

Housing Policy Debate



ISSN: (Print) (Online) Journal homepage: <u>https://www.tandfonline.com/loi/rhpd20</u>

Sheltered From Eviction? A Framework for Understanding the Relationship Between Subsidized Housing Programs and Eviction

Gregory Preston & Vincent J. Reina

To cite this article: Gregory Preston & Vincent J. Reina (2021): Sheltered From Eviction? A Framework for Understanding the Relationship Between Subsidized Housing Programs and Eviction, Housing Policy Debate, DOI: <u>10.1080/10511482.2021.1879202</u>

To link to this article: <u>https://doi.org/10.1080/10511482.2021.1879202</u>

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



0

Published online: 19 Apr 2021.

_	_
Γ	
l	0

Submit your article to this journal \square



View related articles 🗹



View Crossmark data 🗹

OPEN ACCESS Check for updates

Sheltered From Eviction? A Framework for Understanding the Relationship Between Subsidized Housing Programs and Eviction

Gregory Preston^a and Vincent J. Reina^b

^aLuskin School of Public Affairs, University of California Los Angeles, USA; ^bStuart Weitzman School of Design, University of Pennsylvania, Philadelphia, USA

ABSTRACT

Housing affordability and eviction are intertwined, yet much remains unknown about how policy responses to increase affordable housing affect the local dynamics of eviction. This article establishes a framework for understanding how supply-side housing subsidy programs in the United States may impact the incidence of eviction filing. We apply this novel framework in a descriptive analysis of 9 years of eviction filing in Philadelphia, Pennsylvania. Overall, we find theoretical and practical support for the hypothesis that tenants in subsidized multifamily housing are less vulnerable to eviction than tenants in similar unsubsidized properties, but we find those protections vary between subsidy programs. Namely, we find public housing and project-based rental assistance properties are associated with decreases in the incidence of eviction filing, whereas the findings for Low-Income Housing Tax Credit properties are inconclusive. We cannot treat subsidized housing programs as a universal solution to eviction, but both theory and our analysis suggest it is an important tool for lowering eviction and eviction filing rates.

ARTICLE HISTORY

Received 10 June 2020 Accepted 18 January 2021

KEYWORDS

eviction; multifamily; rental housing; affordability; subsidized housing

It is clear the United States faces a housing affordability problem, considering half of its rental households spent more than 30% of their income on rent in 2017, one in four spent over 50% (Joint Center for Housing Studies, 2019), and such burdens are present in the highest cost and lower cost housing markets (Landis & Reina, 2019). Increasing housing costs may cause tenants to fall behind on rent payments, contributing to the over 2 million formal eviction cases filed annually nationwide (Desmond et al., 2018). However, it remains unclear how one of the key policy responses to addressing housing affordability, property-based rental assistance, interacts with eviction. In this article, we establish and test a framework to determine how supply-side subsidized housing programs in the United States influence the risk of eviction faced by tenants and evaluate their potential efficacy in eviction prevention efforts.

Increasing both federal and local capacity to address housing insecurity is vital, as the consequences of housing unaffordability and eviction are numerous and severe. Eviction compounds housing and social inequities as they disproportionately impact low-income as well as predominantly Black and other racially marginalized communities (Immergluck, Ernsthausen, Earl, & Powell, 2019; Lens, Nelson, Gromis, & Kuai, 2020; Medina, Byrne, Brewer, & Nicolosi, 2020; Raymond, Duckworth, Miller, Lucas, & Pokharel, 2018; Shelton, 2018; Teresa, 2018; Thomas, 2017). Eviction is a public health concern, as the stress and consequences of eviction increase the likelihood that a tenant will experience mental and physical health issues (Desmond & Kimbro, 2015; Fowler, Gladden, Vagi, Barnes, & Frazier, 2014; Hatch & Yun, 2020; Leifheit et al., 2020). Eviction poses local

CONTACT Vincent J. Reina 🔯 vreina@upenn.edu

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (http:// creativecommons.org/licenses/by-nc-nd/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. economic consequences as an eviction increases the probability of losing one's job and may hinder tenants' access to future housing and credit (Desmond & Gershenson, 2016). Lastly, eviction triggers moves to areas with, on average, higher crime and higher poverty (Desmond, Gershenson, & Kiviat, 2015; Desmond & Shollenberger, 2015) and, in some cases, may lead to homelessness (Applied Survey Research, 2017; City of Philadelphia, 2018a; Collinson & Reed, 2018; Crane & Warnes, 2000; Institute for Children, Poverty & Homelessness, 2016). Research asserts substantial distress accumulates leading up to an eviction filing, such that receiving an eviction filing in itself, without physical displacement, can be an indicator and instigator of housing insecurity (Humphries, Mader, Tannenbaum, & van Dijk, 2019). The ramifications of eviction thus become only more damaging set against the backdrop of the widespread shortage of affordable housing (National Low Income Housing Coalition, 2019).

Many jurisdictions recognize the connection between housing affordability and eviction, and thus propose increasing the supply of affordable housing (Clark, 2017; Cookson, Diddams, Maykovich, & Witter, 2018; Desmond et al., 2015; Housing Action Illinois, 2018; Johns-Wolfe, 2018), particularly through federal subsidized housing programs. However, little is known about the scale and characteristics of eviction filing practices in subsidized housing, and therefore we know little about the effects of housing programs focused on in this study. We then provide a brief overview of what is known about eviction and use that to establish a framework for how eviction rates could interact with different subsidized housing programs. Finally, we use a novel, property-level data set of multifamily rental housing in Philadelphia, Pennsylvania, to test whether we observe any differences in the incidence of eviction filing among subsidized and unsubsidized properties and across neighborhoods.

Subsidized Housing in the United States

The U.S. government administers rental assistance to low-income households through two means: supply-side programs, where the subsidy is attached to a property, and demand-side ones, where the subsidy is provided to property owners but is attached to the tenant. We focus on the largest supply-side affordable housing programs: public housing; privately owned, project-based rental assistance (PBRA) programs; and Low-Income Housing Tax Credit (LIHTC) properties.

Various articles provide detailed overviews of these subsidized housing programs, with one of the most comprehensive sources being Schwartz (2014). For clarity, we provide a brief overview here. Public housing is publicly owned and managed by local public housing authorities (PHAs). These properties have several distinct features. First, a tenant's rent payment is set as a fixed share (30%) of the household's income, and therefore adjusts as income increases and decreases. The U.S. Department of Housing and Urban Development (HUD) pays the difference between that tenant payment and the HUD-approved rent for the unit. Second, by virtue of being publicly owned and managed, these units are meant to be permanently affordable. Although, units have left this housing stock because of the demolition of public housing developments. Finally, this portfolio often serves some of the lowest income households, with an average household income of \$7,500 in 2019 (U.S. Department of Housing and Urban Development, 2019). At its peak, there were 1.4 million public housing units in the United States (Schwartz, 2014) and there are now just over 900,000 occupied units (U.S. Department of Housing and Urban Development, 2019).

HUD also supported the development of privately owned subsidized housing through multiple programs, the largest of which are the project-based Section 8 and Section 202 programs. New units are no longer being developed through either of these programs, but there are ongoing efforts to preserve the affordability restrictions on the existing units. The rent structure in the project-based Section 8 program is similar to that of public housing in that residents pay 30% of their income in rent and HUD pays the difference. The main difference is private owners of these properties can set the unit rent levels up to market level, which increases the amount of support HUD provides. Section

202 properties are privately owned as well and target the elderly. Many of these Section 202 properties also have project-based Section 8 contracts. One important difference between these programs and public housing is affordability restrictions in PBRA properties can and do expire (Reina, 2018).

The largest supply-side program, and the only one still financing the development of new units, is LIHTC. This program incentivizes investment in the production and preservation of affordable housing in return for federal income tax breaks. Unlike the programs we have discussed thus far, rent in LIHTC properties is not determined by individual household income but is fixed at a share of a regional affordability target (26 U.S.C. § 42(g)). This shallower subsidy means the average LIHTC tenant has a higher income than the average tenant in public housing or PBRA properties but still a substantially lower income than the average household (Schwartz, 2014, p. 145). Like project-based Section 8 and 202 properties, affordability restrictions for LIHTC properties can and do expire. However, renewal of this subsidy is relatively more difficult than in the HUD programs because it requires reapplication, as opposed to simply an agreement to remain in the program (Reina, 2018).

The Drivers and Correlates of Eviction

Broadly speaking, eviction is driven by discrimination on the basis of race, gender, and familial structure; income shocks and unaffordability; neighborhood change; and enforced behavioral regulations and retaliation. We expect these drivers could function differently based on subsidized housing program structure.

Discrimination

The long history of racial discrimination and segregation in the United States is a key reason why Black, Latino, and other racially marginalized renter households experience much higher rates of eviction than White households do. Across numerous studies, the highest rates of eviction are concentrated in predominantly Black and Latino neighborhoods, all else being equal (Desmond, An, Winkler, & Ferriss, 2013; Immergluck et al., 2019; Lens et al., 2020; Medina et al., 2020; Raymond et al., 2018; Shelton, 2018; Thomas, 2017). Eviction has disparate impacts on Blacks and Latinos, both through individual acts of discrimination and through the concentrated disadvantage inflicted upon marginalized communities. Research on eviction in the United States has primarily focused on the effects on the nation's largest racial minority groups, Blacks and Latinos; further research is needed to examine the effects on other racially marginalized groups, such as Asian and indigenous populations.

The presence of children also increases the likelihood a household will face an eviction. These findings are robust both at the neighborhood level, where a higher concentration of children neighborhood-wide is associated with higher rates of eviction, and at the individual level, where the presence of children increases the likelihood an individual will receive an eviction judgment, independent of household income and back-rent owed (Desmond et al., 2013). Additionally, single mothers are overrepresented in eviction cases (Desmond, 2012).

A large share of households that receive rental subsidies fall into one or more groups that may be at risk of discrimination-driven eviction. Roughly 42% of residents across all HUD programs are Black, 19% are Latino, and 36% are households with children (U.S. Department of Housing and Urban Development, 2019). Tenants receiving housing assistance are granted a number of legal protections that might decrease the chances of an eviction based on race and household composition. Tenants of all major supply-side subsidy programs—including public housing, LIHTC, project-based Section 8, and Section 202—are protected from no-cause evictions (24 C.F.R. § 966.4; IRS Rev. Rul. 2004–82; U.S. Department of Housing and Urban Development, 2013). In other words, owners of these properties must substantiate a narrower, valid cause (a good cause) to file for eviction. These protections are not a right of tenants outside of these properties or of tenants receiving federal

demand-side subsidies under the Housing Choice Voucher program (24 C.F.R. § 982.552). In addition, tenants in subsidized properties benefit from enhanced notice requirements and additional mediation procedures preceding an eviction hearing (24 C.F.R. § 966; U.S. Department of Housing and Urban Development, 2013). As a result, residents of subsidized housing are theoretically more protected from, but not immune to, baseless and discriminatory evictions, and we would expect all of the supply-side housing programs to reduce the odds of a discriminatory eviction, as summarized in Table 1.

Financial Stress

Both discrete and prolonged financial strain may cause tenants to fall into arrears and face eviction. Discrete income shocks, such as job loss, significantly increase a tenant's chances of experiencing eviction (Desmond & Gershenson, 2017); conversely, forced moves lead to job loss (Desmond & Gershenson, 2016). Long-term unaffordability may also contribute to a tenant's chances of facing eviction. Numerous studies find eviction filing is higher in neighborhoods with higher rent burdens (Immergluck et al., 2019; Thomas, 2017), and tenants themselves often cite rent burden as their reason for missing payments (Desmond & Gershenson, 2016).

Subsidized housing programs most directly influence a household's likelihood of facing eviction by reducing the financial stress of rent on household budgets. Many low-income households may struggle to find tenable rents among market-rate units, and subsidy programs are intended to fix rents at more affordable levels than those of the broader rental market would otherwise. However, the actual affordability mechanisms vary across housing assistance programs, which could result in different levels of protection against payment-related eviction in subsidized housing programs.

Tenants in public housing and properties receiving project-based rental assistance pay 30% of their income on rent and utilities, and HUD pays the difference between the household's contribution and the market-rate rent (42 U.S.C. §§ 1437a, 1437f). Therefore, if a household's income is low or drops and they successfully submit an income recertification, their rent payment adjusts accordingly and can even be zero.¹ Rents for affordable units in LIHTC properties are calculated at 30% of a regional target income, usually 60% of the area median income (AMI) (26 U.S.C. § 42(g)). Consequently, households with incomes below the regional affordability target devote an increasing share of their income to rent the further their income deviates from the target. In some housing markets, LIHTC rents are similar to market-rate rents (McClure, 2010), and a large share of households in LIHTC properties are rent burdened (Williamson, 2011).

As shown in Table 1, despite reduced rent levels, the level of reduction and the adjustment mechanism in public housing and properties with project-based rental assistance provides tenants with a type of protection from income-related evictions that is not present in the LIHTC program or market-rate units. Therefore, we expect eviction for economic reasons to be higher in LIHTC properties than in public housing and PBRA properties, but likely lower than in the private market when LIHTC rents are lower than market rents.

Neighborhood Change

Local market dynamics could also increase a tenant's likelihood of facing eviction. An increase in rent could force a household to fall into arrears if incomes do not rise in tandem. Additionally, a real or perceived increase in rental demand or preemptive property owner speculation could lead to an eviction filing if an owner seeks to replace existing tenants with tenants who are willing to pay higher rents. In a study of Toronto, Canada, Chum (2015) finds evictions are more prevalent in neighborhoods defined as being in early stages of gentrification than those areas in later stages or completely gentrified. Similarly, Mah (2020) finds evictions were higher leading up to the height of redevelopment activity in downtown Detroit, Michigan. Thomas (2017) finds evictions in Seattle, Washington, are concentrated in the most economically depressed and racially segregated areas, but the

Table 1. Framework for the relationship between eviction filing and subsidized housing.

