	**	40.42	111.92	*	43.93
Severe Disaster (t-2)	97.75	.	51.43	95.87	.	52.04
Severe Disaster (t-3)	55.05		58.46	53.04		58.52
Severe Disaster (t-4)	39.54		46.35	39.57		46.32
Pop. density				-1.12		0.84
% Households in poverty				2.12	.	1.23
% Pop. non-Hispanic White				-11.11	.	5.69
% Pop. older 25 and BA or higher				7.36		4.61

% Multi-family housing units		5.05		6.33
% Vacant housing units		4.54	*	2.23
% Owner-occupied units		-0.12		1.5
Median rent (\$100s)		35.76	***	9.86
Median home value (\$1000s)		-1.21	*	0.58
% Rent-burden households		-0.12		0.45
Fixed effect	Year, county	Year, county		
R ²	0.00296	0.02445		
F statistic	184.63	188.01		
DF	29,812	29,802		
P values: 0.001, ***; 0.01, **; 0.05, *; 0.1, .				

Affordable housing, disasters, and social equity

The largest financing mechanism for the construction of new subsidized housing in the United States is the Low-Income Housing Tax Credit (LIHTC), which has supported the construction of more than 3 million housing units since its creation in 1986. Whether and how states are incorporating disaster preparedness and recovery provisions in LIHTC allocation guidelines is the central question in “Affordable Housing, Disasters, and Social Equity,” published in the *Journal of the American Planning Association*, in 2020, by Aditi Mehta, Mark Brennan, and Justin Steil. By coding the 2017–2018 LIHTC allocation plans for 49 states, the District of Columbia, and three territories, the paper identifies the extent to which states use their LIHTC qualified allocation plans to support disaster preparedness, mitigation, and recovery. They also explore what differentiates states that did or did not include disaster-related provisions in their LIHTC allocation plans. The study finds only 24 states and territories include provisions for mitigation, preparedness, or recovery in their LIHTC allocation plans. Of these, 13 include only mitigation or preparedness provisions, 3 include only recovery provisions, and 8 include both types of provisions. States with higher rates of homeownership and lower housing costs are more likely than other states to have disaster-related provisions in their allocation plans, whereas states with more LIHTC units overall and more LIHTC units per capita are less likely than other states to include disaster-related provisions. In states with disaster-related provisions, LIHTC units are more likely to be built in counties after a disaster compared to states with no disaster-related provisions.

In harm’s way? Effects of disasters on low-income housing tax credit allocations

The extent to which states using the LIHTC program to respond to housing needs in counties affected by disasters and whether those units are built in or outside of the floodplain is the focus of Brennan, Mehta, and Steil’s research in “In Harm’s Way? The Effect of Disasters on the Magnitude and Location of Low-Income Housing Tax Credit Allocations,” published in 2022 in the *Journal of Policy Analysis and Management*. Compiling a panel dataset on LIHTC allocations, flooding disasters, and other county characteristics between 1990 and 2015, the authors use a distributive lag model and find that policymakers

are using LIHTC as a disaster response tool. On average, in the year following a severe flood, an additional 80 LIHTC units per million people were allocated to affected counties, representing a 57% increase in the number of LIHTC units per capita allocated to a flood-struck county.

These overall findings regarding the use of the LIHTC program for disaster recovery raise the question of the extent to which these post-disaster LIHTC allocations to flood-hit counties are for projects that are in the 500-year flood plain and whether these allocations will mitigate or exacerbate future disaster exposure for low-income tenants. The results find that a severe flooding disaster has no relationship with LIHTC allocations inside of the 500-year floodplain after the disaster, but a substantial and highly significant increase in LIHTC allocations per million people outside of the 500-year floodplain in that county in each of the first three years after the disaster. Severe floods lead to an increase of 63 LIHTC units per million people in a disaster-struck county outside of the 500-year floodplain in the year after the disaster, compared to an average annual county allocation of 129 units per million people outside of the floodplain across all years—a 49 percent increase in units allocated on average.

The findings suggest that in the absence of a federal disaster housing program that creates permanent housing for renters, states turn to the LIHTC program to catalyze rental housing production after disasters. A limitation of converting existing policies to meet new objectives is that, when programs are used to serve needs that do not reflect their original legislative purposes, they may not allow agencies to equitably and efficiently meet those new objectives. One central tension in disaster policy, and safety net policies more broadly, is the degree to which the policy not only addresses current vulnerability or harm but also functions to reduce future vulnerability. The findings here suggest that states are using LIHTC to catalyze recovery and potentially doing so in a nuanced way, placing an emphasis on increasing the units allocated to disaster-hit counties and also increasing the number of units within that county allocated outside the floodplain, in order to reduce the flooding hazards that future subsidized renters face, while not completely rejecting projects that will replace damaged units in floodplains to the extent that is where a large portion of renters already live. The fact that states and affordable housing developers are largely making these difficult decisions on a state-by-state and project-by-project basis highlights the need for more explicit conversations about the role that the LIHTC program plays in disaster recovery (Table 2).

