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E. L. Raymond, T. Green & M. Kaminski

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Preventing Evictions After Disasters: The Role of Landlord-Tenant Law

E. L. Raymond [ID][a], T. Green[b] and M. Kaminski[c]

[a]School of City and Regional Planning, Georgia Institute of Technology, Atlanta, USA; [b]Department of City Planning and Real Estate Development, Clemson University, SC, USA; [c]Department of City Planning, City of Charlotte, NC, USA

ABSTRACT

Disaster recovery is not a time of exception, it is a time when existing social, economic, and racial inequalities are reproduced and exacerbated. Housing institutions can amplify inequality during disaster recovery. We use quantitative methods to ask whether evictions increase during disaster recovery periods in four states. We stratify our case selection by the type of statutory protections for landlords and tenants in state law. In three cases that have pro-business or a mixture of pro-business and tenant protections, we find strong, significant increases in eviction rates in disaster-affected neighborhoods relative to neighborhoods in adjacent areas with no disaster declaration. By contrast, in the case that has primarily tenant protections, there is no statistically significant rise in evictions following the disaster. We conclude that tenant protections are not sufficient to prevent swift increases in evictions following disasters in states with a policy environment that is also characterized by landlord protections. We close with policy recommendations to prevent evictions after disasters, and suggestions for further research.

Introduction

Extreme weather events will become more common as climate change accelerates. Disaster researchers have asked for a more detailed understanding of how and why residents experience housing distress and/or relocate following natural disasters, arguing that these decisions and processes unfold over long timeframes, and are embedded in local institutions and contexts (Black, Arnell, Adger, Thomas, & Geddes, 2013; Elliott & Pais, 2010). The existing literature on the operations of housing systems following disasters establishes that many of the conditions associated with evictions: property damage, renovations, and disruption to wages, are commonly present in rental housing and rental households in the year following a disaster (Peacock, Van Zandt, Zhang, & Highfield, 2014). Esnard and Sapat (2014) argue that concerns about post-disaster housing in the United States have focused on short-term emergency needs and ignored the longer term issue of displacement. In this article, we ask whether disaster recovery is associated with rising evictions in the year following a disaster, and whether post-disaster evictions are affected by state legal frameworks.

Forced moves through an evictions process are associated with a series of negative outcomes for households and families. These include homelessness spells, moves to neighborhoods with fewer resources followed by a series of relocations, long-term losses in household wealth, and increases in

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stress-related illnesses (Collinson & Reed, 2018; Desmond & Shollenberger, 2015). If a household must relocate in the year following a natural disaster, an eviction process is arguably one of the worst ways in which it can happen. Even the threat of eviction can force households to remain in undesirable housing conditions as they try to pay down a rent debt, oftentimes paying higher rents and fees, and with increased stress and precarity (Desmond, 2016; Garboden & Rosen, 2019; Sims & Iverson, 2019). If evictions are an important process governing the post disaster trajectory of socioeconomically vulnerable households, preventing eviction should be a key part of disaster recovery.

Evictions research has focused on the harms that evictions cause to households and communities. Policies that effectively prevent or reduce eviction are less well-studied. Many of these policies focus on emergency rental assistance; legal representation in court, or increased provision of affordable housing (Benfer, Greene, & Hagan, 2020). In this research, we examine whether the type of state-level statutory protections has any effect on rising evictions following a disaster.

We study the rise in eviction rates after extreme storms and flooding events in four states: South Carolina (Hurricane Joaquin, 2015); Southern Alabama, including the Mobile and Montgomery regions, and the panhandle of Florida, including the Pensacola and Panama City regions (flooding events of April, 2014); and the New Haven, Connecticut region (Hurricane Sandy, 2012). Drawing on state landlord-tenant law typologies found in the literature, we classify these four sites into different landlord-tenant regimes (Hatch, 2017). Florida is a pro-landlord state with few-to-no tenant protections; Alabama and South Carolina have tenant protections mixed with landlord protections, and Connecticut has strong tenant protections without landlord protections. We use a quantitative approach, examining the rise of evictions in neighborhoods (census block groups) in areas that were declared eligible for public or individual assistance by the Federal Emergency Management Association (FEMA) during each of these storm events. After controlling for a range of socioeconomic characteristics, we extract comparisons between disaster-affected areas and neighborhoods in adjacent counties in the same state that were not deemed eligible for financial assistance by FEMA.

In the three cases with weaker tenant protections in their legal framework, we find strong, significant increases in eviction rates in disaster-affected counties relative to adjacent counties with no disaster declaration. By contrast, in the two states that are protective of tenants, there is no statistically significant rise in evictions following flooding events relative to adjacent areas. We pair these findings with policy recommendations appropriate for either preventing eviction-led displacement following disasters or facilitating relocation outside of an eviction process.

Literature Review

Connection Between Disasters and Evictions

Disasters and disaster recovery are best understood not as times of exception, but as moments when existing social, economic, and racial inequalities are reproduced and exacerbated (Pais & Elliott, 2008). Substantial research has demonstrated that disaster-related migration and displacement are strongly influenced by the social vulnerability of households and places (Myers, Slack, & Singelmann, 2008). Physical damage to housing stock is a major feature in natural disasters, particularly in urban areas (Comerio, 1997). At the same time, housing systems are an important component of social vulnerability, and they greatly affect whether a family will be able to successfully rebuild, will stay and endure declining conditions and rising precarity, or will choose or be forced to relocate following a disaster.