Driver	Cause of eviction	Theoretical effects of subsidized housing	(±)
Discrimination	Individual act of discrimination	Enhanced legal protections and greater accountability for upholding fair housing laws in subsidized housing relative to unsubsidized housing, including good cause protections, may decrease the chance of a discriminatory eviction across all subsidized housing programs.	+
	Structural discrimination	By virtue of the regulated and/or income-adjusted rents, subsidized housing may reduce the negative impact that structural racism in labor markets has on eviction.	+
		Subsidized households could be more exposed to discriminatory policing, which further exposes them to eviction due to one strike policies.	-
Financial stress	Rent burden	In public housing and PBRA properties, income-adjusted rents should decrease the chances of eviction for nonpayment of rent by decreasing overall rent burdens.	+
		In LIHTC properties, the calculation of rent based on regional incomes means that some households in these properties are still rent burdened, making the program less effective than other place-based subsidized housing programs at decreasing eviction for nonpayment of rent.	±
	Income shock	In public housing and PBRA properties, a tenant's ability to go through an income recertification or hardship exemption allows rent levels to adjust with income, and thus reduces the odds of an eviction due to a change in income.	+
		There are no adjustment mechanisms for an income shock in the LIHTC program, which means households in LIHTC properties are just as exposed as market- rate tenants to any nonpayment-based eviction risk associated with a change in income.	Ŧ
Neighborhood change	Rent appreciation (price out)	All property-based subsidy programs shield tenants from additional burden and risk of eviction as a result of local rent increases. In public housing and PBRA, a tenant's rent payment is based on their income not local rent levels. In the LIHTC program, rents are set regionally based on 30 percent of a household's income at the determined income-level target for that unit, which limits the impact of neighborhood rent level changes on any given unit.	+
	Property owner speculation	The rent-setting structures in all subsidized housing programs, and enhanced legal rights, limit speculative rent increases and baseless eviction.	+
		Public housing is theoretically mandated to be affordable in perpetuity, and these units are less susceptible to speculation. However, it is important to note that there are clear examples of the redevelopment of public housing where households are temporarily or permanently removed from their unit and where unit counts were permanently reduced.	+
		Tenants in PBRA and LIHTC properties may be subject to effective displacement when affordability restrictions expire. In the case of PBRA, the subsidy contract, and associated affordability restrictions, are often renewable. In the case of LIHTC properties, the subsidy is not automatically renewable and affordability restrictions are currently set at 30 years, however, many states	Ŧ
Behavioral regulations	Social controls	and localities require longer affordability restrictions through the program. Tenants in subsidized properties may face increased risk of eviction due to burdensome and rigid tenancy requirements, such as work requirements, regulations around household size and structure, and one-strike policies.	-
		Tenants in subsidized properties may face higher exposure to social controls and retaliation from neighbors due to the unfounded stigma often assigned to subsidized housing, which increases the odds of a tenancy requirement-based eviction. This risk is likely greatest in public housing.	-
	Exercise of legal rights	Administrative processes and accountability (including proactive housing inspections) create formal systems to address concerns around housing quality issues, which may reduce the tension with owners and the chances of retaliatory eviction associated with such requests. These protections do not remove all retaliatory risk for subsidized households, but likely reduce the impact on eviction relative to unsubsidized housing.	+

Notes.

^{+ =} pro, may decrease the chances a tenant in a supply-side subsidized housing faces risk of eviction filing or eviction relative to one who is not

^{- =} con, may increase the chances a tenant in supply-side subsidized rental housing faces risk of eviction filing or eviction relative to one who is not

 $[\]pm$ = the effect does not clearly increase or decrease the chance a tenant in supply-side subsidized housing faces risk of eviction filing or eviction relative to one who is not

likelihood of facing eviction also increases for tenants living in neighborhoods bordering lower poverty ones. These accounts extend Desmond's account of Milwaukee, Wisconsin, in which evictions are concentrated in areas of persistent disadvantage. Together, they suggest eviction may be prevalent in persistently lower income neighborhoods as well as those where local demand or investment increases.

The rent structure of subsidized housing may mitigate the likelihood of a tenant facing eviction in changing neighborhoods compared with those in market-rate units. Both individual and regional income rent-setting mechanisms are less sensitive to the local market changes that might price out already rent-burdened tenants. In LIHTC properties, regionally determined rents (26 U.S.C. § 42(g)) shield tenants from dramatic local rent appreciation. In project-based Section 8 properties, owners can adjust rents upward to match local market levels, but the tenant's contribution is based on their income alone (42 U.S.C. § 1437f), so this rent adjustment only increases the level of support disbursed by HUD. Rent payments in public housing are also tied to tenants' income (42 U.S.C. § 1437a).²

Additionally, tenants of all major HUD subsidy programs are granted good-cause eviction protections (24 C.F.R. § 966.4; IRS Rev. Rul. 2004–82; U.S. Department of Housing and Urban Development, 2013), which safeguard against a no-cause termination of tenancy in the case of a landlord who seeks to replace a low-income tenant with a higher-income one for economic gain. Therefore, we expect tenants residing in subsidized housing in appreciating local markets to experience lower rates of eviction than those of their neighbors in unsubsidized housing.

Shielding households from rent increases is not necessarily sufficient for preventing eviction as a result of local market changes. Beginning in the 1970s, HUD moved toward a model of financing private owners to develop and manage affordable housing, and this model persists through the LIHTC and other programs (Begley et al. 2011; Schwartz, 2014). Properties developed with project-based Section 8, Section 202, and LIHTC subsidies are all privately owned, and the owners of those properties agree to maintain those properties as affordable for a fixed period of time. This means all properties in these programs have affordability restrictions that can and do expire (Reina, 2018).

Owners of subsidized properties in rapidly appreciating markets have higher odds of exiting their programs (Lens & Reina, 2016; Reina, 2018; Reina & Begley, 2014). Although some research suggests many of the early units developed through the LIHTC program with only a 15-year affordability restriction remained affordable after their compliance period (Meléndez, Schwartz, & de Montrichard, 2008), there is uncertainty about whether existing tenants were able to remain in those properties. Research on project-based Section 8 shows only 48% of the households in properties where subsidy expired used the voucher they were offered that was meant to shield them from the loss of rental support (Reina & Winter, 2019). Although it is not possible to conclude from this that tenants were displaced, the 52% of households who did not use the voucher would have needed to increase their rent payment by over 300%, on average, to make up for the loss of the rental subsidy and afford their current rent (Reina & Winter, 2019). Therefore, we expect the odds of eviction would increase across all subsidized housing programs where affordability restrictions are due to expire, particularly those in neighborhoods experiencing price increases.

Behavioral Regulations

Lastly, property owners may initiate eviction to police tenant behavior. Nuisance ordinances and code enforcement are two common sources of landlord-tenant conflict that can result in a retaliatory eviction filing. Desmond and Valdez (2013) find property owners use the legal power of eviction or the threat of eviction to remove tenants they deem a nuisance. Lewis et al. (2019) find property owners use nonpayment of rent as a legally substantiated basis for retaliation against "problem tenants." (Lewis et al., 2019, p. 160). For example, property owners may initiate eviction or the threat of eviction to prevent tenants from exercising their rights and bringing unwanted scrutiny and code violation fees to the rental property. In Philadelphia, one in five eviction filings in 2017

occurred at a property cited with a recent code violation (City of Philadelphia, 2018a). Although it is unclear what extent of those evictions are a result of the violation, habitability concerns are prevalent and may become a source of tension and grounds for retaliation between owners and tenants.

Theoretically, subsidized housing residents benefit from federally mandated housing quality standards and inspections in HUD-subsidized properties, and from property asset managers in LIHTC properties. There is often no proactive code enforcement procedures for unsubsidized properties. Instead, there is an over-reliance on individual residents or neighbors reporting housing code violations and issues. A tenant's request for repairs or formal documentation of a building code violation may result in retaliation through eviction by the property owner if it brings unwanted scrutiny, fines to the rental property, or a mandate for the owner to address a housing quality issue they were not looking to address. The additional regulatory processes, including required inspections, present for the subsidized rental stock may both increase accountability around housing quality issues and decrease the likelihood of retaliatory eviction filings. Such public accountability may still increase tensions between tenants and subsidized property owners or managers, but also places higher public scrutiny on owners. Given the persistent underfunding of public housing that has resulted in extensive deferred maintenance in this portfolio (Schwartz, 2014, pp. 178–80), such complaints and the associated tension may be higher in this portfolio.

Tenants, especially those residing in public housing, are subject to additional regulations, including regular administrative certification (U.S. Department of Housing and Urban Development, 2013, p. 7), work requirements (Rohe, Webb, & Frescoln, 2016), and one-strike policies (42 U.S.C. § 1437d(l) (6)), which can be used to substantiate eviction filings outside of nonpayment of rent. However, tenants in subsidized properties also receive greater legal protection than the average tenant renting on the private market, which limits the conditions under which the property owner may file for eviction and shifts the burden of proof onto property owners to substantiate their claims. Combined, this suggests residents in subsidized housing may face lower rates of eviction because of living in a regulated system and benefiting from more legal protection than the average market-rate tenant, but may also face higher rates of eviction on the grounds of the politicized social controls applied to tenancy in subsidized housing.

We might expect eviction filings in subsidized housing to be lower than those in similar marketrate units because of rent restrictions and support mechanisms, broader legal protections, and stricter controls on owner behavior. However, such protective effects likely vary significantly across supply-side subsidy programs. Table 1 summarizes our discussions of the interactions between eviction filing and the attributes of property-based subsidized housing programs.

Recent research provides some initial insight into the prevalence of eviction in subsidized housing. In the first study, Lundberg, Gold, Donnelly, Brooks-Gunn, and McLanahan (2020) use a longitudinal survey to test whether residing in public housing or receiving housing assistance in other forms (e.g., Housing Choice Vouchers) reduces the probability a family faces eviction in the future. The authors find that residing in public housing decreases a family's probability of experiencing an eviction but not its probability of nonpayment of rent (Lundberg et al., 2020). Other forms of housing assistance do not significantly decrease a family's risk of facing eviction in their analysis. In the second study, Harrison, Immergluck, Ernsthausen, and Earl (2020) model property-level eviction rates for multifamily buildings in metropolitan Atlanta, Georgia. This analysis builds on similar research of eviction in multifamily properties in Atlanta (Immergluck et al., 2019) and finds a significant decrease in eviction filing rates among senior subsidized housing relative to market-rate properties serving seniors (Harrison et al., 2020).

This article is the first to establish a framework for how eviction rates could theoretically vary across subsidized housing programs. Further, we employ 9 years' worth of property-level eviction filings in multifamily properties. This allows us to look at differences in eviction rates in a census of subsidized versus unsubsidized properties as well as variation across subsidy programs and across different market dynamics. These data also allow us to home in on the stated reason for the eviction and outcome, and the ways in which that varies across our outcomes of interest.

Data and Methods

We now turn to our case study of Philadelphia to explore variation in observed eviction filing rates. To do this, we first examine differences in the overall eviction filing rates of subsidized and unsubsidized multifamily properties and how those differences occur across programs. Second, we test whether those findings are robust after controlling for differences between neighborhoods. Next, we explore whether differences in eviction filing rates between subsidized and unsubsidized properties are apparent in areas where subsidized properties are most clearly mitigating the social and economic correlates of eviction, including areas of concentrated disadvantage and those experiencing increasing rents. We then explore the differences in grounds for, and outcomes of, an eviction filing between property types. Finally, we explore how these relationships change in properties where a subsidy expired. In doing so, we hope to elucidate the relationship between subsidized housing and eviction to observe the effect of place-based rental subsidies on the incidence of eviction filing.

Philadelphia: A Case Study

We focus on Philadelphia as a suitable case study for several reasons. First, the prevalence and patterns of eviction in Philadelphia are consistent with findings from across the literature. In 2016, there were over 20,000 eviction cases filed in Philadelphia, representing approximately 1 in 15 renter households (Goldstein, Dowdall, Weidig, Simmons, & Carney, 2019); nationally, the eviction filing rate was approximately 1 in 16 renter households (Desmond et al., 2018). In line with existing studies, evictions are disproportionately concentrated in predominantly Black and low-income neighborhoods (Goldstein et al., 2019). Similarly, Black, female-headed households with children have the highest prevalence of forced moves in Philadelphia (U.S. Census Bureau, 2015). Lastly, the legal process and citable grounds for eviction cases is fairly typical for U.S. cities during the study period (Eldridge, 2001). Eviction cases in Philadelphia exemplify the counsel imbalance long observed by legal scholars (Eldridge, 2001; Fusco, Collins, & Birnbaum, 1979; Mosier & Soble, 1973; Scherer, 1988). In 2016, Philadelphia tenants were represented by counsel in only 8.5% of eviction proceedings whereas landlords were represented in 81.5% of cases. Nonpayment of rent is the predominant grounds cited for eviction, cited in 95% of eviction filings (City of Philadelphia, 2018a).

The diversity of local housing markets in Philadelphia establishes natural conditions under which the differences in eviction filing practices across neighborhoods can be examined under the same legal structures. Philadelphia is a hybrid housing market, with some neighborhoods that emulate hot market cities and a significant share of neighborhoods that resemble economically stagnant or declining cities. As a result, we look at the prevalence of eviction filings across both disinvested and rapidly appreciating neighborhoods. A large and persistent share of the city's residents have incomes below the federal poverty level and face a shortage of affordable and available housing (Federal Reserve Bank of Philadelphia, n.d.; U.S. Census Bureau, 2017).³ These dynamics complicate and necessitate eviction prevention efforts because eviction may lead to severe and prolonged housing insecurity. It also means increasing access to deeply affordable housing through subsidized housing programs may significantly reduce the prevalence of eviction.