Table 2: Estimate of Effect of Flood Disasters on LIHTC Unit Allocations

Variable	Model 1.1		Model 2.1		
	Estimate	Std. Error	Estimate	Std. Error	
Dependent	Units per million people		Units per million people		
Severe flood (t = 0)	10.98	(17.27)	10.54	(17.3)	
Severe flood (lag, t = -1)	83.53	(22.3)	80.25	(22.24)	***
Severe flood (lead, t = 1)	-9.5	(15.65)	-11.99	(15.75)	
Severe flood (lag, t = -2)	57.76	(23.3)	55.84	(23.22)	*
Severe flood (lead, t = 2)	-4.84	(18.16)	-7.58	(18.24)	
Severe flood (lag, t = -3)	57.36	(22.82)	55.7	(22.7)	*

Severe flood (lead, t = 3)	-10.56	(18.77)	-10.73	(18.69)	
Severe flood (lag, t = -4)	-2.28	(15.66)	-4.57	(15.79)	
Severe flood (lead, t = 4)	0.57	(16.93)	0.82	(16.91)	
Severe flood (lag, t = -5)	-10.84	(15.8)	-10.35	(15.95)	
Severe flood (lead, t = 5)	1.09	(17.31)	2.05	(17.24)	
Severe flood (lag, t = -6)	-13.53	(15.7)	-10.37	(15.71)	
Severe flood (lead, t = 6)	-7.89	(16.72)	-8.5	(16.74)	
Share pop. non-Hispanic white			2.46	(1.52)	
Share units owner-occupied			0.17	(2.35)	
Median rent			121.58	(99.46)	
Pop. (millions) per square mile			-0.01	(0.02)	
Share pop. unemployed			-12.59	(2.08)	***
GO-Zone Act in Effect			10.67	(11.29)	
Errors: HC1	County		County		
Effects: Fixed	Year, county		Year, county		
Complete observations	56,904		56,860		
DF	54,497		54,445		
Notes	-		44 records with incomplete covariates		
R2	0.0005		0.0017		
F statistic	1.97		4.78		
Significance: 0.001 ***; 0.01 **; 0.05 *; 0.1 .					
Notes: This table reports a distributive lag model with county and year fixed effects. Robust standard errors are clustered at the county-level with HC1.					

Policy implications and future research

In the still understudied intersection of housing and disasters, these three studies aim to deepen our understanding of the pressure that disasters apply to low-income renters that generate housing instability, as well as the policy opportunities disasters create to build safe, healthy, affordable housing. These studies suggest federal, state and local policy changes that may strengthen the public capacity to address the housing instability facing low-income renters, before and after disasters.

For instance, adjusting the LIHTC program so credits are available to affected states in a way that is consistently responsive to disasters can expedite the distribution of credits and shore up the assumptions about LIHTC availability that state and local officials can make in planning. Requiring or encouraging states to include disaster mitigation and recovery provisions in their LIHTC allocation plans may spur affordable housing designs capable of better mitigating increasing local hazards. The federal government may also provide guidelines to assist states weighing complex LIHTC allocation decisions after a disaster. These

recommendations can serve as a foundation for ongoing conversations on the benefits of relocating or rebuilding homes in the neighborhoods where renters already live and how to most effectively reduce these families' future vulnerability to disasters. States may consider including disaster-focused provisions in their allocation plans and collaboration with local agencies to ensure developers have the technical skills to create disaster-resilient designs. All levels of government may consider adjusting laws and rules in light of the burdens that disasters place on low-income renters, such as eviction moratoria, changes to eviction court proceedings, right to counsel for tenants, and expungement of eviction records.

To further examine the housing dynamics underlying environmental disasters, researchers can focus on the political processes and levels of investment or disinvestment that precede and follow disaster-related evictions. To this end, it is important to better understand to what extent evictions increase because of physical damage to homes, increased rents caused by a disaster-induced housing shortage, or economic disruption caused by a storm. A better understanding of the relationship between disaster exposure and federal aid could illuminate the types of LIHTC allocation provisions best equipped to support disaster preparedness, mitigation and recovery. Future researchers may also consider analyzing the variation between states using LIHTC as a disaster response tool, especially in distinguishing between approaches to locating LIHTC units after a disaster.

The interplay of climate change, environmental disasters, and housing is a particularly important area for future research and policy innovation. A continued focus on these issues has the potential to reduce the disproportionate effect of disasters on low-income renters as well as save human lives and public resources.

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