The relationship between disasters and mobility is complex. Over the last decade, the study of the role of mobility in disaster outcomes has bifurcated, focusing on divergent processes that affect groups within a disaster-affected area in dissimilar and sometimes contradictory ways. For example: Elliott and Pais (2010) found very different outcomes in a study comparing an urban area (Miami, Florida) with a rural area (Southwestern Louisiana). In the urban area, the disaster recovery process

displaced vulnerable residents; in the rural area, vulnerable households became more concentrated. Housing is a system that has the potential to amplify existing divides in the aftermath of a disaster, but those relationships are not deterministic, and can be influenced by careful policy design.

Homeowners, who generally have greater wealth, stronger legal protections from displacement, and buffers from price increases, may weather a storm more easily than renters. Renters tend to be more economically disadvantaged, have higher precarity in a US legal context, and usually are not shielded from price increases. Elliott and Pais (2006) found that, in the immediate aftermath of Hurricane Katrina, non-homeowners were much more likely to be displaced from their home than homeowners were. Lee and Van Zandt (2019) provide a thorough review of the many ways in which renters are more severely harmed by disasters. In addition to the socio legal aspects of the housing tenure divide, they note several differences along the tenure divide in the living conditions and physical aspects of housing.

Several studies examine the ways in which housing intersects with post disaster vulnerability through the physical characteristics of housing and the ability of residential structures to withstand flooding and extreme wind events. Physical durability, and the degree of structural damage following a disaster are strong predictors of displacement (Elliott, 2015). Rental housing is typically older, less well maintained, and suffers more damage. Additionally, rental housing takes longer to repair than other types of structures in a disaster, which can cause communities to suffer from a shortage of affordable housing (McIntosh, 2013; Myers et al., 2008). Residents of mobile home communities, who can be renters, owners, or have a mixed-tenure status, have been found to be particularly vulnerable because of a combination of physical characteristics of their housing, and financial/institutional factors that heighten precarity and instability (Cutter, Boruff, & Shirley, 2003; Kusenbach, Simms, & Tobin, 2010; Rumbach, Sullivan, & Makarewicz, 2020). Peacock et al. (2014) examine multifamily and duplex structures following hurricane Andrew. They find that after the storm these properties lost far more value (measured using tax appraisal data) than did single-family rentals, and that the recovery process (as measured through tax valuations), and the likelihood of abandonment or sale, stretched out for several years. Although the use of tax appraisal data, which has an indeterminate relationship with market prices, and often varies in formula by location and structure type, is questionable, the results suggest that the physical recovery period for rental housing occurs over an extended time-frame following a disaster. The authors connect this to displacement through three pathways: (1) damage prevents re-occupancy; (2) a landlord decides to upgrade the property, or (3) the reduction of rental housing in the area creates inflated demand for the remaining habitable units, leading to increased rents. All three of these outcomes—maintenance issues; property upgrading, and rising rents are associated with evictions (Seymour & Akers, 2019).

Although the connections among physical destruction of residential housing, tenure, and displacement have been established, we did not find peer-reviewed research that had been conducted on whether rising evictions play a role in the process of displacement following a disaster. Wyczalkowski, Van Holm, Esnard, and Lai (2019) mention the evictions problem in passing. In a review of housing law issues arising in the decade following Hurricane Katrina, Finger (2015) describes the workdone to prevent evictions, noting that such work extended for years following the disaster. Finger (2015) documents several due process issues in the evictions process including situations in which eviction notices were served to evacuated properties rather than to tenants' current addresses and mass evictions from temporary housing when FEMA assistance ran out. Furthermore, in the immediate aftermath of a disaster, short-term displacement makes it difficult for renters to fight eviction (Wyczalkowski et al., 2019).

Outside of the peer-reviewed literature, descriptions of disaster-related evictions are found in the press, in materials from housing advocates, and in non-peer-reviewed reports. For example, legal aid groups in Florida and Georgia have produced guides and outreach for tenants facing eviction following a disaster (CJP, 2019; GLA, 2016). There has been pressure from the legal communities of both Florida and Texas to enact eviction moratoria during and following disasters to prevent evictions. In part, eviction prevention efforts arise out of humanitarian concerns for residents losing

shelter in the middle of a disaster; here, it is not the disaster that is a cause of the eviction, but a concern that carrying out an eviction in the middle of a disaster puts households in physical danger and creates grave humanitarian concerns. The eviction moratorium put in place by the Centers for Disease Control and Prevention (CDC) during the coronavirus pandemic was also justified in this manner. However, advocacy groups have also reported, and sought to prevent, a rise in evictions during the disaster recovery period. After Hurricane Harvey, Texas RioGrande Legal Aid petitioned cities to pass emergency ordinances to avoid late fees and evictions that resulted from tenant and landlord negotiations around damages because of the storm, arguing that tenants often receive eviction notices directly following the storm and find themselves with less than a week to relocate.

Other reports provide mixed suggestions regarding whether the direct physical damage or indirect economic effects could be a cause of rising evictions following a disaster. Kaminski (2019) performed a block-group level analysis of evictions following Hurricane Joaquim in 2015. She found that flooded block groups saw a fourfold increase in evictions compared with non-flooded block groups, suggesting that physical damage, not economic impacts or changes in market rents, is key. Conversely, Binkovitz (2018) analyses evictions after Hurricane Harvey and finds that rising eviction rates following the disaster are not highly correlated with zip codes that had high rates of physical damage. This suggests that evictions may increase following the disaster through more indirect means, such as lost wages because of the economic disruption, and increasing rents because of a sharp compression in the number of rental units available. Although they did not address evictions directly, Mitsova et al. (2019) found that physical damage, loss of basic utility services, and financial stress were all negatively associated with recovering from Hurricane Irma.

