

DISASTERS AND THE RENTAL HOUSING COMMUNITY: SETTING A RESEARCH AND POLICY AGENDA

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EXECUTIVE SUMMARY

The nation's system for managing disasters is broken. Hurricanes, wildfires, earthquakes, and related emergencies caused by increasingly severe and frequent effects from fossil-fuel-induced global climate change can have massive health and financial consequences for communities. Our current disaster management system relies on local, state, and—increasingly—federal resources to support disaster preparedness and mitigation efforts before a disaster; provide evacuation, safety, and relief during; and support rebuilding and recovery after. Yet gaps in public responses to disasters hold especially true for renters, rental properties, and rental housing stakeholders. Renter conditions—the availability, affordability, and quality of rental housing units throughout this timeframe—are a key indicator of climate and disaster vulnerability. And despite renters accounting for over one-third of U.S. households, funding and programming across all disaster stages still disproportionately serve single-family homeowners.

There have been calls for “disaster justice” over the last decade, often as an offspring of environmental and housing activism. But equitable disaster processes, outputs, and outcomes have remained poorly defined. To ensure that renters' voices are at the center of any policy or evidence-building agendas, scholars and policy analysts affiliated with the Brookings Institution and Enterprise Community Partners—with generous support from the Walmart Foundation—developed an overview of the key challenges in practice, policy, and evidence on the subject of renters and the disaster

continuum, from hazard relief and response through recovery to longer-term hazard mitigation and resilience. The team also hosted a full-day, invitation-only convening of local grassroots tenant organizations, rental housing providers, and regional housing advocates at the Brookings Institution in Washington, D.C. on July 20, 2023, to answer the question: How can tenants and landlords be better served in programs across the public disaster management system?

We approach this challenge comprehensively, starting by including renters at the table. We center renters' perspectives, incorporating their lived experiences into the evidence base when making recommendations about policy that affects their lives. Drawing on this experience, along with additional research, we offer recommendations for tweaks and transformations to practices among local civic organizations, disaster and housing service providers, and responsible government agencies to center the renters who form a significant portion of their resident and survivor populations. These recommendations include: 1) universal renter protections; 2) the prioritization of low-income renters of all kinds in all disaster programs; and 3) requirements for state and local governments to enforce tenant protections and support tenants and rental housing in exchange for access to federal disaster funding. This document narrates the preliminary research and agenda-setting developed for the convening, describes the convening's multiple conversations, and outlines recommendations drawn from workshop participants for improving policy and research.

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Background

When it comes to housing, renters, rental property owners and developers, and rental housing markets are the neglected sibling in our nation's disaster management policies. Insurers—including federal- and state-managed policies—prioritize real property in hazard coverage. Long-term recovery funds are overwhelmingly used to make homeowners whole, but not renters.¹ Even hazard mitigation programs have disproportionately served homeowners over renters, though renters account for over one-third of all U.S. households. The disaster policy continuum, from pre-disaster mitigation through hazard relief and response to recovery and longer-term resilience, has sorely neglected the availability, affordability, and quality of rental housing units before, during, and after disasters—even in places where they have long been a concern for advocates and policymakers.

Indeed, disaster researchers identified housing tenure—and particularly, renter status—as a key indicator of disaster vulnerability over two decades ago.² However, only recently has there been an increase in empirical study on the effect of disasters on this population.³ For example, one federal study of the variation in damages across housing types in Louisiana after Hurricane Katrina estimated that 29% of units in the homeowner stock were damaged, compared with 35% of rental housing units—but 62% of damaged homeowner units and only 18% of damaged rental units were provided with disaster recovery assistance.⁴

Despite these studies of individual disasters, a clear picture of housing conditions across all types of disasters and varying segments of local housing markets eludes us. The empirical gap extends to different renters and outcomes (especially low-income households' financial well-being), for various rental properties by size and ownership structure, and in different housing markets, from tight urban regions to rural communities with

few rental options. In witnessing the potentially displacing effects of disasters on renters, policymakers at all levels of government have implemented program rules and regulations to address these survivors, albeit sporadically. Local governments have often focused on evacuation and sheltering plans for multifamily housing residents, including low-income elderly tenants and residents with disabilities. States have set temporary rent price moratoria. The Department of Housing and Urban Development (HUD) also began imposing rental development requirements for federal aid in the post-Katrina era.

However, disaster relief and response strategies only partially consider how renters and rental housing providers are more likely to slip through the cracks of post-disaster assistance programs because of their reduced social, financial, and physical capital. Consequently, renters' challenges compound: The loss of rental housing to disaster impacts—along with increased demand from homeowners with damaged properties and disaster aid workers for short-term housing—leaves renters competing for a smaller supply of available housing than before the disaster. Rental property owners, meanwhile, are eligible to receive federal recovery funding, but may not be obligated to continue renting to former residents or maintain prior levels of affordability. Combined, these effects can put renters at a significant disadvantage following a disaster. With renters occupying an older housing stock than homeowners (which is even more acute for assisted and public housing residents), opportunities to mitigate for the next disaster—and make renters truly resilient throughout the disaster continuum and its cycles—are desperately needed.⁵

Defining the challenges

To address these challenges, we must first consider who and what is at stake.

RENTAL HOUSING

We begin by defining the specific outcomes of interest in the rental community, starting with the renter households themselves, then understanding the rental housing inventory in different regions, followed by the responsibilities of rental property owners, managers, and related professionals.

Renters

We include all renters regardless of housing type (single-family homes, multifamily housing of various sizes, or manufactured housing) or their units' financing and ownership structure (public, assisted, or market rate housing). The exception to this broad net is our focus on low- and moderate-income renters. We focus on housing outcomes (rental cost burdens and housing stability) along with other life outcomes such as health, children's education, and financial wealth across the disaster cycle. We adopt this focus because renters are more likely than homeowners to live in older housing, to be cost-burdened by housing, to be uninsured, and to be rejected for federal individual disaster assistance. The situation is worse for renters with more complex needs; for example, those with disabilities, who face even more acute challenges during and immediately after disaster events.⁶

Rental stock

The availability (number of rental units), affordability (pricing), and quality (structural and hazard deficiencies) of the local rental housing inventory determine a range of disaster outcomes, including whether a home can withstand a hazard, whether a tenant with a disability can be evacuated from their apartment, and how quickly a family

can find new homes that meet all their needs. Geographically, we define a local rental market as the landscape of available housing that would allow a renter to maintain a similar life and livelihood, if not better, after a disaster occurs. Typically, this is the pool of rental housing in a metropolitan region. We include all segments of the rental stock by structure or ownership type and assistance status, again focusing on the stock affordable to low- and middle-income households.

Rental owners

The importance of owners maintaining their rental properties, assisting their tenants, and rebuilding or improving them to offer a fair and decent home during and after a disaster in every region of the country cannot be overstated for the well-being of renters. Like for the renter group, we are concerned with owners regardless of property type (public, assisted, and market rate) but also regardless of ownership structure and financial interest (from an individual owner-occupier through corporate rental developers, investors, and management companies).

DISASTER CYCLES

We have categorized the stages of disasters into three groups in relation to the rental housing community along the timeline before, during, and after a disaster event (Figure 1). Different state and federal resources, staffing, and programs are available at each phase.

Preparedness, response, and relief

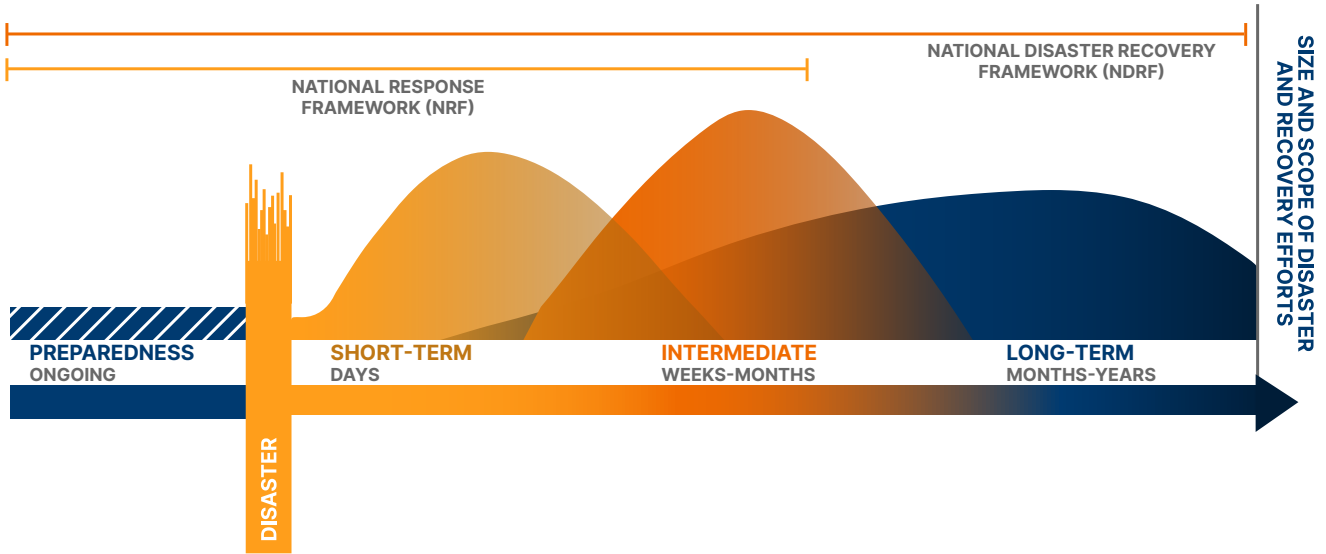
The activities that occur in rental housing immediately before, during, and up to three months after a disaster event—and the things that renters can do or are empowered to do to prepare for future disasters—will vary by place and even across individual dwellings. Evacuations,

temporary shelters, and immediate health hazards can be determined by whether the renter and the property owner have sufficient information to assist local disaster officials and have kept up with basic

repairs and maintenance (including repairs from past disasters) that increase preparedness.