Subsidized housing represents approximately 7.5% of the rental housing stock in Philadelphia (National Housing Preservation Database, 2020; U.S. Census Bureau, 2017). As of 2019, there were approximately 14,000 public housing units, 11,600 LIHTC units, and 12,300 project-based Section 8 and Section 202 units. Together this stock is a vital resource to preserve affordability across a variety of neighborhoods. Recent research shows the Philadelphia Housing Authority is the largest landlord and the largest single filer of evictions in Philadelphia, representing 14% of all eviction filings (City of Philadelphia, 2018a). Philadelphia ranks third in the highest rate of eviction within its public housing: approximately 1.8% of its housing stock annually (City of Philadelphia, 2018a). The prevalence of evictions in philadelphia is concerning, particularly considering the characteristics

of its residents and the loss of strict protections against income volatility and neighborhood change that it represents.

The shortcomings of the LIHTC program, potentially resulting in increased risk of eviction, are also clear in a city like Philadelphia. The listed rent for a 2-bedroom unit in an LIHTC property for someone at or below 50% of the AMI is \$1,013 (Pennsylvania Housing Finance Agency, 2019), which is higher than the median rent of \$1,007 in the city. Although there are likely significant location and housing quality differences between those units, the dollar amount illustrates a household has the potential to be equally housing-cost burdened in both the LIHTC and the market-rate unit. This is confirmed by local public officials, who conducted a nonpublic survey of LIHTC households and concluded a large but unspecified number of households in LIHTC are housing-cost burdened (Blumgart, 2020). In turn, rent burden could lead a tenant into arrears and put them at risk of an eviction.

As in other cities across the country, many existing subsidized units in Philadelphia will soon reach a point where an owner has the option to renew or exit a subsidy program and those properties will likely require significant reinvestment. Since 2000, 2,600 units have exited subsidized housing programs, and 13,000 are eligible to do so in the next 15 years. Between 2020 and 2035, over 6,000 LIHTC units will reach their 15-year compliance period and likely need recapitalization, and over 8,000 will reach the end of their 30-year affordability restriction period (National Housing Preservation Database, 2020).

Finally, there have been local efforts to address eviction in Philadelphia. Following a citywide study of evictions in 2017 (Goldstein, Parker, & Acuña, 2017), the City of Philadelphia initiated the Mayor's Taskforce on Eviction Prevention and Response. Over 9 months, this cross-agency working group developed a policy agenda aimed at reducing the prevalence of eviction and better supporting tenants facing eviction (City of Philadelphia, 2018a). These goals were then reflected in the city's 10-year housing plan (City of Philadelphia, 2018b). In 2018—following the time frame of our analysis —a legal collaborative launched the Philadelphia Eviction Prevention Project (PEPP) to significantly expand legal assistance for renters facing eviction (Phillips & Collins, 2019), and in 2019, the Philadelphia City Council passed good-cause tenant protections (Phila. Code § 9–804(12)) and right-to-counsel legislation (P.C. § 9–808). In sum, the local market conditions, the dynamics of subsidized housing, and political will to reduce evictions make Philadelphia an ideal site for investigating the relationship between eviction and subsidized housing. At the time of our analysis, subsidized housing tenants received good-cause protections whereas market-rate tenants did not, although that has changed since.

Multifamily Properties

For this analysis, we employ a novel data set consisting of the currently identifiable universe of multifamily properties with five or more rental units in Philadelphia recorded between 2009 and 2017.⁴ Multifamily properties make up approximately one third of all of Philadelphia's rental units, per census estimates. Recent literature around eviction filing practices highlights potentially significant differences across property and ownership types (Harrison et al., 2020; Immergluck et al., 2019; Raymond et al., 2018; Seymour & Akers, 2019, 2020). We focus on multifamily properties for two key reasons. In general, subsidized properties, by virtue of their financing structure, tend to be multifamily rental properties. Therefore, restricting the overall sample to multifamily properties ensures market rate properties are of similar unit count to the subsidized sample and the world of small portfolio property owners who may vary in ownership practices for unobservable reasons.

Second, by focusing on multifamily properties, we can more precisely estimate unit counts for unsubsidized properties. The professionalization that comes with a larger rental portfolio theoretically increases the chances that owners are compliant with rental licensing requirements from which the per property unit counts are derived and eviction filing rates are calculated. Indeed, over 90% of identified multifamily rental properties were linked to rental licenses. Unit counts in unlicensed properties were estimated using an average per-unit square footage for similar-sized properties. In

	Mark	et rate	Subsidized All		All pr	operties
No. of units in property	Properties	Units	Properties	Units	Properties	Units
5–9	60%	14%	5%	<1%	57%	12%
10–24	20%	12%	12%	2%	20%	10%
25–49	8%	11%	20%	9%	9%	11%
50–99	6%	17%	36%	26%	8%	18%
100–249	4%	23%	17%	29%	5%	24%
250+	1%	23%	9%	34%	2%	25%
Total	4,134 (100%)	105,788 (100%)	283 (100%)	25,860 (100%)	4,417 (100%)	131,648 (100%)

Table 2. Identified multifamily properties in Philadelphia, Pennsylvania.

Table 3. Identified multifamily subsidized properties, by program.

	Public	: housing	LIHTC		Secti	on 8/202
No. of units in property	Properties	Units	Properties	Units	Properties	Units
5–9	0%	0%	7%	1%	5%	<1%
10–24	5%	1%	12%	3%	13%	2%
25–49	15%	4%	29%	17%	14%	6%
50–99	35%	16%	38%	36%	35%	25%
100–249	28%	33%	10%	22%	22%	32%
250+	17%	47%	4%	21%	11%	34%
Total	60 (100%)	9,113 (100%)	136 (100%)	9,239 (100%)	130 (100%)	12,226 (100%)

Note. Some properties (17%) have active subsidy contracts under more than one supply-side subsidy program. Therefore, property and unit counts are not entirely exclusive. LIHTC = Low-Income Housing Tax Credit.

summary, we identify 4,417 unique properties representing a total of 131,214 rental units across 9 years.

From this universe of multifamily properties, we flag properties receiving federal housing assistance between 2009 and 2017. Data from the National Housing Preservation Database (NHPD) were used to identify whether and when a property received housing subsidy under any of the major supply-side assistance programs: public housing, LIHTC, and Section 8 or Section 202. The subset of subsidized properties makes up 6% (n = 283) of all multifamily properties and approximately one fifth of all multifamily units (n = 25,860) in Philadelphia.⁵ Tables 2 and 3 describe the breakdown of the sample by building typology and subsidy, and Figure 1 depicts the spatial distribution of those properties across Philadelphia.

Eviction Filings

The eviction complaint, henceforth eviction filing or filing, is used as the primary outcome of interest. Recent literature has recognized that a significant portion of housing insecurity is constituted at the time of the eviction filing. Regardless of the court outcome, an eviction filing may represent enduring financial and housing insecurity following the filing (Humphries et al., 2019). The court fees themselves may constitute a collectible debt across many jurisdictions, including Philadelphia, and may intensify tenants' financial precarity (City of Philadelphia, 2018a; Garboden & Rosen, 2019). An eviction filing may also limit future housing options because some owners have adopted tenant screening practices that include a review of court records (Desmond, 2012; Hartman & Robinson, 2003; Kleysteuber, 2006).

Eviction filing data were scraped from the Philadelphia Municipal Court's online filing portal, which contains all recorded information about the premises, parties involved, grounds for eviction, and outcomes of the court process.⁶ At the time of filing for eviction, the plaintiff—the property owner, the manager, or an authorized representative such as the legal counsel—must supply the reason(s) they seek the legal recourse of the eviction process. In Philadelphia, the grounds for eviction include nonpayment of rent, a termination of tenancy at the end of the lease term, and



Figure 1. Multifamily properties identified in Philadelphia, Pennsylvania.

breach of the conditions set forth in the lease. The plaintiff must select at least one or any combination of the three stated grounds for eviction (Philadelphia Municipal Court, 2018). The stated grounds for eviction are adjudicated at the court hearing, and therefore the reasons for filing may overreport actual conditions.

Eviction filings were cleaned and geocoded, using an iterative process of exact tabular joins, to acity-wide, standardized address data set and geocoded using GoogleMaps API and ArcGIS. Individual filings are aggregated and joined at the property level described above. Of 4,417 unique multifamily properties, 57% (n = 2,517) were the site of at least one eviction filing between 2009 and 2017. In a manual review of a random sample of properties, it did not appear that serial filing is a widespread practice in Philadelphia as it is in other cities (e.g., Immergluck et al., 2019).

This analysis encompasses only eviction filings documented by the formal court processes. Thescale of illegal evictions, those happening outside the purview of the law, may vastly outnumber formal evictions (Balzarini & Boyd, 2020; Desmond, 2016; Hartman & Robinson, 2003). Additional regulations and administrative oversight placed on subsidized properties may decrease the

Table 4. Descri	ntive statistics for	census tracts with	multifamily r	properties (v	veighted by	/ units).
	prive statistics for	census traces with	manuful my p	Jopennes (V	vergineed b	y units).

Variable	Minimum	Maximum	Mean	Median	SD
Identified multifamily units	5	26,617	7,362.71	5,824	5,656.27
Flag: Property > 50 units	0.00	1.00	0.67	1.00	0.47
Year built	1,748	2,016	1,949.17	1,959	36.07
%Δ Median rent, 2000–2017	- 60.97	304.45	28.58	23.39	32.77
%Δ White population, 2000–2017	- 57.19	66.44	- 3.59	- 2.74	16.50
%Δ college educated, 2000–2017	- 11.95	54.29	10.59	7.98	10.44
Permits/unit (%), 2000–2017	0	35.38	2.72	0.89	4.75
% Renter households	6.44	100.00	62.53	64.02	19.62
% Vacant rental units	0	58.49	8.23	7.46	6.02
% Crowded rental units	0	26.30	2.68	1.96	3.10
Assessed value/square foot (\$)	0.03	1,594.70	62.03	43.38	68.06
Median renter HH income (\$)	5,246	118,962	34,926.35	31,326	18,350.74
% Population in poverty (<100% FPIG)	0	84.75	25.51	21.86	15.95
% in deep poverty (<50% FPIG)	0	75.29	14.10	11.16	11.79
Median market rent (\$)	252	2,524	1,040.84	977	352.39
% Households rent burdened	0	95.00	48.53	48.06	10.17
% Population college educated	0	93.50	39.90	33.03	26.36
% Renter HH: Female HoH	0	100	15.12	10.60	14.12
% Renter HH: with children	0	77.97	16.23	13.95	13.04
% Renters: Age 65+	0	81.59	16.78	13.66	13.31
% Renters: White	0	100	43.52	46.39	28.89
% Renters: Black	0	100	39.48	31.02	32.53
% Renters: Latino	0	94.00	6.98	4.54	9.98
% Renters: Asian	0	85.30	8.24	4.99	9.45
% Rental Units: Subsidized	0	100	18.65	9.34	22.90
% Supply-side subsidy	0	100	13.79	2.41	21.42
% Housing Choice Voucher	0	62.27	4.88	2.13	6.94

Note. $\&\Delta$ = percentage change. FPIG = Federal Poverty Income Guideline. HH = household. HoH = head of household. *SD* = standard deviation. All dollar amounts are adjusted to 2017 dollars.

All variables except flag: property > 50 units and year built are reported at the tract level.

likelihood of illegal evictions in those properties. Therefore, this study represents aconservative estimate of the difference in the scale of total forced displacement—the sum of formal and illegal evictions—between market-rate and subsidized properties. Nevertheless, our analysis illustrates key differences between formal eviction filing practices in subsidized properties and their counterparts in unsubsidized properties.

Neighborhood and Property Characteristics

To account for differences in eviction filing rates driven by renter demographics and local housing market characteristics, we join cross-sectional, neighborhood-level data, approximated by census tract, from the American Community Survey and HUD's Picture of Subsidized Households. We also impute property-level characteristics, such as building age, from municipal administrative data. Table 4 contains a summary of the properties in this analysis.

Multifamily housing is widely distributed across most neighborhoods in Philadelphia. Subsidized multifamily properties, however, are relatively more concentrated in higher poverty, racially segregated neighborhoods. Similarly, most of the relevant literature finds eviction and eviction filing is higher in neighborhoods with these characteristics. Although our analysis attempts to control for neighborhood and renter characteristics that may influence the incidence of eviction filing, the stratification of subsidized housing in neighborhoods with concentrated evictions may confound the analytical effects of housing subsidy. Table 5 highlights these differences. In light of this, following our full analysis, we conduct a number of tests on focused geographic samples of multifamily properties to evaluate the robustness of our findings.

Variable	Unsubsidized	Subsidized	Public housing	LIHTC	Section 8/202
No. of identified multifamily units	7 151 37	3 324 11	4 047 89	1 395 65	2 114 39
Flag: Property > 50 units	0.62	0.88	0.96	0.78	0.91
%A Median rent 2000_2017	28.34	29.55	34 44	31 50	26.13
%A White population 2000–2017	_ 4 17	_ 1 25	0.15	0.13	_ 2 58
%A College educated 2000-2017	11 13	8.44	8.52	9.15	8.80
Permits/unit (%) 2000–2017	2.48	3 66	3 67	<i>J.</i> / 4	3 53
% Renter households	62.40	64.08	64.08	60.64	64.94
% Vacant rental units	8.45	7 37	6.49	8 30	7 76
% Crowded rental units	2.64	2.83	3 31	2 77	2 50
Assessed value/square foot (\$)	68.03	38.20	22.21	38.63	47.63
Renter HH income (\$)	38 225 02	21 674 49	18 749 86	24 376 78	22 280 80
% Population in poverty (100% FPIG)	2223.02	21,074.45	40.56	27,370.70	23,307.07
% in deep poverty (50% FPIG)	13 17	17.83	20.50	15 57	16.07
Median market rent (\$)	1 111 28	750 38	625.68	850.44	833.30
% Households rent burdened	48.36	49.24	47.01	51 10	AQ 8Q
% Population college educated	40.50	21.24	15.38	23.40	26.07
% Population concyc cuddated	12 / 2	21.07	34.48	23.40	20.07
% Renter HH: with children	14.36	23.21	30 30	23.24	19.63
% Renters: Age 65+	15.46	23.75	18 32	21.04	25.88
% Renters: White	49.01	22.00	14.62	20.55	25.00
% Pontors: Black	33.20	64.56	76.06	60.00	55.60
% Ponters: Latino	53.20	7 55	6.07	00.99 8 47	9 3 J
% Pontors: Asian	8 00	7.55	0.07	4.40	7.63
% Pontal units: subsidized	11 07	J.20 45 56	50 10	27.25	30.40
% Supply-side subsidy	7.60	43.30 28.17	53.08	37.33 27.12	39.49
⁷⁰ Supply-side subsidy ⁰⁴ Housing Choice Voucher	1.09	20.17 7 47	53.00	27.12	52.75 6 01
70 Housing Choice Voucher	4.24	7.47	0.20	10.50	0.01

Note. LIHTC = Low-Income Housing Tax Credit. Δ = percentage change. FPIG = Federal Poverty Income Guideline. HH = household. All dollar amounts are adjusted to 2017 dollars. All variables except *flag: property > 50 units* are reported at the tract level.