Economic disruption during a disaster can also lead to an eviction. In neighborhoods with high rates of eviction, tenants often live paycheck-to-paycheck, so lost income leads to an immediate inability to pay rent (Shelton, 2018). Tenants who work on an hourly basis are especially vulnerable to losing income during a disaster if their place of work is shut down, or if they are unable to work remotely. Additionally, the need to replace ruined belongings or repair damage to a car that is needed for commuting may place tensions on the household budget.

Habitability issues and damage are also a major cause of conflict between tenants and landlords, and this conflict is only heightened when a disaster causes property damage to low - [low-income] income rental housing (Summers, 2020). Some states allow tenants to make repairs and deduct the cost from rent, but others do not. Confusion about this practice can lead to eviction, as can tenants withholding rent over maintenance disputes (Summers, 2020).

Post disaster evictions can be due to income loss, landlords' desire to increase the rent, or property damage. Regardless of cause, research in housing has found that forced moves that occur through an evictions process are associated with negative outcomes for households and communities, and that even for households that stay in place, the threat of eviction is correlated with habitability issues and increased stress (Desmond, 2016; Garboden & Rosen, 2019). Forced moves have been associated with a long-term loss in household wealth and with significant increases in stress-related illnesses; this finding is well-established in both the disaster recovery and housing literature (Desmond & Shollenberger, 2015; McClure, Schwartz, & Taghavi, 2015; Shelton, 2018). Research on forced moves following an eviction or foreclosure shows that households suffer emotionally and financially if they move to areas that have worse neighborhood quality than the places they left. The research also shows that these households often move multiple times leading to prolonged housing instability (Desmond & Shollenberger, 2015). Preventing evictions during the long recovery period from disaster is therefore an important policy goal. Although an array of policies exist that can be used to prevent evictions, legal measures such as evictions moratoria, judicial states of emergency, or even tenant protections placed in state-level landlord tenant law are likely avenues, and a major component

of eviction prevention occurs through establishment of statutory protections, or the use of legal aid to increase their efficacy (Benfer et al., 2020).

Legal Process of Eviction

Legal evictions occur through the courts process, which is largely governed through state landlord-tenant law (Merritt & Farnworth, 2020; Willis, Phillips, Ryan, Bursac, & Ferguson, 2017). The legal evictions process begins when a landlord files a dispossessory in their local court (Raymond et al., 2016). Typically, tenants have the right to notification that an eviction has been filed, and the right to answer their eviction notice within a specified time, in which they may refer to tenant rights that pertain to their case, or landlord obligations that have not been upheld. If the tenant does not answer, the landlord has the right to apply for a default judgment in their favor, and to seek a writ that gives them the legal right to remove the tenant and their belongings (Porton et al., 2020). In some states, this can occur as soon as the 8th day after an eviction is filed. If the tenant files an answer, depending on its contents, they typically have the right to a hearing and a court date is set (Porton et al., 2020). If either party is present for the court date, the opposing party may seek a default judgment in their favor. If both parties are present, during the hearing, judges will often send the case to a mediated settlement, or they may hold a hearing in which landlords and tenants have the right to invoke particular rights or obligations that pertain to the case. When a tenant contests an eviction, they may try to prevent the eviction, but they may also seek to use the process to delay the eviction to allow for an easier transition to a new residence; this is particularly important in states where state law allows for a very swift evictions process. Tenants may also try to minimize any rent debt judgment against them, or seek to have the eviction suppressed to reduce the damage to their rental history which creates difficulty renting in the future.

State Policies That Affect Evictions

The timeline of the evictions process, and the rights and obligations that tenants can invoke are governed by state law. State laws set conditions under which an eviction may legally occur, and creates broad guidelines about rental conditions. These include statutes governing rental prices, security deposits, guarantees of habitability and safety, retaliation by landlords against tenants, remedies available to landlords and tenants for breach of contract, and the timing and process for a legal eviction (State Landlord Tenant Laws, 2019; Willis et al., 2017). One area of landlord-tenant law concerns habitability, and covers health and safety issues related to the rental property (Summers, 2020). Violations of habitability are typically governed by one of three principles; repair and deduct, rent withholding, or receivership in which a third party is assigned the responsibility for improving the property (Hatch, 2017). Another area of landlord-tenant law is concerned with banning discrimination against protected categories in rental housing. A third area is focused on prices and involves setting limits for safety deposits, allowable fees, the pace of rental increases (rent control) and relevant procedures. Finally, landlord-tenant law addresses the circumstances under which a landlord can apply for eviction and governs the process of initiating an eviction. This includes spelling out legal guidelines for how to file an eviction; filing fees; legal processes for serving an eviction notice, provisions for tenants to answer, guidelines around court hearings and judgments, and deadlines for each step.

It can be difficult to understand the independent effect of a given statute on eviction rates because of questions about efficacy and variations in enforcement (Lonegrass, 2014; Summers, 2020); because of longstanding lack of data; and because individual statutes are enforced in the context of statewide landlord-tenant law, making statute-level identification a challenge. It is also unclear whether statutes are actually the key factor, or whether it's more important to understand the local culture, institutional factors, and policy environment in a given state (Lempert & Monsma, 1994; Nelson, Garboden, McCabe, & Rosen, 2021; Sudeall & Pasciuti, 2021). In a recent study of

evictions courts in Georgia, Sudeall and Pasciuti (2021) find that local legal culture, not state law, is a key determinant of outcomes. They find that although landlord/plaintiffs are often represented, tenant/defendants almost never have legal counsel. Outside of major cities, evictions courts are often conducted in legal deserts where even the judges do not have formal legal training. Many courts prioritize rent collection over a focus on procedural justice that would entail upholding the rights enumerated and the obligations incurred by each party as they are established in state law (Sudeall & Pasciuti, 2021). Similarly, other research documents a complex interaction between state codes, institutional contexts, and the frequency of eviction. In research comparing eviction courts in Maryland, Texas, California and Washington DC, Nelson et al. (2021) find that tenant outcomes depend not just on statutes in each jurisdiction, but on institutional factors such as court location, court practices around settlement and mediation, and landlords' strategic response.