FIGURE 1

Disaster lifecycle timeframe



SOURCE: Authors’ modification to “Recovery Continuum” Diagram in FEMA (2016). National Disaster Recovery Framework. Washington, DC: Federal Emergency Management Agency: https://www.fema.gov/sites/default/files/2020-06/national_disaster_recovery_framework_2nd.pdf

Voluntary cooperation between landlords and disaster first responders to help identify medically challenged tenants that would need special assistance for evacuation and shelter has been implemented in several high-risk areas, such as New Orleans. Other protections, such as post-disaster eviction moratoria or anti-rent-gouging laws, will often determine whether and how quickly renters can return to a semblance of normalcy, even where rental housing crises already existed. Combined with tenant and community programming that could support preparedness awareness campaigns and neighborhood social networks, these practical considerations are particularly acute for renters. This—the shortest of all disaster phases

under this project—can determine life or death for a renter. It can also define a rental market for years to come, along with owners’ responsibilities for assisting their tenants and enabling residents to reoccupy quickly after harm has passed.

Recovery

The primary long-term responses starting three months after a disaster and typically lasting up to four years for the rental housing community have been the repair of existing rental units (typically through owners’ private building and hazard insurance claims) and the building of replacement affordable rental housing with public funds where

units have been lost. In places where there was a dearth of rental housing even before the disaster, the immediate losses contribute to longer-term housing access and affordability challenges, such as rent increases. Further, where a disaster wipes out the rental stock, repairs can take years; the building of affordable rental housing using HUD's Community Development Block Grant Disaster Recovery (CDBG-DR) program takes an average of 4.6 years after the grant award—one of the program's longest recovery activities.⁷ The condition and consequence of rental properties' hazard insurance, meanwhile, is not fully known with regard to disparities from other building types in terms of levels of coverage, costs, or treatment by insurers, including for claims.

In some cases, this clock starts a full year after the event itself, given the timing of Congress' special appropriations—meaning new rental housing could take six years to come online after the disaster. At that point, the renters who suffered personal damage (including lost housing) are likely to have long since been forced to find other housing options. The local housing stock has also likely been severely hampered—if not decimated—for current renter survivors and newcomers to the local rental housing market. For several markets, compounding disasters also shorten the timeframe for landlords to repair or rebuild.

Mitigation and resilience

Disaster or hazard mitigation and resilience activities occur after recovery and before the next disaster—though in many places, these activities must now occur simultaneously given the frequency of disasters. Integrating mitigation and resilience into recovery interventions can also be advantageous. But in all cases, the need to prepare the physical, financial, and social programming that will reduce damages in the long term is an increasingly acknowledged and sometimes supported—but still under-resourced—part of the disaster continuum.

Too often, rental units—especially affordable ones—are older, built to outdated performance standards, and in locations that are more exposed to hazards than other properties.⁸ Landlords are rarely required to report any possible risks to prospective tenants. They are also usually unable to afford improvements such as backup power and lighting (which can reduce damages during an event), or structural changes to reduce damages during recovery, such as wetproofing for flood events or strengthening for high-wind loads. More robust long-term renovations such as energy efficiency or improved water management for future droughts and heatwaves also tend to be cost-prohibitive.⁹ Property owners' and renters' hazard insurance ostensibly cover future damages, but the take-up, coverage, price, and claims treatment vary—especially for low-income renters.

The lack of investment in long-term disaster mitigation strategies such as structural improvements and insurance poses a risk to all rental community stakeholders, including the private and public multifamily housing finance institutions and investors that may not account for hazard risks. Hazard mitigation and climate adaptation strategies provide multiple returns to owners' investments. Collectively, preventative efforts that are employed before disasters strike also ensure stability in housing markets by highlighting gaps such as insufficient rental units in safer locations, which need to be produced before the next disaster. Ultimately, and most importantly, sound hazard mitigation also reduces human suffering.

Ongoing research

Among the few prior studies we were able to identify on this topic, the evidence unambiguously points to worse impacts and outcomes for renters and rental markets following a disaster, relative to homeowners and for-sale housing markets. Recent studies have shown that renter households in particular rank among the most susceptible to experiencing negative outcomes following disasters.¹⁰ Their lower-than-average incomes, assets, and savings rates compared to homeowners—combined with their increased vulnerability to disaster impacts due to lower housing quality and reduced physical defenses—put renters at greater risk of housing damage and instability following an event. Renters are also more likely to slip through the cracks of post-disaster public assistance programs because of their reduced social, financial, and physical capital.¹¹ These effects result in a vicious cycle of renters enduring worsening personal and financial outcomes—further limiting their ability to access affordable and suitable rental housing during disaster recoveries and beyond.¹²

Less well known, however, is how much renters' disparate outcomes after a disaster are exacerbated by impacts on the rental housing stock itself, including its availability, affordability, and quality. Preliminary evidence suggests that after an event, the rebuilding of rental housing takes longer to complete relative to other housing recovery activities, which constrains the number of available rental units for years after the event.¹³ Consequently, renters are more likely to experience negative housing conditions such as rent gouging and longer housing searches after a hazard event.¹⁴ They also may have lived in unregistered, informal rentals of lower quality when the disaster hit, or may seek similar accommodations afterward if their choices are limited.¹⁵ These challenges are exacerbated when the rental housing inventory is already constrained, unaffordable, and discriminatory prior to the disaster. There may also

be unintended consequences whose outcomes are either understudied or under-documented, for which more expansive research is needed; for example, in homelessness, long-term housing precarity, and household health and wealth.

Further, researchers have typically documented these effects for only a single disaster case. There is little rigorous evidence about the patterns of multiple disasters' effects on the rental housing stock, either in the immediate aftermath of an event when habitable housing is at a premium or in the long term when housing markets have absorbed public assistance and purportedly recovered. Improvements in the consistent reporting of rental properties by CDBG-DR grantees since the 2005 Hurricane Katrina allocations and the expected closing out of housing activities from multiple 2017 disaster grants therefore present both a need and opportunity to study rental market outcomes for availability, affordability, and access over time and across a range of disaster types and scales.

Despite having anecdotal information on post-disaster rental market impacts, many public interventions have been designed to mitigate these conditions. For example, state governments pass temporary anti-rent-gouging laws and eviction moratoria as part of their disaster declarations.¹⁶ The Federal Emergency Management Agency's (FEMA) Individual Assistance program provides partial assistance for renters after any insurance claims have been paid, occasionally including temporary housing assistance. In the longer term, many municipalities have also sought to rebuild rental housing or add to their overall stock on their own to stabilize their renter populations.¹⁷

In addition to the above information, our literature review also uncovered a much larger set of questions for which we still lack answers. These include some identified through the limitations of existing research, such as: What impacts on

renters and rental markets are common across disasters by type, time, and place, to the extent there are different effects observed? How much of the variation can be explained by pre-disaster conditions among the renter population (by demographic or socioeconomic characteristics), the rental housing stock (by type, age, and/or quality), and the operation of rental markets themselves (how tight or loose, how affordable, etc.)? And how do these effects on renters and rental markets change over time, especially given the lags between a disaster and when most post-disaster recovery and hazard mitigation assistance is deployed?

The focus on post-disaster impacts in prior research also means little is known about the role and effectiveness of pre-disaster mitigation and preparedness strategies and policies, which have the potential to greatly influence what happens during and after an event. For example, we do not know which pre-event activities have been conducted that have had positive effects (i.e., structural upgrades and preparedness work that reduce disaster-caused damage to renters and rental housing) versus negative effects (activities that increase the cost of housing and can lead to affordability challenges and displacement, particularly for lower-income renters). There is also scant information on what both renters and property owners—alone or in collaboration—can do to prepare for a future disaster. Having this information is crucial to developing policy and programmatic solutions that will achieve more equitable post-disaster outcomes for renters.

In acknowledgement of these gaps in the literature, the research team conducted early research to illuminate two questions at the intersection of disaster policy and rental housing. First, what do we already empirically know about how renters and rental markets fare during and after a disaster? And second, what policy interventions help renters and markets mitigate these effects, and to what end? These inquiries were conducted in advance of our convening to provide participants with a level setting and some confirmation of what many have experienced. We summarize the findings from those

two analyses below, and additional methodological information is in [Appendix 1](#).

DISASTER EFFECTS ON RENTS

In this analysis, we investigate the effects of severe disasters on rental housing markets, including rental prices. We analyze impacts on effective rents across several rental markets in a variety of geographic locations, including Atlanta, Detroit, and Little Rock, Ark., as well as most major markets (metropolitan areas) in California and Florida. We use data on multifamily rents from CoStar, focusing on quarterly estimates from 2000 to 2020 of the average effective rent per unit at the ZIP code level, yielding over 180,000 observations. We then merge this data with: 1) presidential declarations of “major disasters” maintained by FEMA; 2) hand-tabulated data indicating the presence of a CDBG-DR grant for that disaster for a county, to identify local housing stocks with likely damaged rental housing; and 3) county-level characteristics reported by the U.S. Census Bureau, including total population, share of people living below the poverty line, share of renters, and share of white residents. We estimate the effect of these disasters on the effective rents, controlling for these county-level characteristics.

Figure 2 shows three separate estimates: the effect of a first disaster to strike a ZIP code in Panel A; the effect of a second disaster to strike that same ZIP code in Panel B; and the additional effect of three or more disasters in Panel C. X-axes indicate quarters before a disaster as less than zero, and after as greater than zero. Y-axes indicate the percentage change in effective rent per unit. In all cases, the disasters significantly increased rents, lasting for several years. On average, the first disaster increases rents by over 4% within six quarters, and rents remain elevated over five years after the disaster. The second disaster increases rents by 6%, with the effects reducing four years after the disaster. The third disaster increases rents by 5%, also diminishing after four years.