Methods

Although it is common practice to report evictions and eviction filings as rates, these data are not continuous data but rather count data. The incidence of eviction filing, the primary outcome of our study, is not normally distributed: it is right skewed, censored at zero, and relatively sparse. Therefore, we model the count data using the negative binomial model to handle overdispersion in the observed count of eviction filings.

The data presented here are structured as an unbalanced panel of multifamily rental properties observed across 9 panel-years ⁷ Each property is associated with an annual count of eviction filings and a set of time-varying and time-invariant predictors. Our primary research question entails analyzing differences between market-rate and subsidized properties. Therefore, we cannot employ the fixed-effects model for panel data because itdummies out differences between individuals. Instead, we employ a multilevel model with individual random effects and year fixed effects, where level-one observations (year) of level-two properties are nested within level-three neighborhoods, imputed as tracts. The general form for this model is as follows:

$$y_{it} = \beta_0 + \beta_1 Sub_i^* Year_t + \beta_2 Z_i + \beta_3 X_{it} + v_i + \epsilon_{it}$$
(1)

where y_{it} is the count of eviction filings exposed by the number of active rental units for property *i* in year *t*. β_1 is the modeled effect of the binary outcome representing whether the property had an active contract under one of the major federal supply-side subsidy programs, *Sub_i*, interacted with the time variable, *Year_t*, to account for potential year-over-year trends in housing assistance. β_2 is the effect of a vector of time-invariant predictors, *Z_i*, such as property characteristics. β_3 is the effect of a vector of time-varying predictors, *X_{it}*, such as neighborhood characteristics and renter demographics. Explanatory variables, *X*, are chosen based upon theoretical significance in the eviction literature and imputed at the tract level. v_i represents the level-two random effects and ϵ_{it} represents the level-one residuals.

14 🕒 G. PRESTON AND V. J. REINA

In accordance with the recent literature (Bell, Fairbrother, & Jones, 2019), we model heterogeneity by decomposing the time-varying covariates from Equation (1) into within- and between-effects in Equation (2):

$$y_{it} = \beta_0 + \beta_1 Sub_i^* Year_t + \beta_2 Z_i + \beta_{3W} (X_{it} - \overline{X_i}) + \beta_{3B} \overline{X_i} + v_i + \epsilon_{it}$$
(2)

 β_{3W} encompasses the within-individual effect of the vector of individual de-meaned, time-varying covariates, where X_{it} represents the time-varying predictors for individual *i* in year *t* and $\overline{X_i}$ represents the individual mean predictors across all years *t*. β_{3B} represents the between-individual effect of a vector of individual mean predictors $\overline{X_i}$. Although this within-between specification (Bell et al., 2019; Neuhaus & Kalbfleisch, 1998),⁸ does not entirely address concerns such as omitted variable bias, it allows us to model between-group differences while also accounting for within-group variance by explicitly modeling both forms of heterogeneity. In the context of our research, this specification is also important because it models effects across time and space, as subsidy may have differential effects on the incidence of eviction depending on the local market conditions it is acting on. We implement these models using the *glmmTMB* statistical package in R (Bolker, 2020).

Results

Incidence of Eviction Filings

We begin our analysis by examining the differences and trends in eviction filing rates across market-rate and subsidized properties. As seen in Figure 2, the citywide eviction filing rate of multifamily subsidized properties consistently trails that of equivalent unsubsidized properties. Between 2006 and 2017, approximately 1 in 20 households in subsidized multifamily properties received an eviction filing annually, about a third lower than the average unsubsidized multifamily property, where just more than 1 in 13 households received an eviction filing. The annual average 1,200 eviction filings in subsidized multifamily properties account for just more than 5% of all eviction filings in Philadelphia. In aggregate, subsidized eviction filing rates. Over the time frame of our analysis, Philadelphia gained more than 13,000 new rental units at the high end of the rental market whereas 6,000 units exited the low-cost housing stock (City of Philadelphia, 2018b). Although not all these units were in multifamily properties, the overall number of market-rate multifamily units increased, particularly among higher cost units where eviction filings are less prevalent, which may contribute to the observed trend.

We then disaggregate the subsidized housing into program-specific eviction filing rates in multifamily properties. Public housing and LIHTC have filing rates that consistently exceed the average filing rate across all subsidized multifamily units and more closely resemble the citywide filing rate, at around 7%. PBRA properties, on the other hand, have filing rates that are less than half of other multifamily properties. The targeting, structure, and siting of subsidized properties may contribute to some of these differences in eviction filing rates.

In particular, we suspect the risk of receiving an eviction filing is not spread evenly across all neighborhoods and housing submarkets. That is, there are some tenants who are at high risk of facing eviction and some for whom the risk is almost nonexistent, as a result of household socioeconomic status, spatial market segmentation, and differential owner behaviors in those submarkets. Thus, the concentration of eviction in some areas gets washed out in such aggregated estimates. In Figure 3, we examine filing rates along a number of parameters to test location variation in rates. Restricting our sample to those properties with at least one eviction filing between 2009 and 2017, and to only those tracts with at least one subsidized multifamily property, does not substantively change our interpretation of program-level eviction filing rates. However, by calculating the filing rates within tracts with the share of Black renter population in the 75th percentile or greater, we see



LIHTC: Low-Income Housing Tax Credit

Figure 2. Eviction filing rate by property type, 2006–2017.

tenants in subsidized multifamily properties are far less likely to receive an eviction filing than are their neighbors in unsubsidized properties. Therefore, we cannot draw associations between subsidized housing and the incidence of eviction filing by aggregate rates alone.

Property and Neighborhood Characteristics of Eviction Filings

We test the differences in eviction filing practices between market-rate and subsidized properties while controlling for the property and neighborhood characteristics that may influence eviction



Q4: 4th quartile. LIHTC: Low-Income Housing Tax Credit



filing practices in the following regression analyses. Table 6 summarizes the results of a multilevel regression of the incidence of eviction filings against predictors found to be significant in previous eviction research. In the analyses that follow, we find convincing support for the general hypothesis that the average tenant residing in subsidized housing is less likely to face eviction, after controlling for relevant neighborhood and property characteristics.

Next we find evidence that the association between subsidized housing and eviction filing varies substantially by subsidy program. After disaggregating the subsidy indicator into the component subsidy program categories, living in public housing and PBRA properties has a robust negative effect on the property-level incidence of eviction filing, whereas LIHTC properties display a much smaller and inconclusive effect. These findings are robust across numerous specifications and samplings of the model. Therefore, we do not have sufficient evidence to conclude the risk of eviction in LIHTC properties is statistically different from the risk tenants experience in unsubsidized properties. We estimate that tenants in public housing and in PBRA properties are, respectively, 21–68% and 52–76% less likely to experience an eviction filing than are tenants in similar market-rate properties.

In Appendix Table A1, we test the robustness of the association between subsidized housing and eviction filing rates by restricting our sample to only properties in tracts with subsidized housing under one of the major supply-side programs. Using the same predictors, we again find sizable associations between public housing and Section 8/202 subsidized properties and property-level eviction rates with respect to market-rate housing in similar tracts. Although the coefficient for the LIHTC indicator is negative, we do not have sufficient evidence to conclude the property-level eviction filing rates in LIHTC properties are different than those of similar unsubsidized properties. We also test the association of property-based housing subsidy and eviction filing rates in tracts where we expect eviction filing to be highest given our initial results—that is, those tracts in the first quartile of median rent, the fourth quartile of rent burden, and the fourth quartile of share of renters

	Eviction filings						
	All sub	sidy	By prog	ram			
Coefficient	IRR	SE	IRR	SE			
(Intercept)	0.036 ***	0.191	0.036 ***	0.190			
Subsidized (0 1)	0.404 ***	0.123					
Public housing (0 1)			0.366 ***	0.228			
LIHTC (0 1)			0.973	0.158			
Section 8/202 (0 1)			0.241 ***	0.180			
Property with 50+ units (0 1)	1.134	0.069	1.148 *	0.069			
Age of structure ^a	0.951 ***	0.009	0.950 ***	0.009			
%Δ Median rent ^{bd}	0.995 **	0.002	0.995 **	0.002			
%Δ White population ^b	0.993 *	0.003	0.993 *	0.003			
Permits/housing unit ^c	0.975 **	0.009	0.974 **	0.009			
%HH: Renter occupied	0.999	0.002	0.999	0.002			
%U: Vacant	0.998	0.002	0.998	0.002			
%RU: >1 Occupants/room	0.997	0.003	0.997	0.003			
Median market value/square foot (\$10s) ^d	0.984 **	0.005	0.984 **	0.005			
Median rent (\$100s) ^d	0.975 **	0.010	0.975 *	0.010			
%RU: Rent burden	1.003 **	0.001	1.003 **	0.001			
%P: Poverty	1.001	0.002	1.001	0.002			
%RU: Female HoH	1.001	0.002	1.001	0.002			
%RU: with children	1.000	0.002	1.000	0.002			
%RU: HoH Age 65+	0.999	0.002	0.999	0.002			
%RU: Black HoH	1.007 ***	0.001	1.007 ***	0.001			
%RU: Latino HoH	1.007 ***	0.002	1.007 ***	0.002			
%RU: Asian HoH	0.999	0.003	0.999	0.003			
%RU: Property-based subsidy	0.999	0.002	0.999	0.002			
%RU: Housing Choice Voucher	1.010 ***	0.003	1.010 ***	0.003			
Random effects							
Residual variance (σ ²)	1.33	3	1.33	;			
Intercept variance (τ ₀₀)	1.87 Prope	rty:Tract	1.85 Prope	rty:Tract			
	0.34 _T	ract	0.33 _T	act			
ICC	0.63	3	0.62	2			
No. clusters	4,415 Proj	perties	4,415 Proj	perties			
	330 Tra	acts	330 Tra	acts			
No. observations	36,67	7	36,67	7			
Marginal R^2 /Conditional R^2	0.096/0	.661	0.101/0	.660			

Table 6. Random effects model, eviction filings.

Note. $\&\Delta$ = percentage change. &HH = percentage of households (occupied units). &RU = percentage of renter-occupied units. &P = percentage of the population. &U = percentage of rental units. HoH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. *SE* = standard error. ^aUses 2017 as the base year, in decades.

^bUses 2000 as the base year.

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017.

^dAdjusted to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

*p < .05. **p < .01. ***p < .001.

who are Black (see Table A2). Public housing and PBRA properties maintain a substantial negative association with eviction filing rates within these neighborhoods, whereas the findings for LIHTC properties are inconclusive.

We now decompose the total effect of time-variant predictors of eviction filing rates into withinand between-effects with the results in Table 7. The individual de-meaning and individual meancentering for the respective within- and between-effect transformations complicates the interpretation of the model coefficients. The within-estimates represent the multiplicative effect of a withinindividual change in X_{it} on a within-individual change in y_{it} . The between-estimates describe the extent to which a between-individual change in $\overline{X_i}$ is associated with a change in $\overline{y_i}$. This transformation acts as a confirmation of the robustness of these effects, as the coefficients of the binary subsidy predictors maintain statistically significant and large negative associations with the outcome, eviction filings.

Table 7. Within-between model—eviction filings.