In light of these challenges, one approach to analyzing landlord-tenant law has been to develop typologies that characterize the broader policy environment in each state. Hatch (2017) uses cluster analysis to analyze 22 landlord-tenant provisions and to group each state into a typology with three categories. The first class is *protectionist* states, which have landlord-tenant law that includes several legal provisions that protect tenants from displacement and uninhabitable conditions. Hatch identifies 13 protectionist states. These states tend to adopt pro-tenant statutes such as rent control, charging interest on security deposits, tenant-friendly policies around handing of maintenance issues, and anti-discrimination policies such as source of income protection and nondiscrimination clauses.

The second category Hatch identifies is *pro-business*. She identifies 17 such states. These states have fewer landlord-tenant statues on the books, and the statutes that exist tend to be pro-landlord policies such as prohibitions on rent control, allowing landlords to charge late fees, and placing the financial burden for repairs on tenants. These states offer few if any statutory protections around maintenance issues.

Finally, Hatch's third category applies to a cluster of *contradictory* states whose landlord-tenant law includes a mixture of pro-landlord policies and statutory protections for tenants (Hatch, 2017, 2020). Hatch identifies 20 states in this cluster.

Two articles have associated these typologies with eviction outcomes. State law has been associated with increased renter mobility (Hatch, 2020), and with increased inequality in eviction rates (Merritt & Farnworth, 2020). Hatch (2020) examines the impact of late fees, security deposit return times, utility shut offs, non retaliation statutes, anti discrimination laws, and self-help remedies on renter mobility. She finds that mobility rates are far lower in states with statutes limiting late fees, allowing tenants to make repairs and deduct the costs from rent, and statutes preventing landlord retaliation. Provisions that had less of an effect were those around security deposits, utility shut off, and discrimination.

In a separate study examining the impact of state policy environment on evictions, Merritt and Farnworth (2020) examine how the Hatch (2017) typology of *protectionist, pro-business* and *contradictory* states affect neighborhood level eviction filing rates. The authors find that states with pro-landlord statutes, those in the *pro-business* and *contradictory* clusters have the higher average eviction rates, and that in particular, states in the *contradictory* cluster have the highest eviction rates. The authors find that states in the *contradictory* cluster are associated with heightened racial inequality, such that predominantly white neighborhoods in this cluster have a far lower eviction rate than elsewhere, and predominantly Black neighborhoods have far higher eviction rates. States in the *protectionist* cluster have the lowest average eviction rates, and lower spatio-racial inequality in eviction rates. This research suggests that individual statutes protecting tenants may only have a protective effect for higher status tenants; and that either the overall state policy environment, or the absence of landlord protections may be more important for housing stability and housing justice than the presence of individual tenant protections.

In this literature review, we have discussed the significance of social factors in structuring outcomes following disaster, and housing systems as an important social factor. We have described

the harm that evictions do to households and communities, and discussed the limited existing literature on the relationship between evictions and disasters. We have also described the legal evictions process, and state-level statutory protections as an important component of eviction prevention. We now turn to our key research questions, case selection and research design.

Research Questions and Design

In this article, we ask two key questions:

(1) Do extreme weather events lead to rising eviction rates?
(2) Is landlord-tenant law protective? That is, do eviction rates rise more in places that have more *pro-business, contradictory*, or *protectionist* landlord-tenant legal frameworks?

To answer these questions, we examine the differential impact on evictions in affected and non affected counties before and after flooding events in four states. We select states from each of Hatch's (2017) three types: one state with pro-business landlord tenant law (Florida), two states with contradictory landlord-tenant law (Alabama and South Carolina), and one state with protectionist landlord-tenant law (Connecticut). Within each state, we identify block groups in counties that were affected by the flooding and a set of block groups in adjacent counties that were not. We estimate a model for each state to determine the effect of the disaster on eviction. Finally, we compare the size of the effect in each case to determine if the strength or weakness of landlord-tenant law correlates with impact of the disaster on evictions.

Study Area Selection

The flooding events were identified from a review of the United States Geological Survey (USGS) and FEMA lists of major flooding events (USGS, 2020). The storms needed to have occurred between 2011 and 2015 because of the limited availability of eviction data. We selected events that were primarily characterized by flooding. After gathering a list of storms, we restricted the list to storms that (a) crossed through metropolitan areas, and (b) crossed through states and counties where eviction data is available. These criteria eliminated all but five disaster events; two of these were eliminated because the storm itself was not comparable with the other three in terms of the individual and housing assistance provided by FEMA. The remaining three selected storms are shown in Table 1. The events in Alabama and Florida are the result of a single storm that crossed state lines.

Table 1 summarizes the amount of individual and housing assistance aid provided by FEMA by state in each storm. The number of individuals assisted in each storm varies from 2,970 in Connecticut to 28,184 in South Carolina. The per capita amounts of assistance range from $3,046 in Alabama to $5,189 in Connecticut; and the amounts directed specifically toward housing assistance vary from $2,417 to $4,809. After identifying each case, we selected counties which were affected by the disaster, based on eligibility for FEMA assistance, and adjacent counties which were not affected. Our criteria for inclusion were that the areas must be contiguous; that the affected and unaffected areas both include urban regions; and that the number of block groups for the affected and unaffected areas be higher than 200.