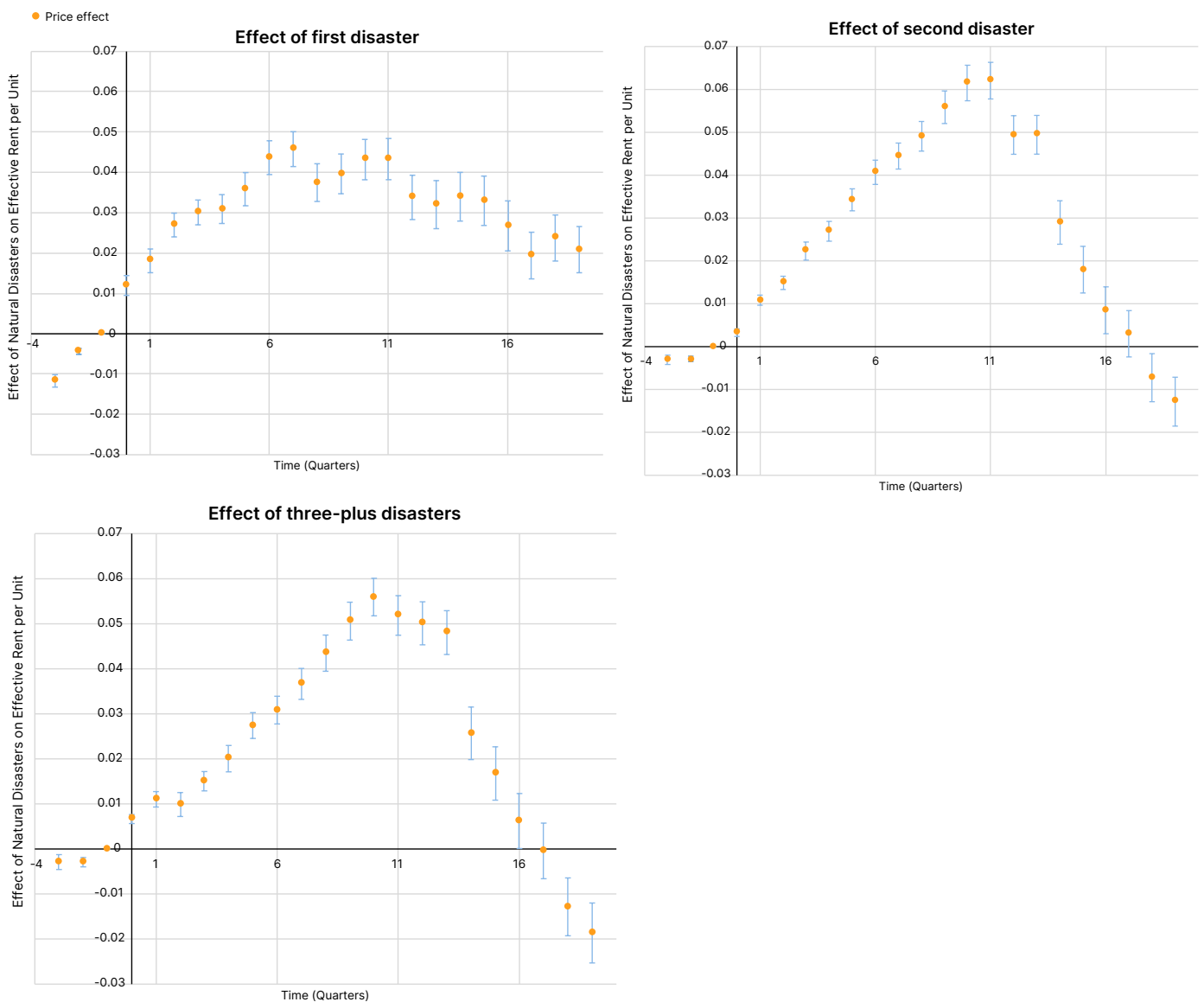
For context, the average time between disasters for a typical ZIP code in our sample is about 10

quarters (3.5 years). In Panel B, we restrict our attention to disasters that were followed by a federal CDBG-DR grant. We run the same statistical model, but here we measure the combined effect of a disaster with the provision of recovery funds. In contrast with Panel A, the effects are much smaller. Although there is a significant increase in rents, the cumulative effect of three or more disasters is only 7%, almost halving the magnitude. This suggests

that either these regions which received CDBG-DR funds differ from other regions in their reaction to disaster in ways we have not directly measured in the model, or that there is a mitigating effect of the recovery aid itself—that is, it reduces the rental price appreciation after a region suffers a disaster.

FIGURE 2

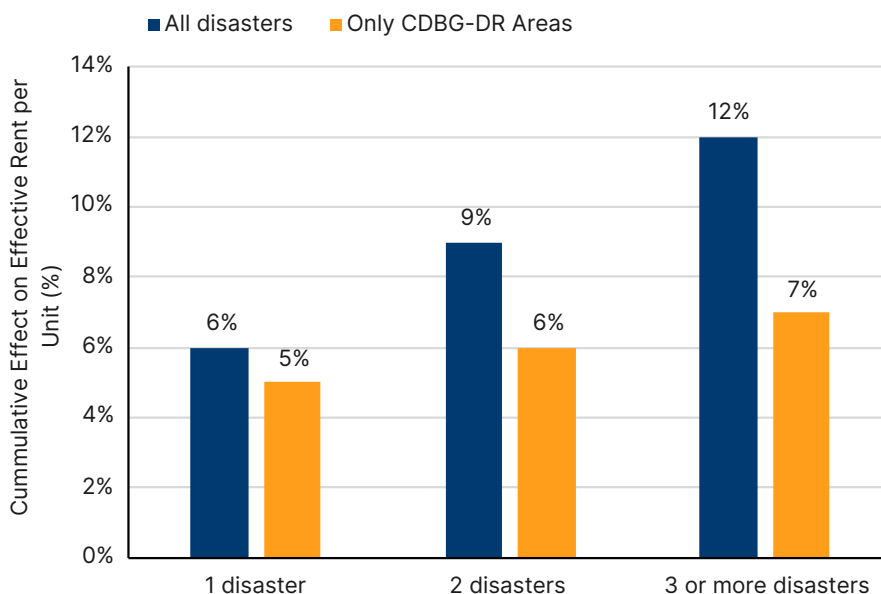
Percentage effect of sequential disasters on effective rent per unit, by quarter



SOURCE: Charts are created from authors' own analysis of data on multifamily rents from CoStar, from 2000 to 2020; Presidential declarations of major disasters from FEMA; and county-level characteristics from the U.S. Census Bureau

FIGURE 3

Average cumulative effect of multiple disasters on effective rent per unit



SOURCE: Charts are created from authors' own analysis of data on multifamily rents from CoStar, from 2000 to 2020; Presidential declarations of major disasters from FEMA; and county-level characteristics from the U.S. Census Bureau

To better understand the overall effect of these multiple disasters, we calculated an average effect on rents from disasters across all periods. Figure 3 shows how these effects build. These average effects do not necessarily describe every ZIP code, because only some regions will be exposed to multiple disasters in a given period. However, in the average ZIP code where multiple disasters do occur, we observe up to 12% higher rents due to the experience of three or more disasters. The full results of these statistical models are presented in [Appendix 1](#).

RENTAL REQUIREMENTS IN CDBG-DR GRANTS

The federal government has sometimes provided disaster recovery aid to state and local governments with conditions that focus on the recovery of rental housing in survivor communities, but these requirements have varied over time. Different congressional appropriations and program rules for rental requirements have surfaced either when an initial CDBG-DR allocation notice is issued, or more frequently, in subsequent notices

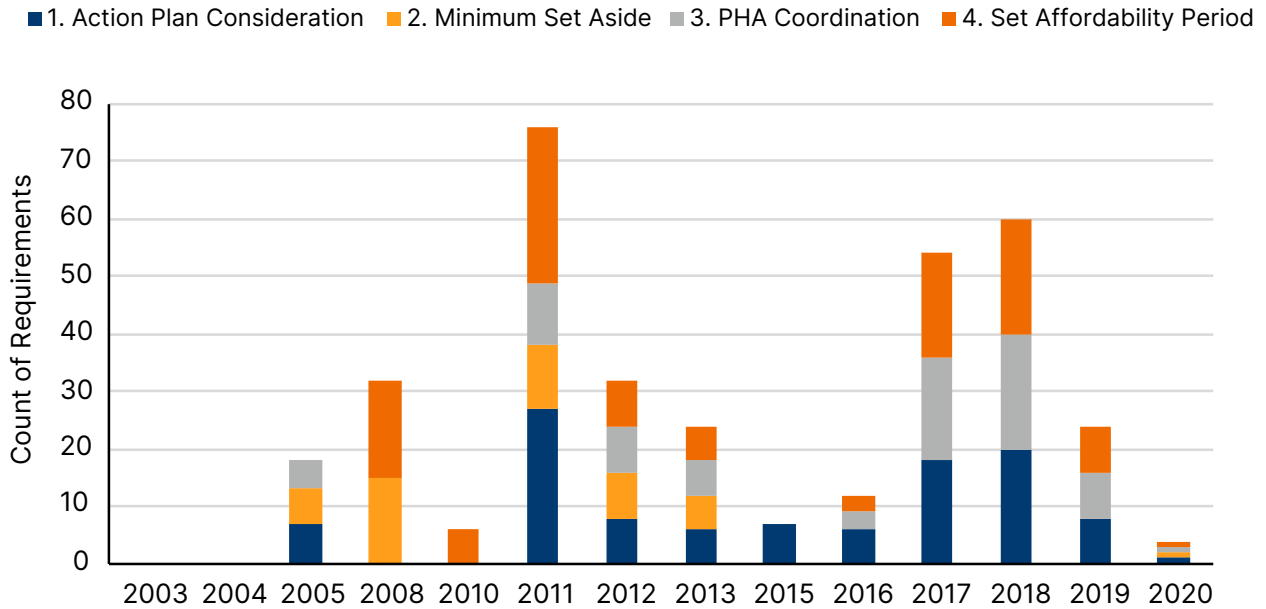
published by HUD one to three years after that. We identify four major rental requirements in CDBG-DR grants: 1) general consideration of rental housing in grantees' CDBG-DR Action Plans; 2) required allocation of funds to be used for rental housing repair and construction as a proportion or absolute dollar value of a CDBG-DR grant; 3) coordination with the local public housing authority (PHA); and 4) mandates for the duration of affordability for any rental housing built with grant funds.

Congress and HUD introduced requirements for rental housing recovery after the Hurricane Katrina grants, and requirements expanded dramatically by the time of Hurricane Sandy (Figure 4A). Of the 149 CDBG-DR grants sampled between 2003 and 2020, we found 132 had at least one rental requirement. Affordability periods are the most widely used requirement, followed by Action Plan considerations of rental housing. Minimum rental set aside and grantee coordination with local PHAs have been required less often. Figure 4B shows the number of grants with requirements as a share of the total number of grants by year.