	Eviction filings					
	All sub	sidy	By prog	ram		
Coefficient	IRR	SE	IRR	SE		
(Intercept)	0.077 ***	0.429	0.136 ***	0.463		
Subsidized (0 1)	0.446 ***	0.123				
Public housing (0 1)			0.502 **	0.229		
LIHTC (0 1)			0.956	0.158		
Section 8/202 (0 1)			0.342 ***	0.178		
Property with 50+ units (0 1)	1.164 *	0.069	1.158 *	0.069		
Age of structure	0.948 ***	0.009	0.949 ***	0.009		
%Δ Median rent ^{ba}	1.000	0.001	0.999	0.002		
Δ White population ^D	0.994 *	0.003	0.995	0.003		
Permits/housing unit ^c	0.990	0.008	0.988	0.008		
Within effects						
%HH: Renter occupied	1.003	0.002	1.004 *	0.002		
%U: Vacant	0.998	0.002	0.998	0.002		
%RU: >1 Occupants/room	0.996	0.003	0.999	0.003		
Median market value/square foot (\$10s) ^a	0.995	0.005	0.995	0.005		
Median rent (\$100s) ^u	0.977 *	0.011	0.988	0.011		
%RU: Rent burden	1.002 *	0.001	1.002 *	0.001		
%P: Poverty	1.002	0.002	1.001	0.002		
%RU: Female HoH	1.001	0.002	1.001	0.002		
%RU: with children	0.997	0.002	0.997	0.002		
%RU: HoH Age 65+	0.999	0.002	0.999	0.002		
%RU: Black HoH	0.999	0.001	0.999	0.001		
%RU: Latino HoH	1.004	0.002	1.003	0.002		
%RU: Asian HoH	1.003	0.003	1.002	0.003		
%RU: Property-based subsidy	1.001	0.002	1.002	0.002		
%RU: Housing Choice Voucher	1.006 *	0.003	1.008 *	0.003		
Between effects						
%HH: Renter occupied	1.002	0.003	0.999	0.003		
%U: Vacant	1.003	0.008	1.006	0.009		
%RU: >1 Occupants/room	1.008	0.016	1.007	0.017		
Median market value/square foot (\$105)	0.927 ***	0.021	0.925	0.022		
Median rent (\$100s)	0.907 ***	0.023	0.892 ***	0.024		
%RU: Rent burden	1.007	0.006	1.002	0.006		
%P: Poverty %PU: Female Hell	0.965	0.005	0.961	0.005		
%RU: Feilidie HOH	0.969	0.008	1 020 **	0.008		
	0.000 *	0.007	0.020 *	0.000		
%RU: Black HoH	1 016 ***	0.005	1 015 ***	0.005		
% RU: Latino HoH	1.010	0.002	1.015	0.002		
% RU: Asian HoH	0.009	0.004	1.011	0.004		
%RU: Property-based subsidy	0.994	0.000	0.080 **	0.000		
%RU: Housing Choice Voucher	1 000	0.007	1 008	0.004		
	1.000	0.007	1.000	0.000		
Kandom effects	1.00		1.22			
Residual Variance (σ)	1.00	5	1.33	i		
Intercept variance (t ₀₀)	1.89 Prope	rty:Tract	1.84 Prope	rty:Tract		
		ract	0.14 Ti	ract		
ILL No. clustors	0.60) nortion	0.60	ortion		
NO. CIUSTEIS	4,415 pro	perties	4,415 proj	verties		
No observations	330 tra	1CLS 17	330 tra	1015		
Marginal R^2/C onditional P^2	0,0C 0/2/6	600	/0,0C 0/7/0	, 607		
	0.240/0	.022	0.24//0	.07/		

Note. $\&\Delta$ = percentage change. &HH = percentage of households (occupied units). &RU = percentage of renter-occupied units. &P = percentage of the population. &U = percentage of rental units. HOH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. SE = standard error.

^aUses 2017 as the base year, in decades.

^bUses 2000 as the base year.

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017.

^dAdjusted to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

The intraclass correlation coefficient (ICC) in Table 5 implies that the between-individual differences are likely driving most of the variation in our results.⁹ The results in Table 6 confirm this notion as the majority of the between-effect coefficients are statistically significant, whereas the within-effect coefficients are not. Therefore, variation in property-level eviction filing is more strongly associated with between-property differences than are within-property changes in those predictors over 2009–2017. In robustness tests, we also included owner-level random intercepts and find that any possible idiosyncratic propensity to file for eviction across property owners does not change our interpretation of the results.

In general, the property- and neighborhood-level correlates depict eviction as primarily driven by correlates of structural discrimination. In both specifications of our multilevel model, properties in tracts with higher shares of Black and Latino renters are associated with higher filing rates, where a 10% increase in the share of renters in a tract who are Black is associated with a increase in the eviction filing rate by 1.07 times, all else being equal. We also test other renter demographics that may contribute to financial insecurity and discrimination, such as the concentration of single female-headed renter households and the share of renter households with children (e.g., Desmond, 2012; Desmond et al., 2013), but find inconclusive effects on eviction filing. We find some evidence a tract-level increase in the share of renters who are seniors (over 65 years old) is associated with a decrease in eviction filings, which is consistent with previous studies (Harrison et al., 2020).

Economic indicators of disadvantage also play a role in describing the geography of eviction. Neighborhoods with lower rents and lower real estate values are associated with higher eviction filing rates. Even in Philadelphia's more affordable submarkets, the financial precarity of rent burden is high and is associated with higher rates of eviction, all else being equal. Tracts where rents appreciated the most since 2000 and those with more permitting activity have lower eviction filing rates, on average. Together, these indicators of current housing market conditions and neighborhood change suggest eviction filing in Philadelphia is more common in depressed rental markets.

We restrict our sample to properties in a subset of tracts to test the association of subsidized housing and eviction filings in changing neighborhoods. The indicators that dictate whether a neighborhood has gentrified or substantially changed are highly contested. Rather than engage in a discussion about what constitutes gentrification, we intend only to test the association of subsidized housing and eviction filing in neighborhoods that experienced demographic shifts commonly identified in the neighborhood change literature (e.g., Freeman, 2005), including the increase in White population, college-educated residents, and gross rents from 2000–2017. We also test subsets of tracts identified by previous studies of gentrification in Philadelphia (Ding, Hwang, & Divringi, 2016; Dowdall, 2016). The results in Table A3 show an inconclusive relationship between subsidized housing and eviction filing in tracts identified as experiencing substantial change.

Other attributes of local rental markets, such as concentration of renters, rental unit vacancy, and crowding, are not associated with significant effects on eviction filing. At the property level, we find larger properties (more than 50 units) are more likely than smaller multifamily properties to file for eviction against residents and newer buildings have higher filing rates than their older counterparts do, all else being equal. Our results show that the association between the share of Housing Choice Voucher holders and eviction filing is mixed, and we interpret this association as a representation of the fact that Housing Choice Voucher recipients are concentrated in higher poverty neighborhoods (Rosen, 2020). Some residents of LIHTC properties also receive a voucher, and although the control we employ is useful, it is limited as we cannot control for which LIHTC properties also have vouchers present. In both our full sample and these restricted samples, property-based subsidy programs have lower eviction filing rates on average.

In summary, our results consistently show tenants in public housing and project-based rental assistance experience a lower likelihood of facing eviction compared with tenants renting on the private market in similar neighborhoods and properties. However, even after tenants are sorted into subsidized housing, eviction filing disproportionately impacts low-income Black tenants above all others. In Table A4, we restrict our sample to only subsidized properties and impute demographics of tenants in subsidized housing at the tract level using HUD's Picture of Subsidized Households. Within subsidized properties, the share of subsidized tenants who are Black and the percentage of households who are below 30% of the AMI are associated with higher rates of eviction filing.

Grounds and Outcomes of Eviction Filings

In this section, we briefly explore the characteristics of eviction filings—what legal grounds a property owner cites for filing an eviction complaint and what comes of the eviction filing—with



LIHTC: Low Income Housing Tax Credit

Figure 4. Reason(s) cited in eviction filings, by property type, 2007–2017.

Subsidy	No.	Total				Years sir	nce subs	sidy con	tract ex	piration	I		
name	properties	units	- 3	- 2	- 1	0	1	2	3	4	5	6	7
LIHTC	6	95	NA	NA	12.6%	6.3%	0.0%	0.0%	0.0%	0.0%	6.3%	12.6%	6.3%
Section 8	2	86	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	NA	NA
Section 202	1	309	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%

 Table 8. Eviction filing rate of properties where subsidy expired, by subsidy program.

respect to housing subsidy. Figure 4 shows the trends in the grounds cited in eviction filings by property type. The vast majority of property owners cite nonpayment of rent as the, or a, reason to file for eviction, per court records. Cases for only nonpayment of rent have increased for all multi-family properties over the last decade. Subsidized multifamily property owners file for eviction for termination of the lease term or breach of a condition of the lease more often than unsubsidized properties do, but only marginally so.

In Table A5, we follow identical modeling procedures on the subset of properties with at least one eviction filing in a given year, and use the grounds for eviction as our dependent variable. Cases citing nonpayment of rent are more common in neighborhoods with a higher share of renters who are Black or Latino and those with a higher rent burden, all else being equal. Both public housing and Section 8/202 properties are associated with significantly lower chances of facing eviction for nonpayment of rent. LIHTC properties are far more likely to file for eviction on the grounds of termination of the lease term compared with unsubsidized properties. There is no conclusive relationship between any subsidy program and evictions filed for breach of lease terms.

In Table A6, we use the same sample of properties with eviction filings and test whether subsidized housing is associated with differential case outcomes for tenants with an eviction filing. Evictions are more likely to occur in Black and Latino neighborhoods and in those with lower rents, all else being equal. All subsidy types are associated with a significantly lower likelihood of the actual execution of an eviction, and eviction rates are lower in tracts with higher shares of active rental subsidies. Compared with unsubsidized properties, public housing and PBRA properties are associated with a lower likelihood of default judgment against tenants—where the case is ruled for the property owner because the tenant is not present at the hearing—and all three subsidy programs are associated with lower likelihood of judgment by agreement—where tenants or their legal representation strike a deal with the property owner or their counsel outside the formal court hearing.

Subsidy Expiration

Between 2006 and 2017, nine properties in Philadelphia exited subsidized housing programs. Whereas the data presented here are limited, the following descriptive analysis explores the relationship between the provision of subsidized housing and housing security. Previous eviction research has shown tenants in housing markets undergoing economic restructuring as a result of the recent foreclosure crisis saw an increase in their risk of eviction (Raymond et al., 2018; Seymour & Akers, 2019). As subsidized housing expirations are likely to increase significantly in the coming years (Reina, 2018), increasing knowledge around what happens to tenants in these properties should be a research and policy priority. Table 8 shows the annual eviction filing rates for subsidized multi-family properties where housing subsidy expired.

There are anecdotal accounts that LIHTC subsidy expiration leads to evictions (Fox, 2020). Our initial analysis suggests tenants in LIHTC properties where subsidies expire are more vulnerable to eviction filing than are their counterparts in other subsidy programs. Second, two thirds of LIHTC properties in this expiration subset were sited in tracts with the highest quartile median rents, and 5 out of 6 were in tracts where median rent had increased the most

since 2000. This is consistent with previous literature showing owners in appreciating neighborhoods are more likely to exit affordability restrictions (Reina & Begley, 2014).

On the whole, LIHTC properties in Philadelphia are located in lower poverty, higher rent tracts, with slightly more permitting activity, and this portfolio makes up a significant portion of the future subsidy expiration potential. This means LIHTC properties where affordability restrictions are set to expire are in areas where the odds of an owner exiting the program when they can are higher. If our findings are symptomatic, this could mean that LIHTC tenants are more likely to face eviction filings in these tracts. However, the sample here is small, which means current trends could be a result of idiosyncratic rather than generalizable factors. Further research is needed to determine the extent to which preexpiration eviction filing is a prevalent occurrence not driven by other factors.

Discussion and Policy Implications

By applying our framework (see Table 1) to the collective findings, we find support for some of our initial hypotheses and highlight areas where additional research is needed to determine the relationship between subsidized housing and the drivers of eviction. First, discrimination is likely a significant contributor to eviction in Philadelphia, as evictions are disproportionately concentrated in communities with higher shares of Black and Latino renters. In these communities, as well as in those with higher shares of children and households headed by single mothers, subsidized housing is associated with lower eviction filing rates relative to market-rate housing. However, our analyses also indicate filing rates in subsidized properties alone are higher in tracts where a greater share of the subsidized households are Black and lower-income. In both market-rate and subsidized housing, eviction is a racialized process requiring much larger efforts to combat discrimination and disparate impacts of this form of dispossession.

Second, our results suggest financial strain is an important driver of eviction filing for both unsubsidized and subsidized households. Even in tracts with the lowest median rents, rent burden is positively associated with higher eviction filing rates, all else being equal. Tenants in public housing and project-based subsidized housing experience a lower risk of facing eviction in more rent-burdened neighborhoods. This is likely related in part to the affordability restrictions determined at the household level, that decrease the household rent burden relative to tenants in unsubsidized housing and account for changes in household income. However, even in subsidized properties, nonpayment of rent is the predominant cause cited in eviction filings. Further research is needed to explore the extent to which individual income shocks are mitigated by rent-setting structures in subsidized housing and decrease a household's chances of facing eviction.

We do not find conclusive evidence that indicators of neighborhood change such as increases in rent, increase in numbers of White households, or the share of college-educated individuals drives increases in eviction filing in either subsidized or market-rate housing. Instead, eviction filing in Philadelphia is more common in areas of concentrated disadvantage. Research in additional cities and submarkets may help elucidate the connection between eviction and local-market appreciation. In an exploratory analysis, we observe higher rates of eviction filing in a few LIHTC properties in the year prior to and year of subsidy expiration. More research is needed to test the robustness of these findings as well as the extent to which private-market property owners use eviction as a speculative tool to replace lower income tenants with higher income ones in changing neighborhoods.

Lastly, we are unable to test our hypotheses on the effects of behavioral regulations and policing with the data presented here. Across all drivers, individual-level data on tenants facing eviction would increase the reliability of our estimates. However, as we have shown, even just using property-level data allowed us to uncover findings that might have been obscured had we used tract-level aggregate data.

Evidence from across the nation shows unaffordability and eviction are two prevalent plights for many renter households, especially those in the lowest income brackets. Recent research, including this study, supports the hypothesis that these crises are interconnected. Many prominent cities and jurisdictions have responded by advancing legal reforms such as tenants' right to counsel, good-cause tenant protections, and mediation procedures to stem the tide of eviction cases and diminish the adverse impacts on the welfare of at-risk renter households (Eisenberg & Ebner, 2020; Humphries et al., 2019, p. ii; National Coalition for a Civil Right to Counsel, n.d.). Although these reforms are necessary to address inequity in justice systems, structural and sustainable prevention efforts must also address root causes of eviction, such as unaffordability. However, little research exists on how primary policy solutions to the affordability problem, such as increasing access to affordable housing through federal subsidy programs, interact with the prevalence of eviction. In this article, we develop a theoretical framework for understanding how subsidized housing may or may not shield households from known drivers of eviction and test the developed hypotheses in Philadelphia's rental market.