The Florida storms moved across the Northwest Panhandle of the state and through coastal Alabama from April 28 to May 6, 2014 (FEMA, 2014b). Two rounds of storms contributed to the flooding caused by historic rainfall, with 10-15 inches of rain falling in about 9 hours (NWS, 2014b). As many as 30,000 people in the panhandle were without power (Phillip, 2014) and Escambia County, which includes Pensacola, experienced $21 million in damages (Ninestine, 2014; USGS, 2014).

Alabama's impacted counties from the same set of storms were more disperse than Florida's, ranging from coastal areas in the Mobile region, through central and northern Alabama (FEMA, 2014a). The highest rainfall record reported in Alabama was for 11.24 inches (NWS, 2014a). Central

Table 1. Storm events used in the analysis.

	Pro Business	Contradictory		Protectionist
	Florida	Alabama	South Carolina	Connecticut
Individual assistance applications approved	7,107	7,391	28,184	2,970
Total individual & households program dollars approved	$ 351,70,594	$ 225,11,606	$ 901,73,586	$ 154,11,911
Total housing assistance (HA)—dollars approved	$ 290,32,681	$ 178,65,287	$ 783,09,657	$ 142,81,595
Total other needs assistance (ONA)—dollars approved	$ 61,37,913	$ 46,46,320	$ 118,63,929	$ 11,30,316
Total individual & households program dollars per capita	$ 4,949	$ 3,046	$ 3,199	$ 5,189
Total housing assistance (HA)—dollars per capita	$ 4,085	$ 2,417	$ 2,779	$ 4,809
Incident Period:	April 28, 2014–May 6 2014	April 28, 2014–May 5 2014	October 1 –October 23, 2015	October 27, 2012– November 8 2012
	Severe storms, tornadoes, straight-line winds, and flooding (DR-4177-FL)	Severe storms, tornadoes, straight-line winds, and flooding (DR-4176-AL)	Severe storms and flooding (DR-4241-SC)	Hurricane Sandy (DR-4087-CT)

Alabama was hit with three elements of flooding: flash floods from the fast accumulation of rainfall, flooding from steady and prolonged rainfall, and flooding from river basins overflowing (FEMA, 2014a).

South Carolina experienced its own storm that led to flooding through most of October 2015, from the 1st to the 23rd (FEMA, 2015) This disaster was widespread, with federal disaster declarations occurring in 35 of 46 counties in the state. In most areas, the storm brought 15-20 inches of rainfall, with some local areas experiencing up to 25 inches (NWS, 2015). After the initial high rainfall in early October, South Carolinians prepared for a second blow as the floodwaters flowed from inland to the low-lying coastal communities (NASA, 2015). The floodwaters spread easily because of 36 dam failures across the state, and ultimately the storm led to $1.492 billion in damages (NWS, 2015).

Hurricane Sandy was a tropical cyclone that moved from Jamaica through the Northwestern Bahamas and then up the East Coast of the United States until it hit the northeast coast of the United States in late October 2012 (FEMA, 2012). Connecticut was hit particularly hard as the storm turned inland and traveled across the state (NWS, 2012). Although not the strongest storm ever to hit this part of the United States, the storm caused severe damage to infrastructure and energy facilities (U.S. DOE, 2012). Rainfall from the storm was not as high as that from some of the other storms mentioned above, but the impact of the hurricane landing at high tide meant the water level in coastal areas was up to 10 feet above normal tides (NWS, 2012). A week after the storm, there were still 10,000 residents without power (CBS, 2012).

Selecting Case and Control Block Groups

In each state, we first identified the heaviest hit metropolitan areas by reviewing the designations for individual and public assistance in FEMA disaster declarations. Counties that received either form of assistance (or both) were considered affected by the flooding. After identifying the set of affected counties, we identified adjacent counties that were not affected. In a small number of cases, counties could not be used because the county evictions data were not available in the relevant years.

In Alabama, we selected block groups from counties in and around the Mobile and Montgomery metropolitan areas. Mobile, Baldwin, Washington, Bullock, Butler, Covington, Crenshaw, Dale, Geneva, and Houston counties all received FEMA assistance and were considered affected (FEMA, 2014a). Barbour, Clarke, Coffee, Conecuh, Escambia, Henry, Lowndes, Monroe, Montgomery, and Pike counties did not. In Florida, we selected the entire panhandle, including Pensacola, Destin, and Panama City. Escambia, Santa Rosa, Okaloosa, Walton, Holmes, Washington, Bay, Jackson, and Calhoun counties were affected. Gulf, Franklin, Liberty, Gadsden, Leon, and Wakulla counties were not (FEMA, 2014b). The Florida and Alabama sample area are contiguous and were affected by the same storm.

In Connecticut, we selected counties in the Hartford-New Haven metropolitan area. New Haven and Fairfield counties were affected, but Hartford was not (FEMA, 2012).

The analysis of South Carolina was more challenging. Hurricane Joaquin affected almost the entire state of South Carolina, but Princeton's Eviction Lab did not have evictions data available for 24% of South Carolina's block groups for the year 2016. This made it difficult to find a metropolitan area that included a mix of affected and non affected counties; furthermore, it was not possible to define an area around just one or two cities that had sufficient number of block groups in non affected counties without including the entire state. We therefore used all counties in the state for which data were available. This gave us 39 of the 46 counties in the state, of which 31 were affected and 8 were not (FEMA, 2015).

After selecting counties in each state, we excluded any block group where less than 5% of all households were renters. We excluded these block groups because we are primarily interested in understanding the dynamics of places that are likely to have more than zero evictions in a given year, and evictions by definition do not occur in neighborhoods that do not have rental housing. Our results were not sensitive to moving this threshold higher or lower.

Table 2. Number of block groups used in analysis by state and legal status.