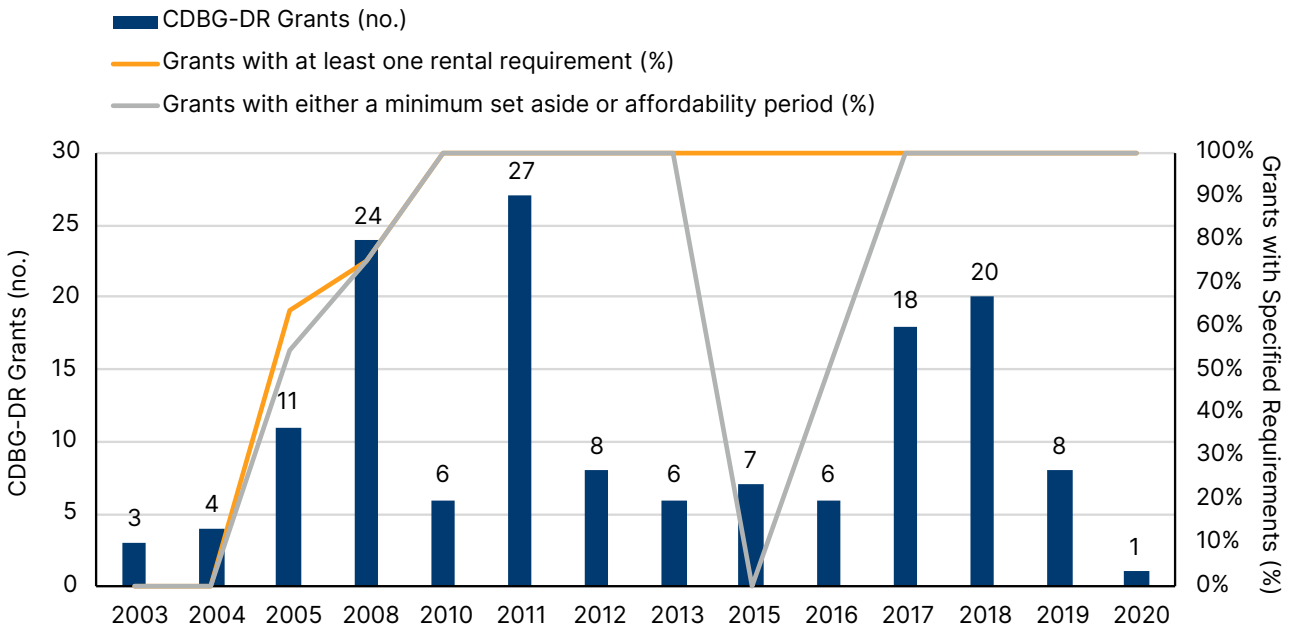
FIGURE 4

The evolution of rental housing requirements for recovery in the CDBG-DR program

4A. Annual counts of rental requirements by type



4B. Requirement incidence as share of grants



SOURCE: Charts are created from authors' own analysis using data from the HUD exchange CDBG-DR, available at: <https://www.hudexchange.info/programs/cdbg-dr/cdbg-dr-grantee-contact-information/#all-disasters>

The Renters and Disaster Workshop

We reviewed the scholarship and current policies from the federal to local levels of government to produce this preliminary assessment of current hazard exposures and economic vulnerabilities for renter households, rental property owners, and rental housing markets. We summarize nine dimensions across each stage of the disaster continuum and each stakeholder group in Figure 5, producing a set of themes based on the literature. Yet much more work is needed to better understand how disasters affect these groups across the three phases of the disaster continuum we establish here. These themes became a guiding structure for conversation with stakeholders.

The research team coordinated a one-day workshop on July 20, 2023, to hear from stakeholders involved in rental housing of all kinds and inform an agenda for critical policy reforms and research for disasters that affect the rental housing community. The workshop was held at the Brookings Institution in Washington, D.C. Staff at Brookings and Enterprise Community Partners identified potential participants in February, and

relied on trusted partners to identify key leaders among the three constituencies that have the greatest stakes and agency in improving renters' conditions in relation to disaster exposures, events, and recovery. Invitations were sent to specific local tenant and housing activists, regional and national housing and disaster equity advocates, and housing and disaster policymakers at the federal, state, and local level.

As noted in the invitations, the list of participants as well as the convening agenda were designed to ensure that renters' voices were at the center of discussion. To that end, the project sponsor, the Walmart Foundation, provided travel honoraria to eligible invitees to ensure full representation from all parties. The research team and event coordinators sent out a draft agenda with a preliminary version of this paper to ensure familiarity with the themes and the goals of producing a final version after the workshop. The final agenda is available in [Appendix 2](#), and a list of attendees is provided in [Appendix 3](#).

TABLE 1

Workshop themes by disaster phase and rental housing concern

	Renters	Rental housing	Property owners
	Tenants in public, assisted, and market rate units with a focus on low- to moderate-income households	Metropolitan and regional rental housing inventory quantity, quality, and affordability	Owners, managers, landlords, and related shareholders of rental properties from the range of organizational types
Preparedness, relief, and response	<ul style="list-style-type: none"> • Renters with disabilities • Evacuation and temporary shelter plans • Risk awareness and personal preparedness plans • Case management during disasters 	<ul style="list-style-type: none"> • Emergency protections for renters (eviction and rent gouging moratoria) • Renters’ housing stability, displacement, and relocation • Rental housing affordability immediately after disasters 	<ul style="list-style-type: none"> • Landlord roles and opportunities for educating tenants • Landlord cooperation with emergency officials • Landlord mortgage and related operational costs during disaster
Recovery	<ul style="list-style-type: none"> • Renters’ financial and health outcomes • Renters’ housing geography and stability after displacement • Renters’ life outcomes (health, wealth, children’s education, etc.) 	<ul style="list-style-type: none"> • Duration and geography of rental market effects • Federal and local policy efforts for stabilizing rental housing costs and numbers • Pre-disaster market effects 	<ul style="list-style-type: none"> • Costs of repair versus rebuilding • Sources for financing repairs or rebuilds • Local repair and finance capacity
Hazard mitigation and resilience	<ul style="list-style-type: none"> • Renter displacement from building and infrastructure mitigation of hazards • Effect of hazard mitigation on rent burdens, evictions, gentrification, or other negative consequences • Renter engagement for planning and construction • Renters’ insurance 	<ul style="list-style-type: none"> • Rental housing risk profiles • Role of lenders, GSEs, SHFAs, and other multifamily financial institutions in risk-sharing • Options for building rental housing in lower-risk areas of a market 	<ul style="list-style-type: none"> • Physical and financial feasibility of mitigating existing properties • Mitigation versus buy-out • Property owners’ insurance

SOURCE: Authors’ interpretation of literature

INFORMATIONAL SESSIONS

After welcoming greetings and introductions, keynote presentations and organized informational conversations set the stage for the group deliberations in the second half of the day. Marion Mollegen McFadden, the principal deputy assistant secretary for community planning and development at HUD, provided an overview of the resources the Biden administration is mobilizing to expand resilience beyond the department's disaster recovery funding (as important as it is as a lever for change).

The various programs that the department uses to support rental housing and prevent homelessness are also designed to reduce the housing vulnerabilities that are exacerbated in disaster scenarios. McFadden pointed to recent examples in which these resources were used expeditiously, including through “mega-waivers” to ensure that disaster recovery is prioritized by HUD grantees, and the more recent Rapid Unsheltered Survivor Housing (RUSH) program designed to quickly address homelessness for people who cannot access FEMA services. HUD's recent call for input to revise the CDBG-DR allocation formula and program rules to include a clearer focus on renters was another example of addressing rental gaps, but participants stressed the program's lack of permanent statutory authority from Congress as a limitation to unleashing the gamut of resources and assistance to the rental community before and after disasters.

The introductory remarks were followed by three consecutive discussions, or “mini panels,” structured to introduce the perspectives of the three primary stakeholder groups, beginning with the renters themselves. Participants in this first conversation noted how the range of physical challenges that renters face in “sunny day” conditions predicts what they face during disaster events. From broken alarm systems and buildings in disrepair to unfair evictions and retaliation for organizing, tenants noted how “bad actors” in the rental housing market sowed the conditions

for suffering for a range of tenants when disaster events occur. For example, participants said renters with disabilities often have little opportunity to evacuate and may choose to remain in their units afterward because of inadequate emergency accessibility. The session speakers described witnessing tenants that remained during a disaster being offered no assistance from landlords to coordinate with disaster response teams, no electrical power despite requirements for backup generation, limited or ineffective property security, and—despite these arrears—persistent rent collection.

The need for more public awareness and better-funded legal aid for tenants beyond fundamental eviction prevention were noted as gaps in disaster policy. These gaps, in turn, have placed the burden of effort entirely on renters, including efforts to organize, effectively apply for public safety nets, and prosecute bad actors. The mini-panel discussions and subsequent group comments portrayed a dire situation for renters, particularly in relation to negligent landlords.

In contrast, the second conversation introduced the systemic challenges faced by owners and developers who have committed to better serving their tenants. The affordable housing developers who participated in the event noted how current emergency procedures such as evacuation overlook the real desire that individuals often have of staying in place during a disaster, particularly given the documented fears of living in temporary shelters. These developers noted the importance of appropriately maintaining individual units, public areas, and landscaping, which can minimize damages to their organizations as well as other owners and property managers acting on good faith. They developed their own service programs for disasters, including having clear rental registries to coordinate with public disaster managers during the disaster and setting up backup power generation, temporary charging stations for phones and medical equipment, cooling areas, and social service coordinators on site afterward. As one nonprofit developer noted, “If these are

our residents 24/7, they're our residents after storms." The landlords represented on the panel clearly called out their "bad actor" peers as profit-motivated. Yet, even in nonprofit management conditions, they expressed concern about the rising costs of hazard insurance in highly disaster-exposed states. They noted how these costs are driving some owners to evacuate buildings or leave the rental housing business altogether—potentially removing units from the market for everyone.

Participants in the third mini-panel—state and local governments—waded into this challenge as well. They noted how most public efforts to secure better and safer rental housing have focused on siting and construction requirements for new rental development, with little attention or resources going to the "hardening" of existing rental units through physical retrofits or additional security and property standards enforcement. Participants noted the challenges of working across governmental siloes of housing, disaster management, environment, and health and human services—work that could better support tenants and address the persistent lack of governmental budgets that could motivate better service provision and local policy reforms.

