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Preserving Neighborhood Opportunity: Where Federal Housing Subsidies Expire

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ABSTRACT

Rent burdens are increasing in U.S. metropolitan areas while subsidies on privately owned, publicly subsidized rental units are expiring. As a result, some of the few remaining affordable units in opportunity neighborhoods are at risk of being converted to market rate. Policy makers face a decision about whether to devote their efforts and scarce resources toward developing new affordable housing, recapitalizing existing subsidized housing, and/or preserving properties with expiring subsidies. There are several reasons to preserve these subsidies, one being that properties may be located in neighborhoods with greater opportunity. In this article, we use several sources of data at the census tract level to learn how subsidy expirations affect neighborhood opportunity for low-income households. Our analysis presents several key findings. First, we find that units that left the project-based Section 8 program were – on average – in lower opportunity neighborhoods, but these neighborhoods were improving. In addition, properties due to expiry from the Section 8 program between 2011 and 2020 are in higher opportunity neighborhoods than any other subsidy program. On the contrary, new Low-Income Housing Tax Credit (LIHTC) units were developed in tracts similar to those where LIHTC units are currently active, which tend to be lower opportunity neighborhoods.

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Housing comprises a growing share of household costs, particularly for low-income renters. Tepid wage growth and increased demand for rental housing have contributed to this dynamic, but the expiration of subsidies on privately owned, publicly subsidized rental properties is also reducing the stock of affordable housing nationwide (Schwartz et al., 2016). Thousands of additional units of subsidized housing are nearing the end of affordability restriction periods. Evidence suggests that property owners in neighborhoods with high price appreciation have higher odds of not renewing their subsidies, otherwise known as opting out (Reina & Begley, 2014). This means that some of the few remaining affordable units in many neighborhoods are at risk of being converted to market rate. As there is a strong connection between neighborhood attributes and property values (Harris, 1999; Jud & Watts, 1981; Linden & Rockoff, 2008), these are potentially the same neighborhoods that offer the most opportunity.

Efforts to preserve rental subsidies can be costly because the government is competing with the private market. However, such efforts may be justified if these properties are located in areas with greater neighborhood opportunity. This is particularly true given the federal government's renewed commitment to fair housing and neighborhood opportunity, as exemplified by last year's Affirmatively

Furthering Fair Housing rule (U.S. Department of Housing & Urban Development, 2015a). In this article, we look at the characteristics of neighborhoods where property owners are exiting rental subsidy programs and those where new project-based subsidized housing is being developed, to learn how the inflows and outflows of units from the subsidized rental stock affect neighborhood access for low-income households. We use a combination of neighborhood attributes examined in existing research (McClure, 2011; Turner, Comey, Kuehn, & Nichols, 2011), including poverty rates, educational attainment, employment rates, employment accessibility, and transportation costs. We also add variables on school quality and crime that are often difficult to obtain on a national level. School, crime, and employment data are used in recent analyses on the neighborhood attributes of housing subsidy recipients (Horn, Ellen, & Schwartz, 2014; Lens, 2014; Lens, Ellen, & O'Regan, 2011), but researchers have yet to examine subsidy expirations in the context of neighborhood opportunity.

The descriptive analyses in this article allow us to understand the extent to which the end of a rental housing subsidy affects low-income renters' access to opportunity neighborhoods. Further, we identify the specific neighborhood attributes—school quality, poverty, crime, low transportation costs, etc.—that subsidized renters may lose access to when subsidies expire. Our analysis presents several key findings. First, we find that units that exited the project-based Section 8 program¹ were on the whole located in lower opportunity neighborhoods, but these neighborhoods showed the strongest improvements from 2000 to 2010. In addition, the project-based Section 8 units that are set to expire during the 2010s are in particularly high-opportunity neighborhoods. On the contrary, new Low-Income Housing Tax Credit (LIHTC) units were developed in tracts similar to those where LIHTC units are currently active, which tend to be lower opportunity neighborhoods.

We conclude that the decision about where to build or preserve affordable units should account for many neighborhood characteristics and how these characteristics change over time. Further, it is clear that expirations on the horizon need to be monitored on an ongoing basis—it is not as simple as a particular subsidy type being located in higher or lower opportunity neighborhoods. In particular, neighborhoods with weak but improving indicators may be the precise areas where landowners are looking to convert to market rate, suggesting policymakers may want to target resources to counter the effects of expiring subsidies in those areas. Our analysis shows that there was a higher share of expired project-based Section 8 properties that fell into this category than any other subsidy, including the voucher program.

Additionally, we acknowledge that preserving these existing subsidies is not the only way to enhance neighborhood opportunity for low-income households. We note that, on average, voucher households were located in neighborhoods with better opportunity than active Section 8 and LIHTC properties in 2010, but that story is more nuanced. First, both active and expired Section 8 properties were in neighborhoods that were on a better trajectory than those where vouchers were located, and units eligible to leave the project-based Section 8 program in the future are in higher opportunity neighborhoods than the average voucher unit. In addition, evidence suggests that vouchers do not provide a sufficient safety net for households in properties where a project-based Section 8 subsidy expires, particularly for those in neighborhoods improving at a much more rapid rate than that of the average voucher household. Ultimately, our findings function within a context of many rental markets that are, on the whole, becoming increasingly unaffordable, and the location of these units is only one factor to use to evaluate the benefits of these programs amidst many others, including the efficiency of the subsidy and whether these programs actually relieve a household's rent burden.