Landlord-tenant law classification	State	Disaster affected area	Non affected area	Total
Protectionist	Connecticut	1,036	524	1,560
Contradictory	South Carolina	1,912	266	2,178
	Alabama	572	368	940
Pro-Business	Florida	526	218	744
	Total	4,046	1,376	5,422

Table 3. Comparison between treatment and control block groups.

Landlord-tenant law classification	State	Measure	Disaster affected area(%)	Nonaffected area(%)
Protectionist	Connecticut	Poverty rate	7 %	8 %
		Pct rental	33 %	35 %
Contradictory	South Carolina	Poverty rate	16 %	20 %
		Pct rental	28 %	26 %
	Alabama	Poverty rate	18 %	20 %
		Pct rental	30 %	28 %
Pro-Business	Florida	Poverty rate	12 %	17 %
		Pct rental	32 %	38 %

Table 2 shows the sample size (number of block groups) by state, and by treatment status. Table 3 shows the average percentage of rental housing, and the poverty rate for treatment and control groups in each state. Although we primarily rely on a lagged dependent variable to adjust for important differences between affected and non affected areas, we sought to define the spatial extent of cases to include urban areas in both treatment and control groups. Reading Table 3 horizontally, one can see that in each state, the treatment and control groups have similar poverty rates and percentages of rental housing, two key predictors of evictions.

Data and Methods

For our dependent variable, we use Princeton's Eviction Lab block group level data on eviction judgments for the year prior to and the year after the storm (Desmond et al., 2018b). The data include two measures of evictions: eviction filings and eviction judgments. Eviction filings indicate the initiation of a legal eviction proceeding, but these cases often are not completed, and are not always associated with displacement of a tenant. Eviction judgments represent a court order for a tenant to vacate. We use eviction judgments in our model as we are interested in investigating processes of displacement following natural disasters rather than measures of eviction which are not as closely associated with a forced move (Desmond et al., 2018a). Using evictions judgments also minimizes (but does not eliminate) serial filings, or repeated eviction filings against the same tenant, which have been found to be an issue in several states, including South Carolina in particular (Porton et al., 2020).

We match block-group level eviction judgment data with data from the 5-year American Community Survey, capturing demographic, housing, and economic characteristics of places in the year prior to the storm. We then evaluate the impact of the storm on evictions in the year following the storm, using a dummy variable to note whether a block group was in an affected county.

As evictions data are count data, and we expect the variance exceeds the conditional mean, we employ a negative binomial model (Allison, 2009; Wooldridge, 2016). We also include a time-lagged variable measuring evictions in the year prior to the storm. This lagged variable is a commonly used alternative for a difference-in-differences model. This approach controls for unobserved variables affecting the number of evictions in a given neighborhood. Like synthetic controls and matching, the lagged dependent variable approach relies on the key assumption that any correlation between evictions and exposure to the disaster is ignorable, conditional on past outcomes. This assumption is

met for our study given that exposure to disaster in a given metropolitan area is random. The impact on communities (e.g., flooding) is correlated with low socioeconomic status and with evictions; not, however, in a way that is likely to change over the course of a single year. Compared with synthetic controls and matching approaches, the lagged dependent variable has been found to be the most efficient and least biased (Ding & Li, 2019). With the inclusion of a lagged variable, we interpret the coefficient for disaster exposure as a measure of the change in evictions over the year prior.

$$Ln(Y_{i,t}) = \alpha + \beta Y_{i,t-1} + \beta F_i + \beta H_{i,t-1} + \beta E_{i,t-1} + \beta D_{i,t-1} + \varepsilon_i$$

Y_t = evictions in the year after the storm;
Y_{t-1} = lagged dependent variable;
i = index for block group;
t = index of years where t is the year of the associated disaster for Block Group i;
F = a binary variable indicating whether the block group is in a county that qualified for public and/or individual aid from FEMA;
H = a vector of housing characteristics including the median age of housing, the percent rent burdened, and the percentage of the population renting;
E = a vector of economic characteristics, including median household income, the percent of households in poverty, and the adult unemployment rate; and
D = a vector of demographic characteristics, including race and Hispanic ethnicity.

To directly control for confounding factors, we included three sets of control variables that capture socioeconomic characteristics, which have been linked to evictions more generally in the United States. Housing characteristics, or (H), describe the physical and market conditions of the housing stock. We included the median age of housing as a standard control for housing quality, as age of housing is often (but not always) correlated with structures that are in need of repair, that are more prone to damage, and that rent at lower rates. The percentage of rent-burdened households measures the local cost of rental housing relative to local income. We included the share of both rent-burdened tenants (those paying 30–50% of household income toward housing costs) and extremely rent-burdened tenants (those paying over 50% of household income toward housing costs). Places with more rent-burdened households generally have more evictions. Finally, we included the percentage of rental households because evictions (as opposed to foreclosures) are only possible with renters.

The second set of control variables capture (E) or the economic status of households in the community independent of the housing market. Each is a measure of economic distress, which has been shown to be a key proximate cause of evictions. We include the unemployment rate for those 16 and older, the share of households in poverty (as defined by the U.S. Census Bureau), and the median household income.

The third set of control variables measure (D), the share of households whose demographic characteristics make them more likely to face evictions. Non-White and Hispanic tenants face housing discrimination which leads to higher eviction rates, and under segregation, can experience increased predatory landlord practices in predominantly non-White neighborhoods (Immergluck, Ernsthausen, Earl, and Powell (2020). These tenants also face discrimination in lending which can make it more difficult for them to access credit in an emergency. Our model includes a measure of the share of non-White and Hispanic individuals in the population. This metric is included to absorb some of the fluctuation in eviction rates following disasters because of racial and ethnic discrimination in the evictions process. Arguably, an equally valid approach would be to omit these variables and include the impact of housing discrimination in the primary variable of interest.