After a presentation of the research findings described in this report, the first half of the workshop ended in a discussion with Diane Yentel, president and CEO of the National Low Income Housing Coalition (NLIHC), focusing on her organization's extensive advocacy in support of renter protections writ large as well as the growth of its disaster-focused work after Katrina. That work, which included the monitoring of renter protections and anti-rent-gouging rules after disasters as well as the promotion of additional renter-specific disaster relief and recovery assistance in the form of the Disaster Housing Assistance Program (DHAP), was especially harnessed in the aftermath of the 2017 disaster cycle.¹⁸

After Hurricane Harvey, Hurricane Maria, the Camp Fire, and other billion-dollar disasters, Yentel

described the NLIHC's weekly public disaster assistance calls, its state and local organizing for low-income household protections, and its examination of public assistance applications and appeals. This effort culminated in the organization's workshop held in Houston on October 28-30, 2019, which gathered resident organizers, advocates, and scholars to identify the cracks in the disaster management system that low-income households—especially renters and people with disabilities—slip through.¹⁹ They have accomplished a range of program and statutory successes because of those organizing efforts, according to Yentel. However, increased renter-focused disaster assistance resources and program changes (including CDBG-DR permanent authorization) still allude reform efforts despite bipartisan support. Just as important is the lack of ongoing comprehensive protections for renters nationally, which would mitigate poor disaster conditions and outcomes for this vulnerable population.

BREAKOUT SESSIONS

The information presented in the keynote presentations and plenary panels in the first half of the workshop provided the necessary guidance for breakout sessions in the second half. The discussions were moderated by members of the research team and conducted in five simultaneous sessions structured by the dimensions described in Figure 5, but with disproportionate attention on the various disaster stages as they affect renters (the first rental category of interest). Three groups discussed renters in various stages along the disaster continuum, with the remaining two groups focusing on rental markets and housing providers, respectively, across all stages.

The research team assigned participants to discussion groups based on their individual experiences and expertise. Moderators repeated the scope of each session and prompted discussions with scripted questions for each group to identify the core challenges in each theme (including the responsible stakeholders) and identify solutions in the form of policy changes

and additional evidence needs. The range of policy change was left for each group to decide, but could include new program formulation, regulatory reform, appropriations, enforcement, or legal recourse, among other changes. The discussion of challenges is synthesized in Figure 6, and recommendations in Figure 7.

Renters and Disaster Preparedness, Relief, and Response

This session focused on renters before and during a disaster. The group identified the need for more community awareness and preparedness for shelter-in-place and evacuation planning before disasters arrive as a first-order problem. Participants compared disaster preparedness to cruise or airplane rides; when passengers board a cruise, everyone must be convened and educated about evacuation and emergency preparedness. A similar logic should apply to tenants residing in apartment complexes, especially in high-risk areas. Landlords and tenants can be regularly educated about shelter-in-place and evacuation planning before peak disaster seasons if there are such trained personnel and resources to be deployed.

Next, participants shared concerns about a shortage of policy incentives and resources to inform and fund low-income renters' preparedness, especially vulnerable groups such as households with disabled, elderly, and non-English-speaking individuals. The focus group highlighted that local governments need frequently updated data on the population groups with disabilities, and could partner with community organizations to collect such information. More importantly, the group proposed that there should be tangible incentives targeting property owners so that rental properties have space, equipment, and medical supplies that accommodate the needs of all tenants.

Lastly, group participants agreed that the current disaster relief process does not consider low-income renters—rendering them one of the most disadvantaged groups. FEMA's current relief activities focus on real property damages, not

personal property damages, which essentially works in favor of homeowners. As low-income renters typically do not have slack resources for flood and/or home insurance to cover their damages on personal property and typically lack their landlords' cooperation for documenting personal property damages, relief efforts should consider low-income renters' socioeconomic vulnerability and their personal property damages.

The focus group recommended that partnerships between nonprofit organizations and governments could strengthen community preparedness for renters. For example, certain trained personnel in the civil sector with a certificate in disaster preparedness and planning could be hired as contractors for governments to provide education and training to both landlords and tenants in a large apartment complex. Governments can take a whole-of-governance approach that proactively engages community organizations, which typically do most of the groundwork for disaster response and relief. Disaster-focused community organizations can also play a role in collecting and updating data on tenants with disabilities to assist governments in distributing support. The focus group proposed that the administrative burden for such data collection and reporting should not be imposed on tenants themselves or even their landlords, but can be contracted out to community not-for-profit organizations that have the capacity to specialize in such legwork.

Second, the focus group concluded that equitable disaster response could be achieved for all renter populations—including those with disabilities—when they reside in buildings that accommodate such characteristics in their design and operation. For instance, medically challenged groups need a space equipped with beds and medical supplies during emergencies. Our focus group proposed that tax breaks or other incentives at all levels (federal, state, and local) can target property owners to have such spaces and other emergency supplies in their buildings. While tax incentives can target owners of older buildings, building codes and standards requiring such emergency-adaptive

space can be developed and applied to new construction; participants agreed that this would be especially effective in high-risk areas. Besides, in partnership with private and nonprofit community organizations, local governments can incentivize property owners to regularly keep emergency food supplies during peak disaster seasons.

Lastly, regarding relief, the focus group generally agreed that the disaster relief process should prioritize the social vulnerabilities of impacted population groups, including rental status. FEMA's current practice of damage assessment—which is anchored on real property—often pushes renters into blind spots in their damage claim on personal property. For example, FEMA does not rely on photographic evidence since there is no geolocation, and the photos could have been taken in any residence at any time. At the very least, disaster relief authorities could utilize other technological means, such as post-disaster aerial imageries, especially in heavy rental areas, to flag areas where property damage is high. They might use platforms that can geolocate photographs and their timestamps so survivors can upload photos of their damaged personal property as evidence.

Renters and Disaster Recovery

This session focused on renters after a disaster. The group identified that a myriad of factors result in the failure of the disaster recovery system to adequately address the needs of renters. Some are components of the long-standing affordable housing crisis, magnified by the impact of a disaster; others are the result of disaster aid programs that often restrict access to short-term recovery resources and lack controls necessary to protect and expand affordable, accessible rental housing during long-term recovery.

A lack of robust tenant protections and economic incentives for landlords to better protect renters work in tandem to displace disaster-impacted renters. Assistance made available through municipal, state, and the federal government lacks a cohesive strategy for renter households

(doubly so for renter households with disabilities and undocumented renter households) and fails to provide the assistance necessary to counteract these actions. Long-term recovery efforts value restoring damaged units to functionality instead of valuing the safe return or relocation of displaced renter households. Instead of creating new subsidized housing for the lowest-income renters, long-term recovery efforts often coincide with the destruction of subsidized units, relying on a trickle-down effect from constructing new market rate and middle-income housing and hoping the effects reach those at the lowest incomes. The sum of these failures is that the initial displacement of disaster survivor rental households becomes permanent, and the housing crisis in impacted areas worsens.

The group identified potential solutions to these issues that can be broken down into several sets of actions and protections. The first set inserts greater accountability and transparency in disaster recovery and encompasses two major components: 1) the actual, effective enforcement of HUD requirements regarding the use of federal funds in line with civil rights law and habitability standards; and 2) a comprehensive audit of disaster recovery spending to ascertain where and how funds are being spent.

The second set envisions a unified system of disaster response for renter households consolidated within a new federal agency devoted solely to disaster recovery. This unified approach would allow for streamlined assistance and easier implementation of longer-term assistance for renters via DHAP, as well as require that recovery funds be used to replace at least two times the number of damaged or destroyed subsidized housing units.

The third set is the enactment of significant renters' rights, including a right to organize, a right to council during eviction proceedings, post-disaster eviction prohibitions that remain in place throughout recovery efforts, post-disaster utility moratoriums, source of income nondiscrimination

protections in areas that have received disaster assistance, and the ability to anonymously request housing quality surveys.

Finally, the group agreed that disaster assistance must be fundamentally reworked around the principle of categorical eligibility. This means that assistance programs will operate on the assumption that an individual impacted by a disaster is eligible for assistance unless proven otherwise—the reverse of the current system. Under categorical eligibility, needless bureaucratic requirements designed to prevent the receipt of eligible assistance provide no purpose and must therefore be removed.

The group did not recommend the development of evidence to address specific themes or research questions that need to be answered. Rather, the discussion concluded with concerns around the research process—especially requests from researchers to extract information from vulnerable communities such as renters, which can devalue the experience and advocacy of survivors.

Renters and Disaster Mitigation and Resilience

This session focused on the renters long after a disaster and well before the next one. The group agreed that renters face an array of challenges in establishing resilience practices and mitigation. Regarding physical exposures, challenges include insufficient building codes, poor construction and materials, lack of standards around cooling, and a lack of accessibility for those with disabilities. From a governance standpoint, participants noted a lack of accountability in enforcing codes, insufficient affordability requirements in most rental housing, and balkanized tenant protections, especially for disaster-induced gentrification. The lack of accountability among rental property management for both requiring certain levels of hazard mitigation investment by the owners as well as supporting those investments was also questioned. Financially, the rising costs of insurance and of retrofitting existing buildings were cited as main motivators for mitigation investment.

Focus group participants suggested policies to address some of the resilience and hazard mitigation challenges and their effect on renters. First, enforcement of development and accessibility standards through administrative and judicial processes—including using the Rehabilitation Act of 1973, which requires that every federal dollar spent complies with accessibility requirements—could mitigate these physical challenges and build a more resilient future for all renter populations. Second, strengthening broad-based tenant protections would relieve tenant dislocation and mitigate the effects of disaster-induced gentrification. Third, participants called the development of programs and allocation of funding for existing infrastructure retrofits a critical but underfunded tool for disaster mitigation. Fourth, the group suggested insurance policies that promote climate change adaptation both on the building and community level through mitigation incentives.