Our findings show that place-based subsidized housing is an important resource for its residents as they experience, on average, less risk of receiving an eviction filing than do unsubsidized residents in similar housing and similar neighborhoods. Although we cannot identify the causal mechanisms between investment in subsidized housing and eviction filings, the research presented here and a quickly growing body of literature continue to echo the connection between housing affordability and tenant security, especially in low-income communities of color. Place-based affordable housing policies, such as the federal supply-side housing programs, are important policies in the toolkit of the expansion and preservation of affordable housing, and, as implemented, appear to advantage its tenants in Philadelphia over those renting units on the private market when it comes to the risk of facing eviction.

Our research also suggests the types of programs we invest in could matter for tenants' evictionrelated outcomes. Although all supply-side subsidy programs analyzed here decrease the likelihood that its tenants are evicted, those properties with deep affordability restrictions—public housing and PBRA properties—are associated with larger reductions in the incidence of eviction filing. We cannot conclude that eviction filing in LIHTC properties, which lack household-adjusted rents, is statistically different than in market-rate properties, all else being equal. An exploratory analysis of eviction filings in a few LIHTC properties where subsidy expired points to the larger consideration that all subsidy programs can and do change. Both LIHTC and PBRA properties can exit affordability restrictions; the national public housing stock continues to dwindle. Eviction is one of the many ways individual households may experience these macro-level changes. Therefore, the design and restrictions of affordable housing policy matter and may have differential impacts on households' likelihood of facing eviction.

Nonetheless, eviction is still a risk for tenants in subsidized housing. In our sample of subsidized multifamily rental properties, approximately 1 in 20 subsidized households in Philadelphia receives an eviction filing annually. Therefore, although project-based subsidized housing may increase affordability, and although tenants in subsidized housing experience less eviction filing than do tenants in similar unsubsidized properties, this housing is not a singular solution for sheltering households from eviction.

This research points to the need for ongoing monitoring of the eviction practices within existing subsidized housing, and serves as an acknowledgment that providing such housing may have substantial benefits but is not wholly sufficient for shielding low-income households from the risk and consequences of eviction.

Notes

 Some PHAs, including the Philadelphia Housing Authority, may set nonzero minimum monthly rents of up to \$50 in public housing, project-based Section 8, and certificate or voucher programs. This minimum monthly rent, however, cannot be used as a grounds for eviction if the household meets the hardship exemption (24 C.F. R. § 5.630).

24 😔 G. PRESTON AND V. J. REINA

- 2. Some PHAs allow those whose incomes are over the minimum qualification levels to remain in public housing but pay a higher rent, which means the very few households in this group could be affected by rent adjustments.
- 3. For every 100 extremely low-income households (<30% AMI) in Philadelphia, there are only 34 affordable and available units.
- 4. The tax parcels are classified as multifamily residential with five or more units by the City of Philadelphia's Office of Property Assessment as of 2019. Although rental license data are used to identify when properties were actively renting units, properties not currently classified as multifamily properties were generally not included in this universe because of identification problems. Additionally, properties that were recorded renting units for only 1 year (new construction, miscoding, etc.) were not included in this analysis.
- 5. Our estimate of multifamily units is slightly larger than that reported by the American Community Survey. Therefore, the effective eviction filing and eviction rates reported in this article could be relatively conservative estimates with respect to similar reports (e.g., Goldstein et al., 2019) that use the American Community Survey unit count estimates as the denominator for the estimated eviction filing rates.
- Query of landlord-tenant cases, January 1, 2006, to December 31, 2017, from the Philadelphia Municipal Court Electronic Filing System, https://fjdclaims.phila.gov, retrieved March 20, 2018, by Jonathan Pyle, Philadelphia Legal Assistance.
- 7. The panel is unbalanced, as not all properties are actively renting units during all panel-years (2009–2017).
- 8. The complex random effects within-between model (Bell et al., 2019) specifies random slopes and intercepts for every explanatory variable. In practice, the complex random effects within-between model often does not converge, as the number of parameters expands exponentially with each individual-time covariate pair. This issue is known for observed (i.e., not simulated) data and nonnormally distributed (i.e., count) data (Barr, Levy, Scheepers, & Tily, 2013). The specification used here is a simplified version, as outlined by (Bell et al., 2019), which models nested random intercepts for the property and Census tract.
- 9. Whereas the TotalEffect = BetweenEffect * ICC + WithinEffect (1 ICC), when the ICC > 0.7, the TotalEffect is well approximated by the BetweenEffect; when the ICC < 0.3, the TotalEffect is well approximated by the WithinEffect.

Acknowledgments

The authors thank Jonathan Pyle and Lauren Parker for their data work that made this research possible; the Philadelphia legal community for their tireless efforts and advocacy on behalf of tenants; and for the feedback of Akira Drake Rodriguez and three anonymous reviewers for their helpful comments. All errors and omissions are our own.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Bills and Codes Cited

Code of Federal Regulations, Title 24, Parts 966 & 982. U.S. Code, Title 26, Section 42. U.S. Code, Title 42, Section 1437. IRS Revised Rules, 2004. Philadelphia Code, Chapter 9-800.

Notes on Contributors

Gregory Preston is a PhD student at the University of California Los Angeles Luskin School of Public Affairs, in the Urban Planning Department.

Vincent J. Reina is an assistant professor of Urban Economics and Housing in the Department of City and Regional Planning at the University of Pennsylvania.

References

Applied Survey Research. (2017). Santa Cruz county homeless census & survey: 2017 comprehensive report (pp. 1–64). Watsonville, CA: Author. https://www.cityofsantacruz.com/home/showpublisheddocument?id=63286

- Balzarini, J., & Boyd, M. L. (2020). Working with them: Small-scale landlord strategies for avoiding evictions. *Housing Policy Debate*, 1–21.
- Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, *68*(3), 255–278.
- Begley, J., Brazill, C., Reina, V., & Weselcouch, M. (2011). State of New York City's subsidized housing. New York, NY: Furman Center for Real Estate and Urban Policy.
- Bell, A., Fairbrother, M., & Jones, K. (2019). Fixed and random effects models: Making an informed choice. *Quality & Quantity*, *53*(2), 1051–1074.
- Blumgart, J. (2020, January 10). Philly experiments with new rent voucher aimed at keeping families in their homes. *The Philadelphia Tribune*. Retrieved from https://www.phillytrib.com/news/local_news/philly-experiments-with-new-rent-voucher-aimed-at-keeping-families-in-their-homes/article_cab5ed47-2975-50de-9396-a4f6e1606fe0.html
- Bolker, B. (2020). Getting started with the glmmTMB package (pp. 1–10). Retrieved from https://rdrr.io/cran/glmmTMB/f/ inst/doc/glmmTMB.pdf
- Chum, A. (2015). The impact of gentrification on residential evictions. Urban Geography, 36(7), 1083–1098.
- City of Philadelphia. (2018a). Mayor's taskforce on eviction prevention and response: Report and recommendations (pp. 1–60). Philadelphia, PA: Department of Health and Human Services. Retrieved from https://www.phila.gov/hhs/accomplishments/Pages/Taskforce.aspx
- City of Philadelphia. (2018b). Housing for equity: An action plan for Philadelphia (pp. 1–20). Philadelphia, PA: Department of Planning and Development. Retrieved from https://www.phila.gov/media/20190115161305/ Housing-Action-Plan-Final-for-Web.pdf
- Clark, A. W. 2017. Evictions part 1: An introduction to evictions in Charlotte-Mecklenburg (2017 Housing Instability & Homelessness Report Series, pp. 1–30). University of North Carolina at Charlotte Urban Institute. https:// secureservercdn.net/50.62.172.157/275.2a4.myftpupload.com/wp-content/uploads/2017/09/Charlotte-Mecklenburg-Evictions-Report-Part-1.pdf
- Collinson, R., & Reed, D. (2018). The effects of evictions on low-income households. Retrieved from: https://www.law. nyu.edu/sites/default/files/upload_documents/evictions_collinson_reed.pdf
- Cookson, T., Diddams, M., Maykovich, X., & Witter, E. (2018). Losing home: The human cost of eviction in Seattle (pp. 1–88). Retrieved from https://www.kcba.org/Portals/0/pbs/pdf/Losing%20Home%202018.pdf
- Crane, M., & Warnes, A. M. (2000). Evictions and prolonged homelessness. Housing Studies, 15(5), 757–773.
- Desmond, M. (2012). Eviction and the reproduction of urban poverty. American Journal of Sociology, 118(1), 88–133.
- Desmond, M. (2016). Evicted: Poverty and profit in the American city. New York: Crown Publishers.
- Desmond, M., An, W., Winkler, R., & Ferriss, T. (2013). Evicting children. Social Forces, 92(1), 303–327.
- Desmond, M., & Gershenson, C. (2016). Housing and employment insecurity among the working poor. *Social Problems*, 63(1), 46–67.
- Desmond, M., & Gershenson, C. (2017). Who gets evicted? Assessing individual, neighborhood, and network factors. Social Science Research, 62, 362–377.
- Desmond, M., Gershenson, C., & Kiviat, B. (2015). Forced relocation and residential instability among urban renters. Social Service Review, 89(2), 227–262.
- Desmond, M., Gromis, A., Edmonds, L., Hendrickson, J., Krywokulski, K., Leung, L., & Porton, A. (2018). Eviction lab national database: Version 1.0. Princeton, NJ: Princeton University. Retrieved from www.evictionlab.org
- Desmond, M., & Kimbro, R. T. (2015). Eviction's fallout: Housing, hardship, and health. Social Forces, 94(1), 295-324.
- Desmond, M., & Shollenberger, T. (2015). Forced displacement from rental housing: Prevalence and neighborhood consequences. *Demography*, 52(5), 1751–1772.
- Desmond, M., & Valdez, N. (2013). Unpolicing the urban poor: Consequences of third-party policing for inner-city women. *American Sociological Review*, 78(1), 117–141.
- Ding, L., Hwang, J., & Divringi, E. (2016). Gentrification and residential mobility in Philadelphia. *Regional Science and Urban Economics*, 61, 38–51.
- Dowdall, E. (2016). Philadelphia's changing neighborhoods (pp. 1–51). Washington, DC: The Pew Charitable Trusts. Retrieved from http://pew.org/1TXTXY7
- Eisenberg, D., & Ebner, N. (2020). Disrupting the eviction crisis with conflict resolution strategies. *Mitchell Hamline Law Journal of Public Policy and Practice*, 41, 3. https://open.mitchellhamline.edu/policypractice/ vol41/iss3/2
- Eldridge, D. L. (2001). The making of a courtroom: Landlord-tenant trials in Philadelphia's municipal court. *Publicly Accessible Penn Dissertations*, 1001, 1–437.
- Federal Reserve Bank of Philadelphia. (n.d.). Rental housing affordability data tool. Philadelphia, PA: Author. Retrieved from https://www.phil.frb.org/community-development/housing-data-dashboard
- Fowler, K. A., Gladden, R. M., Vagi, K. J., Barnes, J., & Frazier, L. (2014). Increase in suicides associated with home eviction and foreclosure during the US housing crisis: Findings from 16 national violent death reporting system states, 2005–2010. American Journal of Public Health, 105(2), 311–316.
- Fox, J. (2020). The high cost of eviction: Struggling to contain a growing social problem. *Mitchell Hamline Law Journal of Public Policy and Practice*, 41(3), 3.