Table 4. Summary statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Annual evictions after storm	5,422	11	20	0	397
Annual evictions before storm	5,422	7	12	0	191
Treat	5,422	1	0	0	1
Population (thousands)	5,422	1.47	0.85	0.04	11.37
Pct. non-White	5,422	34%	28%	0%	100%
Pct. Hispanic	5,422	8%	14%	0%	92%
Pct. of households in poverty	5,422	18%	14%	0%	100%
Median household income (thousands)	5,422	$51	$30	$4	$250
Unemployment rate for those 16 and older	5,422	11%	9%	0%	61%
Median age of housing (years)	5,422	39.67	9.04	9.50	80.20
Pct. of households renting	5,422	36%	24%	5%	100%
Pct. rent burdened 30–50%	5,422	46%	24%	0%	100%
Pct. rent burdened 50% or higher	5,422	24%	20%	0%	100%

Note. Obs = Observations; Std. Dev. = standard deviation; Min = miniumum; Max = maximum; Pct = percentage.

Summary statistics for all variables are displayed in Table 4. The average population of a block group is 1,469. The average number of evictions is 7 prior to the storm and 11 afterward. As mentioned above, we discard any block group that has fewer than 5% of households renting.

Results

We estimate a negative binomial model on block group data for each state in our four cases. The results of each model, with coefficients and standard errors in parentheses, are displayed in Table 5. The results confirm the initial hypothesis that evictions will rise following a major flooding event in states that do not have strong tenant protections. In Table 5, we see that being in a county with

Table 5. Estimated models of evictions following disasters in four states.

Variable	Florida	Alabama	South Carolina	Connecticut
Evictions lagged variable	0.076	0.060	0.034	0.058
	(0.011)	(0.016)	(0.004)	(0.005)
Disaster-designated county	0.285	0.351	0.145	0.013
	(0.12)	(0.069)	(0.072)	(0.045)
Population	0.174	0.322	0.294	0.156
	(0.057)	(0.064)	(0.03)	(0.04)
Pct. non-White	0.596	0.617	0.481	0.493
	(0.192)	(0.132)	(0.1)	(0.108)
Pct. Hispanic	0.215	0.301	−0.228	0.189
	(0.606)	(0.639)	(0.362)	(0.124)
Pct of households in poverty	−0.392	−0.646	−0.767	−0.991
	(0.451)	(0.414)	(0.252)	(0.211)
Median household income	−0.006	0.003	−0.007	−0.011
	(0.005)	(0.003)	(0.002)	(0.001)
Unemployment rate for those 16 and older	−0.502	−0.994	1.107	0.346
	(0.443)	(0.47)	(0.244)	(0.272)
Median age of housing	0.000	−0.010	−0.009	−0.011
	(0.005)	(0.005)	(0.003)	(0.003)
Pct. of households renting	1.142	1.843	1.199	0.808
	(0.313)	(0.347)	(0.156)	(0.131)
Pct. rent burdened 30%-50%	0.191	0.514	0.079	0.009
	(0.185)	(0.185)	(0.112)	(0.128)
Pct. rent burdened 50% or higher	0.141	0.219	0.255	0.102
	(0.252)	(0.217)	(0.136)	(0.142)
Constant	0.027	−0.482	1.741	1.406
	(0.482)	(0.356)	(0.218)	(0.206)
N	744	940	2,178	1,560
Pseudo R^2	0.123	0.174	0.088	0.161

Note. Obs = Observations; Std. Dev. = standard deviation; Min = miniumum; Max = maximum; Pct = percentage.

a declared state of emergency warranting public or individual aid is strongly predictive of rising evictions in states that have *pro-business* or *contradictory* landlord-tenant law; however, in Connecticut, the state with a *protectionist* policy environment, we do not see a significant rise in evictions following an extreme flooding event.

Because the model includes a lagged variable for the number of evictions preceding the storm, we would not place too much emphasis on the estimates obtained for the control variables.

Table 6. Changes in the evictions in disaster-affected areas relative to unaffected adjacent areas.

Incidence Rate Ratio: EXP(B)			
Pro-business	Contradictory		Protectionist
Florida	Alabama	South Carolina	Connecticut
1.329*	1.42***	1.156*	1.013

Note. * p < .05; ** p < .01; *** p < .001.

Table 6 displays the exponentiated coefficients, or incident rate ratio (IRR), for the variable of interest, the dummy variable indicating whether a county was disaster-affected. Coefficients that are significant are starred. Florida is the state with strong protections for landlords and fewer protections for tenants in this study. The IRR shows that in block groups that had storm damage, the rate of evictions rose 33% higher than that in nearby areas with no officially declared storm damage. Alabama and South Carolina have strong landlord protections alongside tenant protections. In Alabama, evictions in disaster-affected areas rose 42% higher than adjacent, unaffected counties. In South Carolina, evictions rose by 16% following the storm relative to other areas.

By contrast, in Connecticut, a protectionist state with strong tenant protections and few or no landlord protections, the IRR was not significantly different from 1.

Our cases in Florida and Alabama are the result of the same storm; the timeframe is identical and the sampled counties in the two states are adjacent. For this reason, we also estimated a pooled model that included an interaction term between the state and the treatment. Although the results confirmed that evictions increased more in affected counties following the disaster, we did not find that the state boundary was a significant factor affecting the rate of increase in evictions.

Discussion and Conclusion

This research shows that evictions rise sharply after a disaster in places that have more landlord-friendly laws, regardless of whether tenant protections are also in place. In Alabama, South Carolina and Florida, evictions rose sharply in disaster-affected areas compared with nearby, unaffected areas. Conversely, Connecticut did not have an increase in evictions following Hurricane Sandy. This finding suggests that a pro-landlord policy environment leads to higher eviction rates, and that individual statutes offering tenant protections present in South Carolina and Alabama are not sufficient to outweigh other factors including pro-landlord policies.