Focus group participants suggested the following research is needed to address the above challenges and provide evidence for policy changes. First, there is insufficient information about the distribution of current disaster recovery and mitigation funding, which hampers ongoing adaptation and resilience work. The group asked: Where is disaster recovery funding (from FEMA, HUD, the Small Business Administration, and others) going and how can this be more transparently shared with community groups and researchers? Secondly, the group was concerned with how much CDBG-DR funding is going explicitly to rental housing. Third, we need a better understanding of the impact of climate interventions on gentrification—what, if any, are the gentrification impacts of climate interventions, at the building and neighborhood level? Fourth, little is known about how specific climate and disaster risk reduction activities affect insurance rates—specifically, what is the actuarial value of different risk reduction activities (for insurance and regulatory audiences)? Fifth, as managed-retreat programs increase in popularity, what are the lessons learned from their implementation? The group agreed that research around these questions

will significantly improve the knowledge base for policies related to renters and disaster mitigation and resilience.

Rental Markets and Policy from Preparedness to Resilience

This session focused on the rental housing markets at all stages before, during, and after a disaster. There was immediate consensus among the participants that the primary challenge is the lack of supply of rental housing units. This lack of supply—particularly for rental homes that are affordable and accessible to the most vulnerable populations—is a challenge even in the absence of disasters. As in other groups, the rising cost of insurance (driven in part by frequent disasters and increasing climate exposures) was noted as a challenge that puts upward pressure on operating costs, leading owners and operators to raise rents where the market will bear it.

Rental homes are affordable largely because of their relative age and condition, which also tend to make them more vulnerable to climate disasters and less likely to have resilient construction and infrastructure. A notable exception are subsidized properties built or retrofit with resilience as a condition for funding, but these are a relatively small segment of the housing development sector. When disasters hit, residents in impacted properties must find a new place to live, and there is limited information about other rental properties with vacancies. When disasters impact a wide area, renters must often find short- to medium-term housing further away from their communities and workplaces, and about which they have even less information. It was also noted that building codes often make it difficult to find more efficient ways of increasing supply, such as off-site construction techniques that could rapidly deliver permanent, resilient homes as part of the recovery process.

To address the information gap for renters during a disaster, focus group members suggested creating centralized, state-level databases of rental properties with information about vacancies.

For example, Kentucky's housing finance agency, which oversees the state's low-income housing tax credit (LIHTC) program, took it upon itself to collect vacancy information about all its LIHTC properties—a model that could be replicated in other states. Focus group members suggested that state-level efforts would be better than localized ones because renters often need to evacuate their home communities. For recovery, focus group participants sought the integration of equity into program funding formulas, suggesting also that the required comprehensive plans informed by fair housing considerations be incorporated into the formulas (such as in the need for repairing, rebuilding, and expanding affordable rental units throughout a survivor community). Finally, participants sought widespread adoption of updated building codes that would allow innovative construction techniques to lower the cost of housing and produce more resilient homes. They noted that we do not yet know which innovations will ultimately prove most effective and efficient, but that the regulatory regime in place makes it difficult to experiment.

Rental Housing Providers from Preparedness to Resilience

The final session focused on rental housing providers and what they do at all stages before, during, and after a disaster. Participants in the convening identified several challenges to addressing resilience in the rental housing stock, many of which concerned the costs associated with proactively preparing for disasters. Recent developments in insurance markets—which are impacting both affordability and availability of coverage for providers in higher-risk markets—have further complicated the calculus for providers looking at the cost-benefit tradeoff for preparing their properties for disasters. Finally, some providers noted the need for more information and options to help residents during and after a disaster, including anticipating the decision to stay or leave (when evacuations are not mandatory) and rebuilding after a disaster while residents are still on site.

It was this last concern that drove the majority opinion about research needs—specifically, an investigation into the behavioral responses of residents to better understand and predict what their needs will be during all phases of the disaster cycle. For providers who prioritize residents, there was also demand for more information on what strategies are available and what outcomes may be expected from using them. When strategies are found to be cost-effective and beneficial to both providers and residents, such data could encourage other providers to take similar actions. Providers also want to understand the barriers their residents face in navigating public assistance following a disaster, and what steps providers can take now (or could advocate to allow in the future) to better facilitate access.

The concern identified around costs and availability of insurance also guided the group's thoughts on potential policy recommendations. One suggestion the group supported was to tie public provision of, or assistance for, insurance to affordability requirements—i.e., that providers set aside a certain portion of their units for low- or moderate-income renters in exchange for receiving subsidized or publicly provided insurance against disaster losses. The group also suggested that publicly funded disaster mitigation grants either remove or reduce cost-sharing requirements for jurisdictions that want to engage in more pre-disaster planning and preparedness, but lack the funds or capacity to contribute toward these efforts. Finally, participants advocated for greater resources and attention to exploring managed-retreat options from high-risk locations and providing rental subsidies following disasters (i.e., DHAP).

TABLE 2

Stakeholder-identified challenges

	Renters	Rental housing	Property owners
Preparedness, relief, and response	<p>Session 1</p> <ul style="list-style-type: none"> • Lack of support for vulnerable tenants, including the disabled, elderly, and non-English-speaking individuals • Lack of policy incentives and resources for low-income renters • Lack of community preparedness and awareness for shelter-in-place and evacuation planning 	<p>Session 4</p> <ul style="list-style-type: none"> • Lack of supply of affordable and accessible rental homes • Rising cost of insurance • Aging and low-quality housing stock are the most affordable • Limited information on vacancies to enable relocation post-disaster 	<p>Session 5</p> <ul style="list-style-type: none"> • Cost of proactively preparing for disasters • Less affordability and coverage of insurance in higher-risk markets • Lack of information and options to help residents, especially the decision to stay or leave and rebuilding while residents are living on site
Recovery	<p>Session 2</p> <ul style="list-style-type: none"> • Long-standing housing affordability crisis • Disaster recovery system designed to prevent access to short-term recovery resources • Lack of tenant protections and economic incentives for landlords to protect rentersLack of a cohesive federal response for renters, especially vulnerable ones • Emphasis on restoring damaged units to functionality over the safe return of tenants • Lack of targeted construction of low-income housing 	<ul style="list-style-type: none"> • Reliance on short- to medium-term housing that is further away • Building codes make it difficult to increase housing supply and experiment with new development models 	
Hazard mitigation and resiliency	<p>Session 3</p> <ul style="list-style-type: none"> • Insufficient building codes, including around construction, materials, and accessibility • Lack of accountability in enforcing codes • Insufficient affordability for housing projects • Insufficient and balkanized tenant protections • Prohibitive cost of insurance and retrofitting 		

SOURCE: Authors' interpretation of literature

TABLE 3

Stakeholder-identified solutions

	Renters	Rental housing	Property owners
Preparedness, relief, and response	<p>Session 1</p> <ul style="list-style-type: none"> • Tax incentives and regulations for owners to provide power and communication for all tenants • Relief efforts should consider low-income renters’ socioeconomic vulnerability and property damage • Provide education and training to landlords and tenants for community preparedness • Collect data on all tenants before disaster 	<p>Session 4</p> <ul style="list-style-type: none"> • Create a centralized state database of rental properties with information about vacancies • Create equitable formulas for funds, including considering fair housing, long-term rent restrictions, and affordability targets • Adopt updated building codes to allow innovative construction techniques that could lower the cost of producing more resilient housing 	<p>Session 5</p> <ul style="list-style-type: none"> • Investigate the behavioral responses of residents along the disaster continuum • Collect more and better information on strategies and expected outcomes for helping residents • Develop a better understanding of the barriers residents face in navigating public assistance post-disaster • Tie the public provision of insurance to affordability requirements • Use publicly funded hazard mitigation grants to remove or reduce cost-sharing requirements for jurisdictions that lack capacity • Generate greater resources and attention for managed-retreat options • Design post-disaster rental subsidies
Recovery	<p>Session 2</p> <ul style="list-style-type: none"> • Enforce requirements for federal funds in line with civil rights and habitability standards • Audit disaster recovery spending • Create a unified system of disaster response for renters under a new federal agency for disaster recovery • Enact renters’ rights throughout recovery • Adopt categorical eligibility for assistance • Center renters’ experiences in future research 		
Hazard mitigation and resilience	<p>Session 3</p> <ul style="list-style-type: none"> • Enforce development and accessibility standards through administrative and juridical processes • Adopt a principle of universal design • Strengthen broad-based tenant protections • Develop programs and funds for retrofits • Use insurance policies to catalyze adaptation • Introduce a cooling standard and energy redundancy • Research the distribution of disaster recovery and mitigation money, the impact of interventions on gentrification and insurance, and lessons for relocation programs 		

SOURCE: Authors’ interpretation of literature

Conclusion

After the individual breakout discussions closed, participants reconvened to hear each group's descriptions of challenges and solutions, and provided general feedback on the range of solutions. The following overarching themes surfaced from this closing discussion.

First, the critical importance of having clear, universal renter protections in non-disaster periods emerged across all the groups' conversations. The potential for statutes and program requirements that enforce protections for all federal recipient communities could ensure a foundation for reducing the disproportionate suffering and unassisted damages that renters face. In fact, the solutions have as much to do with rental housing in general as they do with disaster policy. While this theme was not explicitly discussed in each group, it was an implicit thread throughout the convening and informed many of the challenges and solutions that were identified. If disaster resilience is a condition and not an end goal, addressing the current rental housing challenges that exist independent of disaster events is as critical as reforming the disaster programs that should support renters, rental providers, and rental housing markets.

Second, disaster programs should more equitably integrate renters. A focus on broader tenant protections could allow more appropriate disaster preparedness and mitigation actions to develop, and also give sorely missing attention to renters during disaster recovery. For example, this could include requiring resilience standards for new rental housing, insurance assistance, and adequate retrofit resources for supporting properties and "good actors." This prioritization of renters—households that are among the most disaster-vulnerable in communities—could also enforce the closing of current gaps in the rental housing market across the country by ensuring a stable, if not redundant, rental housing supply. A corollary to this overarching recommendation was the expressed goal of ensuring that renters' recovery after

disasters is expedited and prioritized given their lack of property wealth and related assets.