- Freeman, L. (2005). Displacement or succession?: Residential mobility in gentrifying neighborhoods. Urban Affairs Review, 40(4), 463–491.
- Fusco, A. J., Jr., Collins, N. B., & Birnbaum, J. R. (1979). Chicago's eviction court: A tenant's court of no resort judicial resolution. Urban Law Annual, 17, 93–132.
- Garboden, P. M., & Rosen, E. (2019). Serial filing: How landlords use the threat of eviction. *City & Community*, 18(2), 638–661.
- Goldstein, I., Dowdall, E., Weidig, C., Simmons, J., & Carney, B. (2019). Evictions in Philadelphia: A data & policy update (pp. 1–20). Reinvestment Fund. Retrieved from https://www.reinvestment.com/research-publications/evictions-in-philadelphia-a-data-policy-update/
- Goldstein, I., Parker, A., & Acuña, R. (2017). Evictions in Philadelphia (pp. 1–10). Reinvestment Fund. Retrieved from https://www.reinvestment.com/research-publications/evictions-in-philadelphia/
- Harrison, A., Immergluck, D., Ernsthausen, J., & Earl, S. (2020). Housing stability, evictions, and subsidized rental properties: Evidence from Metro Atlanta, Georgia. *Housing Policy Debate*, 1–14.
- Hartman, C., & Robinson, D. (2003). Evictions: The hidden housing problem. Housing Policy Debate, 14(4), 461–501.
- Hatch, M. E. (2017). Statutory protection for renters: Classification of state landlord-tenant policy approaches. *Housing Policy Debate*, 27(1), 98–119.
- Hatch, M. E., & Yun, J. (2020). Losing your home is bad for your health: Short- and medium-term health effects of eviction on young adults. *Housing Policy Debate*, 1–21.
- Housing Action Illinois. (2018). Prejudged: The stigma of eviction records (pp. 1–19). Author. Retrieved from https:// housingactionil.org/downloads/EvictionReport2018.pdf
- Humphries, J. E., Mader, N. S., Tannenbaum, D. I., & van Dijk, W. L. (2019). Does eviction cause poverty? Quasi-experimental evidence from cook county, IL (Working Paper No. 26139). Cambridge, MA: National Bureau of Economic Research. doi: 10.3386/w26139
- Immergluck, D., Ernsthausen, J., Earl, S., & Powell, A. (2019). Evictions, large owners, and serial filings: Findings from Atlanta. *Housing Studies*, 1–22.
- Institute for Children, Poverty & Homelessness. (2016). On the map: The dynamics of family homelessness in New York city (pp. 1–72). New York, NY: Author. Retrieved from https://www.icphusa.org/wp-content/uploads/2016/09/ICPH_ 4_1_Web.compressed.pdf
- Johns-Wolfe, E. (2018). "You are being asked to leave the premises": A study of eviction in Cincinnati and Hamilton County, Ohio, 2014-2017 (pp. 1–24). Cincinnati, OH: The Cincinnati Project. Retrieved from https://www.lascinti.org/ wp-content/uploads/Eviction-Report_Final.pdf
- Joint Center for Housing Studies. (2019). The state of the nation's housing 2019 (p. 44) [Text]. Cambridge, MA: Author. Retrieved from https://www.jchs.harvard.edu/sites/default/files/Harvard_JCHS_State_of_the_Nations_Housing_ 2019.pdf
- Kleysteuber, R. (2006). Tenant screening thirty years later: A statutory proposal to protect public records note. Yale Law Journal, 116(6), 1344–1388.
- Landis, J., & Reina, V. (2019). Eleven ways demographic and economic change is reframing American housing policy. *Housing Policy Debate*, 29(1), 4–21.
- Leifheit, K. M., Schwartz, G. L., Pollack, C. E., Black, M. M., Edin, K. J., Althoff, K. N., & Jennings, J. M. (2020). Eviction in early childhood and neighborhood poverty, food security, and obesity in later childhood and adolescence: Evidence from a longitudinal birth cohort. SSM - Population Health, 11, 100575.
- Lens, M. C., Nelson, K., Gromis, A., & Kuai, Y. (2020). The neighborhood context of eviction in Southern California. *City & Community*. doi:10.1111/cico.12487
- Lens, M. C., & Reina, V. (2016). Preserving neighborhood opportunity: Where federal housing subsidies expire. *Housing Policy Debate*, 26(4–5), 714–732.
- Lewis, B., Calhoun, M., Matthias, C., Conception, K., Reyes, T., Szczepanski, C., ... Tisdale, G. (2019). The illusion of choice: Evictions and profit in North Minneapolis (p. 195). Minneapolis: Center for Urban and Regional Affairs, University of Minnesota. Retrieved from http://evictions.cura.umn.edu/illusion-choice-evictions-and-profit-north-minneapolis-full -report
- Lundberg, I., Gold, S. L., Donnelly, L., Brooks-Gunn, J., & McLanahan, S. S. (2020). Government assistance protects low-income families from eviction. *Journal of Policy Analysis and Management, Forthcoming*. doi:10.1002/pam.22234
- Mah, J. (2020). Gentrification-induced displacement in Detroit, Michigan: An analysis of evictions. *Housing Policy Debate*, 1–23.
 McClure, K. (2010). Are low-income housing tax credit developments locating where there is a shortage of affordable units? *Housing Policy Debate*, 20(2), 153–171.
- Medina, R. M., Byrne, K., Brewer, S., & Nicolosi, E. A. (2020). Housing inequalities: Eviction patterns in Salt Lake County, Utah. *Cities*, 104, 102804.
- Meléndez, E., Schwartz, A. F., & de Montrichard, A. (2008). Year 15 and preservation of tax-credit housing for low-income households: An assessment of risk. *Housing Studies*, 23(1), 67–87.
- Mosier, M., & Soble, R. (1973). Modern legislation, metropolitan court, miniscule results: A study of Detroit's landlordtenant court. University of Michigan Journal of Law Reform, 7(1), 8–70.

- Nakagawa, S., Johnson, P. C. D., & Schielzeth, H. (2017). The coefficient of determination R2 and intra-class correlation coefficient from generalized linear mixed-effects models revisited and expanded. *Journal of the Royal Society Interface*, *14*(134), 20170213.
- National Coalition for a Civil Right to Counsel. (n.d.). Status map: Housing—evictions. Baltimore, MD: Author. Retrieved from May 31, 2020,http://civilrighttocounsel.org/map
- National Housing Preservation Database. (2020). National housing preservation database. National Low Income Housing Coalition.. Retrieved from https://preservationdatabase.org/
- National Low Income Housing Coalition. (2019). The gap: A shortage of affordable homes (p. 28). Washington, DC: Author. https://reports.nlihc.org/sites/default/files/gap/Gap-Report_2019.pdf
- Neuhaus, J. M., & Kalbfleisch, J. D. (1998). Between- and within-cluster covariate effects in the analysis of clustered data. *Biometrics*, 54(2), 638–645.
- Pennsylvania Housing Finance Agency. (2019). Low income housing tax credit program income limits (pp. 1–14). Harrisburg, PA: Author. Retrieved from https://www.phfa.org/forms/housing_management/tax_credits/rent_and_ income_limits/2019_mtxr041.pdf
- Philadelphia Municipal Court. (2018). Local Rules (pp. 1–27). Philadelphia, PA: Author, Civil Division. Retrieved from https://www.courts.phila.gov/pdf/rules/MC-Civil-Division-Compiled-rules.pdf
- Phillips, R., & Collins, J. (2019, February 8). We have a tool to fix Philly's eviction crisis. *Philadelphia Inquirer*. Retrieved from https://www.inquirer.com/opinion/commentary/eviction-legal-aid-philadelphia-20190208.html
- Raymond, E. L., Duckworth, R., Miller, B., Lucas, M., & Pokharel, S. (2018). From foreclosure to eviction: Housing insecurity in corporate-owned single-family rentals. *Cityscape*, 20(3), 159–188.
- Reina, V. (2018). The preservation of subsidized housing: What we know and need to know (Working Paper No. WP18VR1; p. 43). Cambridge, MA: Lincoln Institute of Land Policy. Retrieved from https://www.lincolninst.edu/publications/working-papers/preservation-subsidized-housing
- Reina, V., & Begley, J. (2014). Will they stay or will they go: Predicting subsidized housing opt-outs. *Journal of Housing Economics*, 23, 1–16.
- Reina, V., & Winter, B. (2019). Safety net? The use of vouchers when a place-based rental subsidy ends. *Urban Studies*, 56 (10), 2092–2111.
- Rohe, W. M., Webb, M. D., & Frescoln, K. P. (2016). Work requirements in public housing: Impacts on tenant employment and evictions. *Housing Policy Debate*, 26(6), 909–927.
- Rosen, E. (2020). The voucher promise: "Section 8" and the fate of an American neighborhood. Princeton, NJ: Princeton University Press.
- Scherer, A. (1988). Gideon's shelter: The need to reorganize a right to counsel for indigent defendants in eviction proceedings. *Harvard Civil Right-Civil Liberties Law Review*, 23(2), 557–592.
- Schwartz, A. F. (2014). Housing Policy in the United States (3rd ed.). New York: Routledge.
- Seymour, E., & Akers, J. (2019). Building the eviction economy: Speculation, precarity, and eviction in Detroit. *Urban Affairs Review*, 1078087419853388. doi:10.1177/1078087419853388
- Seymour, E., & Akers, J. (2020). "Our customer is America": Housing insecurity and eviction in Las Vegas, Nevada's postcrisis rental markets. *Housing Policy Debate*, 1–24.
- Shelton, T. (2018). Mapping dispossession: Eviction, foreclosure and the multiple geographies of housing instability in Lexington, Kentucky. *Geoforum*, *97*, 281–291.
- Teresa, B. (2018). The geography of eviction in Richmond: Beyond poverty. RVA Eviction Lab, Virginia Commonwealth University. Retrieved from https://cura.vcu.edu/ongoing-projects/rva-eviction-lab/
- Thomas, T. A. (2017). Forced out: Race, market, and neighborhood dynamics of evictions [Dissertation]. https://digital.lib. washington.edu:443/researchworks/handle/1773/40705
- U.S. Census Bureau. (2015). American housing survey 2015 national public use file (PUF). Washington, DC: Author. Retrieved from https://www.census.gov/programs-surveys/ahs/data/2015/ahs-2015-public-use-file-puf-/ahs-2015-national-public-use-file-puf-.html
- U.S. Census Bureau. (2017). American community survey, summary file. Washington, DC: Author. Retrieved from https:// www.census.gov/programs-surveys/acs/data/summary-file.html
- U.S. Department of Housing and Urban Development. (2013). Occupancy requirements of subsidized multifamily housing programs (4350.3). Washington, DC: Author. Retrieved from https://www.hud.gov/program_offices/admin istration/hudclips/handbooks/hsgh/4350.3
- U.S. Department of Housing and Urban Development. (2019). Picture of subsidized households. Washington, DC: Author, Office of Policy Development and Research. Retrieved from https://www.huduser.gov/portal/datasets/assthsg.html
- Williamson, A. R. (2011). Can they afford the rent? Resident cost burden in low income housing tax credit developments. *Urban Affairs Review*, 47(6), 775–799.

Appendix

Table A1. Random effects model—eviction filings. The sample is restricted to tracts with a labeled subsidized housing program.

	Eviction filings					
	Public ho	Public housing		С	Section 8	8/202
Coefficient	IRR	SE	IRR	SE	IRR	SE
(Intercept)	0.016 ***	0.628	0.022 ***	0.407	0.038 ***	0.363
Subsidized (0 1)†	0.370 ***	0.278	0.709	0.189	0.243 ***	0.197
Property with 50+ units (0 1)	1.235	0.216	1.033	0.128	1.200	0.121
Age of structure ^a	0.983	0.026	0.964 *	0.016	0.977	0.014
%Δ Median rent ^{bd}	0.993	0.004	0.995 **	0.002	0.997	0.002
%Δ White population ^b	0.983	0.009	0.999	0.005	0.994	0.006
Permits/housing unit ^c	0.943 **	0.021	0.969 **	0.011	0.984	0.014
%HH: Renter occupied	1.010	0.005	1.003	0.003	0.998	0.003
%U: Vacant	0.999	0.005	1.001	0.003	0.995	0.003
%RU: >1 Occupants/room	1.015	0.012	1.009	0.007	1.008	0.006
Median market value/square foot (\$10s) ^d	0.999	0.023	1.002	0.011	0.983	0.010
Median rent (\$100s) ^d	0.982	0.035	0.978	0.021	0.954 *	0.018
%RU: Rent burden	1.010 *	0.004	1.007 **	0.002	1.001	0.002
%P: Poverty	0.993	0.005	0.998	0.003	1.000	0.003
%RU: Female HoH	1.001	0.006	1.000	0.003	0.998	0.003
%RU: with children	0.993	0.006	0.996	0.003	1.003	0.003
%RU: HoH Age 65+	0.998	0.005	0.996	0.004	0.996	0.003
%RU: Black HoH	1.014 **	0.004	1.011 ***	0.002	1.008 ***	0.002
%RU: Latino HoH	1.014	0.008	1.017 ***	0.004	1.006	0.004
%RU: Asian HoH	0.988	0.012	1.006	0.007	0.996	0.005
%RU: Property-based subsidy	0.996	0.003	0.994 *	0.003	0.999	0.002
%RU: Housing Choice Voucher	1.012	0.010	1.002	0.005	1.008	0.006
Random effects						
Residual variance (σ^2)	1.20)	1.31		1.47	
Intercept variance (τ_{00})	2.15 Prope	rty:Tract	2.05 Prope	rty:Tract	1.97 Proper	ty:Tract
	0.20 T	ract	0.12 T	ract	0.26 T	act
ICC	0.66)	0.62		0.60	ucc
No. clusters	564 prop	erties	1,222 properties		1,596 prop	perties
	46 tra	cts	94 tra	cts	93 tra	cts
No. observations	3,92	2	8,86	0	12,20	2
Marginal R ² /Conditional R ²	0.160/0	.716	0.101/0.661		0.090/0.639	

Note. $\&\Delta$ = percentage change. &HH = percentage of households (occupied units). &RU = percentage of renter-occupied units. %P = percentage of the population. %U = percentage of rental units. HoH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. SE = standard error.

+ Compares labeled subsidy with market-rate properties in same tracts.

^aUses 2017 as the base year.

^bUses 2000 as the base year.

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017.

^dAdjusted to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

	Eviction filings								
	Q1 media	in rent	Q4 rent b	ourden	Q4 Black renters				
Coefficient	IRR	SE	IRR	SE	IRR	SE			
(Intercept)	0.038 ***	0.374	0.138 ***	0.504	0.113 ***	0.587			
Public housing (0 1)	0.469 **	0.251		—	0.342 **	0.329			
LIHTC (0 1)	1.229	0.190	0.782	0.363	0.650	0.230			
Section 8/202 (0 1)	0.257 ***	0.224	0.142 ***	0.424	0.211 ***	0.269			
Property with 50+ units (0 1)	0.970	0.114	1.194	0.110	1.327 *	0.141			
Age of structure ^a	0.971 *	0.015	0.940 ***	0.015	0.960 *	0.019			
%Δ Median rent ^{bd}	0.996	0.002	0.996	0.004	0.993 *	0.003			
Δ White population ^b	0.998	0.005	0.997	0.004	1.001	0.009			
Permits/housing unit ^c	0.958 ***	0.010	0.989	0.014	0.958 *	0.019			
%HH: Renter occupied	0.996	0.003	1.000	0.004	0.999	0.003			
%U: Vacant	1.009 **	0.003	0.997	0.004	0.999	0.004			
%RU: >1 occupants/room	1.012	0.006	0.986 *	0.007	1.002	0.006			
Median market value/square foot (\$10s) ^d	0.999	0.018	0.959	0.023	1.014	0.026			
Median rent (\$100s) ^d	0.995	0.027	0.917 **	0.033	1.042	0.022			
%RU: Rent burden	1.007 **	0.002	1.006	0.004	1.003	0.002			
%P: Poverty	0.998	0.003	0.989 **	0.004	1.003	0.003			
%RU: Female HoH	1.002	0.003	1.004	0.003	1.001	0.003			
%RU: With children	0.997	0.003	1.000	0.004	0.995	0.003			
%RU: HoH Age 65+	1.001	0.003	0.992 *	0.004	0.998	0.003			
%RU: Black HoH	1.007 **	0.002	1.007 **	0.002	0.995	0.005			
%RU: Latino HoH	1.007 *	0.003	1.003	0.003	0.997	0.007			
%RU: Asian HoH	0.987 *	0.006	0.982 **	0.007	0.978	0.014			
%RU: Property-based Subsidy	0.996 *	0.002	0.991 *	0.004	0.997	0.002			
%RU: Housing Choice Voucher	1.001	0.005	1.005	0.005	0.997	0.005			
Random effects									
Residual variance (σ ²)	1.16	5	1.0	5	0.95	5			
Intercept variance (τ_{00})	1.85 Prope	rtv:Tract	1.53 Prope	erty:Tract	1.70 Prope	rty:Tract			
•	0.10 T	ract	0.24 Tract		0.08 _T	ract			
ICC	0.63	3	0.63	3	0.65	5			
No. clusters	1,514 pro	perties	1,748 pro	perties	827 prop	oerties			
	157 tra	acts	183 tr	acts	110 tra	acts			
No observations	7 46	8	5 31	4	5 3 2 3				

Table A2. Random	effects model-	 eviction filinas. 	. The sample is	restricted to	tracts with	labeled ch	naracteristics.