Our findings are in line with other research into the importance of legal culture, or state-wide policy environments on eviction outcomes. Sudeall and Pasciuti (2021) conduct qualitative research into evictions courts in a pro-business state, and find that courts processes are not organised around upholding the rights of tenants or the obligations of landlords, but instead function more like an institution for rent collection. In this environment, tenants' legal rights do not secure better outcomes. Merritt and Farnworth (2020) conducted a cross-sectional analysis of eviction rates in different states using Hatch's (2017) typology. They found that pro-business and contradictory states have the highest overall eviction rates, and that contradictory states have very high racial inequality. In contradictory states, White neighborhoods have lower eviction rates, and Black neighborhoods

have higher eviction rates than in pro-business states. One inference from these results is that where tenant protections exist, they are not evenly applied across all jurisdictions. State-wide policy environments as well as individual statutory protections may be important for understanding and preventing evictions (Merritt & Farnworth, 2020). Our findings confirm these results, suggesting that the tenant statutory protections in South Carolina and Alabama do not confer a protective effect during the disaster recovery period.

The question of whether individual statutes reduce evictions; or become more powerful in the presence of tenant legal assistance remains an important avenue of research. The exercise of tenants' legal rights during an evictions process can provide important benefits to tenants, particularly during disaster recovery. These benefits include: preventing an eviction; reducing or eliminating rent debt; creating legal and financial obligations for landlords to repair dilapidated structures; slowing the evictions process to allow tenants to avoid loss of property and arrange for a smooth transition to a new residence; and suppressing eviction records to avoid damage to tenant rental histories that may reduce a tenant's ability to rent in the future, or cause them to lose their Housing Choice Voucher. All of these benefits rely on the existence of specific statutes.

The research design for this study is not structured to estimate the specific impact of individual state statutes on post disaster evictions. Nonetheless, we can draw some inferences from the differences in the landlord-tenant law between our four cases. In Florida, unlike the other three states, the landlord has no obligation to make repairs, or maintain appliances. In Connecticut, unlike the other three cases, the landlord has curtailed rights to retain the security deposit in the case of a dispute, and if they do not document any reductions and abide by rules guiding interest and timing, are liable for twice the original amount. Additionally, in Connecticut, the tenant can withhold rent, or make repairs and deduct the cost from the rent. These important tenant protections are not present in any other state (State Landlord Tenant Laws, 2019). The literature suggests that tenant's right to repair and deduct may be particularly important. Statutes allowing tenants to make repairs and deduct the costs from rent are associated with significantly lower tenant mobility (Hatch, 2020). Additionally, advocacy reports also suggest that improving landlord-tenant negotiation around damage to structures is a key area needing improvement (Binkovitz, 2018).

The literature suggests many potential mechanisms for eviction following a storm: physical damage, increases in rent, lost income because of localized or widespread economic disruption, and the logistics of temporary displacement. Our study does not differentiate these different possible causes, in part because we identify storm damage using county-level FEMA disaster declarations which imprecisely define the storm-affected area. Potential future studies could employ hierarchical models that allow for impacts at different scales, comparing block groups in flooded areas with adjacent block groups in non flooded (but still affected) areas. This approach could differentiate between the impact of physical damage from more spatially diffuse effects like rental prices and disruption to employment. To the extent that there are unaffected areas included in county-level declarations used in this research, and storm impact and housing market disruptions in counties without declarations, we expect that our model estimates are conservative, and may be understated. Research that uses a more fine-grained spatial definition of damage, such as the approach used by Kaminski (2019), could provide fuller estimates of the impact of storm damage.

Other avenues for research include investigating whether evictions after disasters lead to displacement from an area, or within the region. Evictions are often associated with chain displacement: sequential forced moves within a particular neighborhood or between distressed areas in a given region (Sims & Iverson, 2019). This sort of housing instability is separate from displacement from a region that is often the focus of disaster and displacement studies. Further research is needed to understand whether evictions are an important pathway of displacement of socially vulnerable residents from an entire area.

In addition to continued investigation into the way evictions factor into post disaster timeframe, we recommend exploration of long-term eviction prevention. It is not unusual for the U.S. Department of Housing and Urban Development and other entities to extend evictions and foreclosure moratoria in the immediate period following a disaster, but, as in other arenas of post disaster housing policy, these short-term moratoria leave a gap between the immediate response and the longer term recovery period (Levine, Esnard, & Sapat, 2007; Sapat & Esnard, 2016). If evictions remain at higher levels for at least a year following disasters, we recommend evictions moratoria paired with tenant rental assistance to avoid a rent cliff and extensive rent debt at the end of the moratoria; and expanded long-term legal assistance for tenants in the extended period following a disaster. Further research is needed to understand how to structure evictions moratoria to be effective in different policy environments. The COVID19 pandemic of 2020 has led to widespread experimentation with eviction prevention at federal, state, and local levels. Substantial research has begun to advance our understanding of how to prevent evictions during a crisis (Benfer et al., 2020). We hope this article contributes to the understanding of how evictions are related to the disaster recovery process, and furthers the state of research on this important topic.

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Disclosure Statement

Notes on Contributors

E. L. Raymond is a faculty member in the School of City and Regional Planning at Georgia Institute of Technology. Her research interests include displacement and dispossession through housing systems, and the financialization of housing and property in land.

T. Green is a faculty member in the Department of City Planning and Real Estate Development at Clemson University.

M. Kaminski is a City Planner for Charlotte, NC.

ORCID

E. L. Raymond 🆔 http://orcid.org/0000-0002-9459-561X

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