Third, there was consensus around requiring the creation of significant federal sticks during disaster relief, response, and recovery to ensure that broader tenant protections are in place and enforced. Sufficient attention needs to be paid to renters and rental housing in preparedness and recovery plans that tribes and states (or, in the case of CDBG-DR, a corresponding local unit of government) control. The groups noted the dominance of state and local government regulations regarding development, renter disclosures and protections, and legal recourse—though most, if not all, household disaster aid comes from federal coffers. Thus, this requirement strikes a balance. First, federal resources to states' residents should require enforceable universal protections. But second, and relatedly, federal resources should support state and local governments' commitments to all of their residents, including those with disabilities, those without documentation, and those who are facing severe financial burdens.

Along with these overarching themes, the range of individual recommendations suggested in each group are worthy of policy exploration and further inquiries from researchers. The complexity of comprehensive reform, however, should not be the enemy of individual improvements. One participant urged the entire group to envision success by answering the question, "What does renter recovery look like?"

Ultimately, each step forward is a success, as all the informational presenters and panelists noted. This workshop was motivated by a desire to reform federal disaster policy to better serve renters. We therefore also ask, "What does healthy and equitable rental housing look like?" We believe this report and workshop highlight some early answers.

Appendix 1. Research methods discussion

DISASTER EFFECTS ON RENTS

The empirical analysis of rents in the wake of disasters follows a standard difference-in-differences methodology, which is typically used in econometrics research to assess impacts that strike a variety of areas within a larger geography during the period under investigation. This approach requires the researcher to identify two sets of areas. In this case, those are two sets of ZIP codes: a “treated” group affected by the impacts (disaster events) and a “control” group unaffected by the impacts. Therefore, we are comparing ZIP codes where disasters strike to ZIP codes where they do not strike, as determined by presidential declarations of major disaster locations.

The “diff-in-diff” approach calculates the difference between pre-disaster and post-disaster outcomes—in this case, effective rents—in each group, and then it reports the difference between the groups. In other words, it shows the difference between these pre-post differences. If it yields a significant “treatment effect,” this means that the change in rents—after the disaster, compared to before the disaster—is greater in the treated areas than in the control areas. Just as a clinical trial in medicine is trying to ascertain whether the treated group’s health improves after a medical treatment more or less than the control group’s health improves, so our diff-in-diff calculation is trying to measure whether the ZIP codes impacted by disasters experience a change in rents that is more or less than the ZIP codes that were not impacted. In this way, it is able to distinguish between common trends that were affecting all ZIP codes—such as booms and busts in national real estate markets—from disasters that only affected the treated ZIP codes.

In statistical language, the following equation describes this regression model:

$$\ln Rent_{zt} = \alpha + \beta Disaster_{zt} + \gamma_1 Population_c + \gamma_2 Poverty_c + \gamma_3 Renters_c + \gamma_4 White_c + \delta \chi_t + \theta \gamma_z + \varepsilon_{zct}$$

In this equation, $Rent_{zt}$ is the effective rent in ZIP code z in quarter t , $Disaster_{zt}$ indicates the post-disaster period for treated ZIP codes, $Population_c$ is the total population in the county, $Poverty_c$ is the poverty rate in the county, $Renters_c$ is the share of renters in the county’s population, $White_c$ is the share of white residents in the population, χ_t controls for differences across quarters that affect every ZIP code, and γ_z controls for differences across ZIP codes that do not change over time.²⁰ Most importantly, the coefficient β measures the average treatment effect described above: the difference between treated and control groups in their differences between pre-disaster and post-disaster periods.

There are important limitations to this methodology. Recent research has shown that it is difficult to interpret an “average treatment effect” when there are different treatments happening at different times (i.e., “staggered treatments”). In response, researchers have developed new ways to segment the treated and control groups to see how the treatment effects change over time and across subsets of the population.²¹ However, these new approaches only work when each treated unit is only treated once. In our analysis, in contrast, many ZIP codes were impacted by *multiple* disasters between 2000 and 2020. Therefore, we face an additional challenge: how to distinguish the effect of each disaster when they may interact with each other. If a ZIP code has not fully recovered from a previous disaster, it may be affected

differently by the next disaster than a ZIP code that is experiencing one for the first time.

To address this concern, we first run the regression using only the first disaster impacting each ZIP code during our period as the treatment. Then, we run the regression with the *second* disaster impacting each ZIP code as the treatment. In this specification, there are fewer treatments because some ZIP codes are only affected by one disaster; they will join the control group because they have not experienced a second disaster. Finally, we run the regression with the *third* disaster impacting each ZIP code, and any ZIP codes with only zero, one, or two disasters will fall into the control group. The full results of each regression are presented below in Table A1. Then, we can compare the effects of each disaster sequentially in Figure 3 earlier.

TABLE A1

Difference-in-differences model of effective rent per unit after disasters

	All disasters			Only CDBG-DR disasters		
	First disaster	Second disaster	Third disaster	First disaster	Second disaster	Third disaster
Disaster treatment	0.058*** (0.003)	0.030*** (0.003)	0.028*** (0.002)	0.049*** (0.003)	0.010*** (0.003)	0.006* (0.003)
Total Population	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Poverty rate	0.354*** (0.024)	0.0393*** (0.025)	0.396*** (0.026)	0.396*** (0.025)	0.411*** (0.026)	0.402*** (0.026)
Renter share	-0.378*** (0.070)	-0.0361*** (0.072)	-0.354*** (0.072)	-0.368*** (0.071)	-0.356*** (0.072)	-0.369*** (0.072)
White share	-0.106*** (0.046)	-0.077*** (0.049)	-0.090*** (0.048)	-0.100*** (0.047)	-0.096*** (0.049)	-0.085*** (0.049)
Constant	6.417*** (0.052)	6.344*** (0.053)	6.351*** (0.053)	6.380*** (0.051)	6.342*** (0.054)	6.337*** (0.054)
Quarter FEs?	Y	Y	Y	Y	Y	Y
ZIP code FEs?	Y	Y	Y	Y	Y	Y
Observations	176,277	176,277	176,277	176,277	176,277	176,277

NOTE: Dependent variable is natural logarithm of effective rent per unit. Statistical significance = * 5%, ** 1%, *** 0.1%.

Importantly, this graph assumes that the effects are additive. Because each regression is run separately, we cannot say that the effects always accumulate in this way, especially because some disasters occur in rapid succession while others are spaced many quarters apart. Given what we know qualitatively about disaster recovery, however, it is likely that the effects tend to accumulate. To assess whether this cumulative effect is a reasonable interpretation, we can subdivide [Equation] into multiple variables—one for each quarter—to measure the evolution of the treatment effect over time, rather than simply calculating one average over the entire post-disaster period. Figure 2 shows these coefficients, which remain significantly positive for at least four years after each disaster. Thus, the effects are persistent and likely to accumulate when multiple disasters impact a particular ZIP code.

These findings are preliminary. They offer only one of many possible ways to study the effect of disasters on rental markets. We provide them here as a starting point for future researchers. In future research, this type of model can be expanded to include more ZIP codes (both impacted and not impacted by disasters), more control variables, and more heterogeneous treatment effects distinguishing between different effects for different types of disasters, different types of buildings, different types of renters, and so on. It is also possible to imagine many robustness tests, such as propensity score matching, synthetic control methods, and other quasi-experimental approaches to ensure that the treated and control groups are as similar as possible in all aspects other than the experience of a disaster. Finally, “a disaster” is a very broad treatment that encompasses many kinds of experiences. Future models can incorporate more nuanced treatment measures that distinguish between different levels of damage, severity, and other observable impacts.

RENTAL REQUIREMENTS IN CDBG-DR GRANTS

Data collection for rental housing requirements in the CDBG-DR program involved binary classification of four requirement conditions for each grantee: action plan consideration, PHA coordination, minimum rental set aside, and set affordability period. However, each of these requirements often differs in the exact language used to set the requirement. Specifically, the minimum rental set aside and set affordability period requirements exhibited the most substantive variation by grantee.

Requirements for action plan consideration of rental housing and grantee coordination of rental housing activities with local PHAs were often stipulated together as a part of a discussion on housing needs and implementation planning. Minimum set aside amounts were set as a dollar amount, percentage of total grant, or a statement of intent to allocate some unspecified amount of grant funding to rental housing. Set affordability periods most frequently reflected necessary compliance with Uniform Relocation Assistance and Real Property Acquisition Act, which requires the provision of rental assistance payments for displaced persons to cover a period of 42 months and rental assistance payments for lower-income displaced persons to cover a period of 60 months. Rental housing supported by grant funding was sometimes subject to a longer period of affordability (up to 20 years), with accompanying recorded use restrictions or other mechanisms to ensure that rental housing remains affordable for the required period.

Owing to the mechanisms by which these requirements are set for rental housing, the restrictions placed on rental housing activities among CDBG-DR grantees are frequently amended via waivers in subsequent notices. Further analysis is needed to uncover the emergent effects of rental housing requirement waivers on rental housing markets within disaster areas.

Appendix 2. Workshop agenda

THURSDAY, JULY 20 | 8:30 A.M. – 4:00 P.M. EDT

BROOKINGS | 1775 MASSACHUSETTS AVE, NW WASHINGTON, DC 20036

8:30 a.m. **Registration and continental breakfast**

9:00 a.m. **Gathering and discussion of objectives**
Carlos Martín, Rubenstein Fellow, Brookings Metro

9:10 a.m. **Welcoming remarks**
Brooks Nelson, Senior Manager for Disaster Preparedness and Response
Walmart Foundation

9:20 a.m. **Agenda overview**
Andrew Jakobovics, Vice President for Policy Development
Enterprise Community Partners

9:30 a.m. **Keynote presentation**
Marion Mollegen McFadden, Principal Deputy Assistant Secretary for Community
Planning and Development, U.S. Department of Housing and Urban Development

10:00 a.m. **Moderated conversations**

- 10:00–10:30, The tenants' perspective
- **Robert Holley**, Texas Organizing Project
- **Lucrece Phillips**, New Orleans Renter's Rights Assembly
- **Moderator: Xavier (Xav) de Souza Briggs**, Senior Fellow, Brookings Metro
- 10:30–11:00, The providers' perspective
- **David Abbenante**, President, HRI Management
- **Crystal Jackson**, Development Manager, Tacolcy Economic Development Corporation
- **Moderator: Rachel Bogardus Drew**, Senior Research Director, Enterprise Community Partners
- 11:00–11:30, State and local government
- **Clay Kerchof**, Senior Specialist, California Department of Housing and Community Development
- **Jane Gilbert**, Chief Heat Officer, Miami-Dade County Office of Resilience
- **Moderator: Xavier (Xav) de Souza Briggs**, Senior Fellow, Brookings Metro