Note. %Δ: percentage change. %HH = percentage of households (occupied units). %RU = percentage of renter-occupied units. % P = percentage of the population. %U = percentage of rental units. HoH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. SE = standard error.

0.218/0.709

0.094/0.684

0.120/0.672

^aUses 2017 as the base year.

^bUses 2000 as the base year.

Marginal R^2 /Conditional R^2

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017. ^dAdjusted to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

p < .05. p < .01. p < .001.

Table A3. Random effects mode—eviction filings. The sample is restricted to tracts in labeled constructs of neighborhood change.

	Eviction filing							
	Quantile change ^e		Dowdall	2016)	Ding et al. (2016)			
Coefficient	IRR	SE	IRR	SE	IRR	SE		
Intercept	0.007 ***	0.432	0.031 ***	0.913	0.324	0.865		
Subsidized (0 1)			1.128	0.813				
Public housing (0 1)	0.621	1.008			1.068	0.874		
LIHTC (0 1)	1.541	0.447			0.809	0.904		
Section 8/202 (0 1)	0.523	0.533			0.169	1.032		
Property with 50+ units (0 1)	1.107	0.155	0.610	0.388	1.476	0.256		
Age of structure ^a	0.963 *	0.015	0.942 *	0.029	0.974	0.058		
%Δ Median rent ^{bd}	0.995 *	0.002	0.985 *	0.007	0.996	0.011		
%Δ White population ^b	1.001	0.005	1.006	0.009	0.995	0.012		
Permits/housing unit ^c	0.992	0.008	0.990	0.023	0.869	0.149		
%HH: Renter- occupied	0.999	0.004	0.988	0.009	1.000	0.007		
%U: Vacant	1.004	0.006	1.021	0.015	0.998	0.007		
%RU: >1 occupants/room	0.961 **	0.013	0.960	0.039	1.022	0.014		
Median market value/square foot (\$10s) ^d	1.003	0.014	1.036	0.048	0.940	0.059		
Median rent (\$100s) ^d	1.010	0.021	1.097 *	0.046	0.855 ***	0.046		
%RU: Rent burden	1.006	0.004	0.981 *	0.008	0.999	0.004		
%P: Poverty	0.997	0.004	1.009	0.016	1.001	0.007		
%RU: Female HoH	1.003	0.006	1.006	0.020	1.002	0.007		
%RU: with children	1.015 *	0.006	1.004	0.016	0.998	0.005		
%RU: HoH Age 65+	0.995	0.006	0.996	0.012	0.999	0.005		
%RU: Black HoH	1.013 ***	0.003	1.031 **	0.012	0.996	0.005		
%RU: Latino HoH	1.010	0.005	1.022	0.019	0.995	0.006		
%RU: Asian HoH	1.000	0.005	0.983	0.014	1.001	0.012		
%RU: Property-based subsidy	0.998	0.004	0.984	0.020	1.008	0.014		
%RU: Housing Choice Voucher	1.040 **	0.012	0.921	0.089	0.994	0.009		
Random effects								
Residual variance (σ ²)	2.38	5	2.98	5	0.83			
Intercept variance (τ_{00})	2.26 _{Proper} 0.00 Tr	rty:Tract	2.04 Property:Tract 0.00 Tract		1.29 Property:Tract 0.53 Tract			
No. clusters	1,871 prop	perties	321 properties		183 prop	erties		
	78 tra	cts	15 tracts		27 tra	cts		
No. observations	9,153	3	2,54	9	1,593	7		
Marginal R ²	0.120		0.073		0.092			

Note. % = percentage change. %HH = percentage of households (occupied units). %RU = percentage of renter-occupied units. %P = percentage of the population. %U = percentage of rental units. HoH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. SE = standard error.

^aUses 2017 as the base year.

^bUses 2000 as the base year.

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017. ^dAdjusted to 2017\$ (CPI-U).

^eTracts with summed quantiles of $\&\Delta$ since 2000: Median rent; White; college-educated population \geq 10.

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

	Eviction filing				
	Subsidized p	roperties			
Coefficient	IRR	SE			
Intercept	0.012 ***	0.804			
Property with 50+ units (0 1)	0.590 *	0.236			
Age of structure ^a	1.069 *	0.032			
%Δ Median rent ^{bd}	1.002	0.003			
%Δ White population ^b	0.997	0.009			
Permits/housing unit ^c	1.022	0.020			
SHH: Average rent (\$100s) ^d	0.887	0.091			
SHH: Average per capita income (\$1000s) ^d	0.977	0.030			
%SHH: Extremely low income (<30% AMI)	1.003 **	0.001			
%SHH: Female HoH	1.003	0.007			
%SHH: HoH Age 65+	0.993	0.004			
%SHH: Black	1.011 *	0.005			
%SHH: Latino	1.000	0.009			
%U: S-S subsidized	0.997	0.003			
%U: HCV	0.997	0.008			
Random effects					
Residual variance (σ ²)	0.86	5			
Intercept variance (τ ₀₀)	2.86 Prope	rty:Tract			
	0.00 _T	ract			
No. clusters	277 Prop	erties			
	136 tra	icts			
No. observations	2,13	1			
Marginal R ²	0.33	2			

Table A4. Random effects model—eviction filings. The sample is restricted to properties receiving a property-based subsidy.

Note. $\&\Delta$ = percentage change. &SHH = percentage of subsidized households. &U = percentage of rental units. AMI = area median income. HoH = head of household. IRR = incidence rate ratio. *SE* = standard error.

^aUses 2017 as the base year, in decades.

^bUses 2000 as the base year.

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017.

^dAdjusted to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

G. PRESTON AND V. J. REINA 32

Table A5. Random effects model—reason(s) filed. The sam	ple is restricted to	property-	years with more than	zero eviction filings
		F . F		

	Eviction filings						
	Nonpaymen	t of rent	Termination	of term	Breach of lease		
Coefficient	IRR	SE	IRR	SE	IRR	SE	
(Intercept)	0.135 ***	0.130	0.036 ***	0.301	0.020 ***	0.292	
Public housing (0 1)	0.478 ***	0.141	0.013 ***	0.644	0.632	0.305	
LIHTC (0 1)	0.832	0.109	1.639 *	0.225	1.106	0.229	
Section 8/202 (0 1)	0.334 ***	0.122	0.902	0.236	1.072	0.233	
Property with 50+ units (0 1)	0.526 ***	0.037	0.229 ***	0.085	0.395 ***	0.081	
Age of structure ^a	1.019 ***	0.005	1.035 **	0.012	1.016	0.011	
%∆ Median rent ^{bd}	0.997 ***	0.001	1.001	0.002	0.999	0.002	
%Δ White population ^b	1.001	0.001	1.004	0.003	0.995	0.003	
Permits/housing unit ^c	0.998	0.005	1.006	0.009	1.010	0.009	
%HH: Renter occupied	0.996 **	0.001	0.999	0.002	0.996	0.003	
%U: Vacant	0.999	0.001	1.000	0.004	0.999	0.004	
%RU: >1 occupants/room	1.000	0.003	0.997	0.007	0.989	0.007	
Median market value/square foot (\$10s) ^d	0.993	0.005	1.006	0.012	0.994	0.011	
Median rent (\$100s) ^d	0.993	0.008	0.901 ***	0.018	0.993	0.017	
%RU: Rent burden	1.003 **	0.001	1.007 **	0.002	1.003	0.002	
%P: Poverty	1.001	0.001	0.999	0.003	0.997	0.003	
%RU: Female HoH	1.001	0.001	1.003	0.003	1.004	0.003	
%RU: with children	0.999	0.001	1.001	0.003	1.003	0.003	
%RU: HoH Age 65+	0.998	0.001	0.997	0.003	1.000	0.003	
%RU: Black HoH	1.004 ***	0.001	1.008 ***	0.002	1.001	0.002	
%RU: Latino HoH	1.003 *	0.001	1.012 ***	0.003	1.000	0.003	
%RU: Asian HoH	0.999	0.002	0.984 ***	0.005	0.996	0.005	
%RU: Property-based subsidy	1.000	0.001	1.000	0.002	1.002	0.002	
%RU: Housing Choice Voucher	1.002	0.002	0.993	0.005	1.009	0.005	
Random Effects							
Residual variance (σ ²)	0.41		1.49	1	1.53	5	
Intercept variance (τ_{00})	0.33 Prope	rty:Tract	1.39 Prope	rty:Tract	1.25 Prope	rty:Tract	
	0.05 _T	act	0.07 Tract		0.11 _T	ract	
ICC	0.48	:	0.49		0.47	,	
No. clusters	2,517 pro	oerties	2,517 properties		2,517 pro	perties	
	321 tra	icts	321 tra	icts	321 tra	acts	
No. observations	10,77	'1	10,77	'1	10,77	'1	
Marginal R^2 /Conditional R^2	0.246/0	.611	0.332/0	.662	0.096/0.522		

Note. $\Delta =$ percentage change. HH = percentage of households (occupied units). RU = percentage of renter-occupied units. %P = percentage of the population. %U = percentage of rental units. HoH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. *SE* = standard error.

^aUses 2017 as the base year.

^bUses 2000 as the base year.

^cPermits are aggregated for 2007–2017 as a percentage of housing units in 2017. ^dAdjusted to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).

Table A6.	Random	effects	model—case	outcome(s).	The sample	is restricted	to proper	rty-years	with more	than	zero	eviction
filings.												

	Eviction		Default jud	lgment	Judgment by agreement	
Coefficient	IRR	SE	IRR	SE	IRR	SE
(Intercept)	0.031 ***	0.187	0.065 ***	0.167	0.062 ***	0.178
Public housing (0 1)	0.371 ***	0.219	0.424 ***	0.184	0.599 **	0.186
LIHTC (0 1)	0.682 *	0.169	0.777	0.146	0.650 **	0.158
Section 8/202 (0 1)	0.523 ***	0.178	0.350 ***	0.164	0.473 ***	0.169
Property with 50+ units (0 1)	0.525 ***	0.049	0.581 ***	0.045	0.468 ***	0.048
Age of structure ^a	1.027 ***	0.008	1.023 ***	0.007	1.006	0.007
%Δ Median rent ^{bd}	0.996 ***	0.001	0.997 ***	0.001	0.998	0.001
%Δ White population ^b	0.997	0.002	0.998	0.002	0.998	0.002
Permits/housing unit ^c	1.003	0.006	0.997	0.006	1.003	0.006
%HH: Renter occupied	0.996 **	0.002	0.996 *	0.001	0.994 ***	0.002
%U: Vacant	1.001	0.002	1.001	0.002	0.999	0.002
%RU: >1 Occupants/room	1.003	0.004	1.004	0.003	1.000	0.004
Median market value/square foot (\$10s) ^d	0.999	0.008	0.996	0.007	0.994	0.007
Median rent (\$100s) ^d	0.968 **	0.011	0.974 **	0.010	0.950 ***	0.011
%RU: Rent burden	1.003	0.001	1.003 **	0.001	1.001	0.001
%P: Poverty	0.998	0.002	1.000	0.002	1.001	0.002
%RU: Female HoH	1.004 *	0.002	1.002	0.002	1.000	0.002
%RU: with children	1.001	0.002	1.000	0.002	1.000	0.002
%RU: HoH Age 65+	1.001	0.002	0.999	0.002	0.996 *	0.002
%RU: Black HoH	1.007 ***	0.001	1.004 ***	0.001	1.008 ***	0.001
%RU: Latino HoH	1.004 *	0.002	1.003	0.002	1.006 ***	0.002
%RU: Asian HoH	0.999	0.003	0.999	0.003	0.996	0.003
%RU: Property-based subsidy	0.994 ***	0.002	0.997 *	0.001	0.996 **	0.002
%RU: Housing Choice Voucher	1.006	0.003	1.001	0.003	1.007 *	0.003
Random effects						
Residual variance (σ ²)	0.97		0.72	0.72		
Intercept variance (τ ₀₀)	0.46 Proper	ty:Tract	0.42 Proper	0.42 Property:Tract		ty:Tract
	0.05 _{Tr}	act	0.08 _{Tr}	act	0.06 TI	act
ICC	0.35		0.41	0.41		
No. clusters	2,517 prop	perties	2,517 prop	2,517 properties		perties
	321 tra	cts	321 tra	cts	321 tra	cts
No. observations	10,77	1	10,77	1	10,77	1
Marginal R ² /Conditional R ²	0.229/0.495		0.182/0.518		0.247/0.534	

Note. % = percentage change. %HH = percentage of households (occupied units). %RU = percentage of renter-occupied units. %P = percentage of the population. %U = percentage of rental units. HoH = head of household. ICC = intraclass correlation coefficient. IRR = incidence rate ratio. *SE* = standard error.

^aUses 2017 as the base year.

^bUses 2000 as the base year.

 $^{\rm C}\text{Permits}$ are aggregated for 2007–2017 as a percentage of housing units in 2017. $^{\rm d}\text{Adjusted}$ to 2017\$ (CPI-U).

 R^2 is based on Nakagawa, Johnson, and Schielzeth (2017).