11:30 a.m. **Presentation of research**
Rachel Bogardus Drew, Senior Research Director, Enterprise Community Partners
Anthony Orlando, Associate Professor in the Finance, Real Estate, and Law
Department, California State Polytechnic University, Pomona
Jennifer Moody, Research Assistant, School of Public Policy at Georgia Tech

- 12:15 p.m. **Lunch break**
- 12:45 p.m. **Lunch keynote conversation**
Diane Yentel, President and CEO, National Low Income Housing Coalition
Conversant: Carlos Martín, Rubenstein Fellow, Brookings Metro
- 1:30 p.m. **Group exercise**
- 1:30 p.m., Breakout instruction and assignments (Carlos Martín)
 - Group 1: Renters and Disaster Preparedness, Relief, and Response
Facilitator: Brian An, Assistant Professor in the School of Public Policy, Georgia Tech
 - Group 2: Renters and Disaster Recovery
Facilitator: Noah Patton, Senior Policy Analyst for Disaster Recovery, NLIHC
 - Group 3: Renters and Disaster Mitigation and Resilience
Facilitator: Seva Rodnyansky, Assistant Professor for Urban and Environmental Policy, Occidental College
 - Group 4: Rental Markets and Policy from Preparedness to Resilience
Facilitator: Andrew Jakobovics, Enterprise Community Partners
 - Group 5: Rental Housing Providers from Preparedness to Resilience
Facilitator: Rachel Bogardus Drew, Enterprise Community Partners
- 1:45-2:00 p.m., Naming the problems
 - 2:00-2:30, Brainstorm of three to five policy recommendations and three to five research projects
 - 2:30-2:45, Table selection of top recommendation and project
- 2:45 p.m. **Break and reconvene**
- 2:55 p.m. **Report out and consensus**
Table Facilitators: Brian An, Noah Patton, Seva Rodnyansky, Andrew Jakobovics, Rachel Bogardus Drew
Moderator: Carlos Martín
- 3:45 p.m. **Conclusion and next steps**
Carlos Martín and Brooks Nelson
- 4:00 p.m. **Adjourn**

Appendix 3. Workshop participants

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Xavier de Souza Briggs

Senior Fellow
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Beyssa Buil

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Organizer/Advocate
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Beatrice Camacho

Director
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Natural Resources Defense Council

Erin Dearborn Coryell

Program Officer, Disaster Relief and Recovery
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Economic Action Maryland

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Blake Fisher

Emergency Management Planner
Baltimore Metropolitan Council

Jane Gilbert

Chief Heat Officer
Miami-Dade County

Robert Holley

Texas Organizing Project

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Vice President for Policy Development
Enterprise Community Partners

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Vice President for Grants Management
Legal Services Corporation

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Executive Director and CEO
World Institute on Disability

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Texas Appleseed

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END NOTES

- 1 Martín, C., Teles, D., & DuBois, N. (2022). Understanding the Pace of HUD's Disaster Housing Recovery Efforts. *Housing Policy Debate*, 32(1), 102-127.
- 2 Quarantelli, E. L. (1995). Patterns of sheltering and housing in US disasters. *Disaster prevention and management: an international journal*, 4(3), 43-53; Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). Social vulnerability to environmental hazards. *Social science quarterly*, 84(2), 242-261; Fothergill, A., & Peek, L. A. (2004). Poverty and disasters in the United States: A review of recent sociological findings. *Natural hazards*, 32, 89-110; and Gooden, S., Jones, D., Martin, K. J., & Boyd, M. (2009). Social equity in local emergency management planning. *State and Local Government Review*, 41(1), 1-12.
- 3 Peacock, W. G., Van Zandt, S., Zhang, Y., & Highfield, W. E. (2014). Inequities in long-term housing recovery after disasters. *Journal of the American Planning Association*, 80(4), 356-371; Lee, J. Y., & Van Zandt, S. (2019). Housing tenure and social vulnerability to disasters: A review of the evidence. *Journal of planning literature*, 34(2), 156-170; Ma, C., & Smith, T. (2020). Vulnerability of renters and low-income households to storm damage: Evidence from Hurricane Maria in Puerto Rico. *American journal of public health*, 110(2), 196-202; Mehta, A., Brennan, M., & Steil, J. (2020). Affordable housing, disasters, and social equity: LIHTC as a tool for preparedness and recovery. *Journal of the American Planning Association*, 86(1), 75-88; Hamideh, S., Peacock, W. G., & Van Zandt, S. (2021). Housing type matters for pace of recovery: Evidence from Hurricane Ike. *International journal of disaster risk reduction*, 57, 102149; Raymond, E. L., Green, T., & Kaminski, M. (2022). Preventing Evictions After Disasters: The Role of Landlord-Tenant Law. *Housing Policy Debate*, 32(1), 35-51; Brennan, M., Srini, T., Steil, J., Mazereeuw, M., & Ovalles, L. (2022). A Perfect Storm? Disasters and Evictions. *Housing Policy Debate*, 32(1), 52-83; McCarthy, S., & Friedman, S. (2023). Disaster Preparedness and Housing Tenure: How Do Subsidized Renters Fare?. *Housing Policy Debate*, 1-24.
- 4 U.S. Government Accounting Office. (2010). Disaster Assistance: Federal Assistance for Permanent Housing Primarily Benefited Homeowners; Opportunities Exist to Better Target Rental Housing Needs. GAO-10-17, January.
- 5 Saadian, S., A. Gordon, N. Patton, and D. Rammler. 2020. "Fixing America's Broken Disaster Housing Recovery System." July, National Low-Income Housing Coalition: https://nlihc.org/sites/default/files/Fixing-Americas-Broken-Disaster-Housing-Recovery-System_P2.pdf
- 6 Timmons, P. "Disaster Preparedness and Response: The Special Needs of Older Americans," Statement for the Record, Special Committee on Aging, U.S. Senate, September 20, 2017, https://www.aging.senate.gov/imo/media/doc/SCA_Timmons_09_20_17.pdf. National Council on Disability. (2019). Preserving Our Freedom: Ending Institutionalization of People with Disabilities During and After Disasters: https://ncd.gov/sites/default/files/NCD_Preserving_Our_Freedom_508.pdf.
- 7 Martín, C. et al. (2019). Housing recovery and CDBG-DR: a review of the timing and factors associated with housing activities in HUD's Community Development Block Grant for Disaster Recovery Program. U.S. Department of Housing and Urban Development, Office of Policy Development and Research.
- 8 Climate Central and National Housing Trust, 2020
- 9 Enterprise Community Partners. (2015). Strategies for Multifamily Building Resilience:

Disaster Preparedness for Affordable Housing Organizations: <https://businesscontinuity.enterprisecommunity.org/sites/default/files/strategies-for-multifamily-building-resilience.pdf>

- 10 See e.g., Bolin, R., & Stanford, L. (1991). Shelter, housing and recovery: A comparison of US disasters. *Disasters*, 15(1), 24-34; Quarantelli, E.L. (1995), "Patterns of sheltering and housing in US disasters", *Disaster Prevention and Management*, Vol. 4 No. 3, pp. 43-53; Peacock, W. G., Dash, N., & Zhang, Y. (2007). Sheltering and housing recovery following disaster. In *Handbook of disaster research* (pp. 258-274). Springer, New York, NY.; US Government Accountability Office. (2010). *Federal Assistance for Permanent Housing Primarily Benefited Homeowners; Opportunities Exist to Better Target Rental Housing Needs* (GAO-10-17); Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2012). Social vulnerability to environmental hazards. In *Hazards vulnerability and environmental justice* (pp. 143-160). Routledge.
- 11 Martín, C. (2019). Understanding US housing data in relation to the 2017 disasters. *Natural Hazards Review*, 20(3), 04019007.
- 12 Ratcliffe, C., Congdon, W., Teles, D., Stanczyk, A., & Martín, C. (2020). From bad to worse: Natural disasters and financial health. *Journal of Housing Research*, 29(sup1), S25-S53.
- 13 Martín, C., Gilbert, B., Teles, D., Theodos, B., Daniels, R., & Srini, T. (2019). *Housing recovery and CDBG-DR: a review of the timing and factors associated with housing activities in HUD's Community Development Block Grant for Disaster Recovery Program*. HUD Office of Policy Development and Research; Martín, C., Teles, D., & DuBois, N. (2022). Understanding the Pace of HUD's Disaster Housing Recovery Efforts. *Housing Policy Debate*, 32(1), 102-127.
- 14 Priceconomics Data Studio (2017). "Rental Properties Not Exempt from Price Gouging Laws." November 20; (2021); Castle, S. (2022). Are Boulder's post-Marshall Fire rent hikes price gouging, or business as usual? *Boulder Beat*, April 16.
- 15 Zaveri, M., Haag, M., Playford, A., and Schweber, N. (2021). How the Storm Turned Basement Apartments into Death Traps. *New York Times*, Sept. 2.
- 16 Ondeck, C., Ingrassia, J., McGowan, S. (2017). After a Natural Disaster, Do Landlords Jack Up the Rent? *National Law Review*, March 8.
- 17 Hartman, M. (2022). Long after wildfires race through rural communities, mobile home parks still await rebuilding. *Marketplace*, May 25.
- 18 DHAP was a temporary rental assistance program appropriated sporadically between Hurricanes Katrina and Sandy (2005 to 2012, respectively). The program provided temporary rental assistance vouchers like the more common Section 8 voucher program but for a limited duration after a hazard event by use of eligible households. Additional information on DHAP can be found here: <https://nlihc.org/sites/default/files/DAHP-Program.pdf>.
- 19 Authors' note: This event inspired the convening described in this report.
- 20 Standard errors are clustered at the ZIP code level, where our treatment effect is coded, following standard econometric protocol. See, e.g., Abadie, A., Athey, S., Imbens, G. W., & Wooldridge, J. M. When should you adjust standard errors for clustering? *Quarterly Journal of Economics*, 138(1), 1-35.
- 21 Callaway, B., & Sant'Anna, P. H. C. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, 225(2), 254-277; Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, 225(2), 254-277.

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