Prior Research on Neighborhood Opportunity and Housing Subsidies

The goal of this article is to identify where subsidized units are being developed and expiring, and implications for the distribution of subsidized housing across neighborhoods of varying levels of opportunity. There is a robust literature that describes the neighborhoods occupied by subsidized households, but there is no previous research connecting neighborhood opportunity to the loss of subsidy caused by expirations and property owner opt-outs, with the exception of a recent report by

Ellen and Weselcouch (2015). At present, research on housing subsidies and neighborhoods ignores the contribution of subsidy expirations to increased rent burdens and potential changes in access to high-opportunity neighborhoods.

Poverty

Neighborhood opportunity is an evolving and enduring concept in research on subsidized housing. Most commonly, neighborhood opportunity for assisted households has been measured using poverty rates (McClure, 2006; McClure, Schwartz, & Taghavi, 2015; Pendall, 2000), but recent research has also examined public safety (Lens et al., 2011), school quality (Ellen & Horn, 2012), and job accessibility (Lens, 2014). Most of this research focuses on the housing voucher and public housing populations, and, to a lesser extent, households in LIHTC properties.

For traditional public housing residents, the evidence clearly illustrates that they live in comparatively poor neighborhoods. Goering, Kamely, and Richardson (1997) found that, in 1990, just under one half of all public housing tenants lived in high-poverty census tracts (tracts with poverty rates of 40% or higher). Similarly, Newman and Schnare (1997) reported that more than 43% of tenants in family public housing lived in high-poverty census tracts in 1990.

Voucher households have also been found to occupy relatively high-poverty neighborhoods. Pendall (2000), examining census tract-level data from HUD on 1998 voucher households, found that neighborhoods with voucher holders had a 1990 poverty rate of 20% on average, compared with the nationwide average of 15%. In addition, tenants receiving all forms of assistance were more likely than renters as a whole to live in neighborhoods scoring high on a neighborhood distress index, constructed from poverty rates; public assistance receipt; and the proportion of female-headed households, high school dropouts, and labor force participants.

Particularly germane to this article is the siting of LIHTC units. McClure (2006) compared locational outcomes for the voucher and LIHTC programs. Using 2002 administrative data on voucher households and LIHTC units placed in service through that year, he found that about 30% of LIHTC households and 26% of voucher households lived in low-poverty census tracts. And on average, voucher holders lived in very slightly lower poverty neighborhoods than LIHTC households did. Significantly, the proportions of LIHTC and voucher households in high-poverty tracts were slightly lower than the percentages of poor households who lived in high-poverty tracts—although higher than the share of all renters who lived in such tracts. The households assisted through both of these programs, in other words, were reaching neighborhoods with somewhat lower poverty rates than poor households, but they were still living in neighborhoods that had significantly higher poverty rates than other renters (at least in 2002).

Williamson, Smith, and Strambi-Kramer (2009) also examined LIHTC locational outcomes. They concluded that LIHTC units are infrequently built in low-poverty tracts. They assert that, on average, the LIHTC concentrates poverty similarly to how public housing does, because of the inability of a lot of projects to attract a true income mix and because of the preference built into the credit for qualified census tracts (QCT)—those that have higher poverty rates. The preference for QCT leads LIHTC to be more commonly sited in higher poverty neighborhoods than they otherwise would be. Once more, the LIHTC is not a HUD program, and is therefore not subject to the same restrictions on siting in low-income or minority neighborhoods (Rohe & Freeman, 2001).

Ellen, O'Regan and Voicu (2009) examined national data on LIHTC locations to assess the siting of these properties in relation to the neighborhood poverty rates in those census tracts, and painted a more favorable picture. They found that in the 1980s, 1990s, and 2000s, LIHTC units were 3–4 times more likely to be located in low-poverty (10% or less) tracts in than high-poverty (40% or more) tracts. They concluded—echoing McClure (2006)—that LIHTC units are much less likely than public housing units to be located in high poverty census tracts. The takeaway from research on LIHTC siting and poverty is that LIHTC properties compare very similarly with voucher locations in terms of neighborhood poverty rates. Each subsidy is located in areas with much lower poverty rates than where public housing is located, but higher poverty rates than where the general population lives. There is little to no

research on location outcomes of new Section 8 New Construction/Substantial Rehabilitation (Section 8 NC/SR) properties, likely because those programs were phased out before research on neighborhood opportunity became common.

Crime

The other neighborhood attribute that is frequently examined with respect to housing subsidy locations is crime. Much of what we know about this topic comes from voucher demonstration programs, such as Gautreaux, Moving to Opportunity (MTO), and HOPE VI. The vast majority of research on these programs concludes that there have been meaningful numbers of public housing projects located in extraordinarily high-crime areas (Keels, Duncan, Deluca, Mendenhall, & Rosenbaum, 2005; Kingsley & Pettit, 2008; Popkin et al., 2000; Rubinowitz & Rosenbaum, 2002). However, whereas public housing neighborhoods are typically higher in crime than average, this is not uniformly the case (Lens et al., 2011).

Research on these programs also sheds light on the efficacy of the voucher program at locating households in lower crime neighborhoods. Among other research, Keels et al. (2005) find that voucher households participating in the Gautreaux program are in much lower crime neighborhoods than they came from while living in public housing. These findings are echoed in MTO research (Briggs, Popkin, & Goering, 2010; Kingsley & Pettit, 2008; Sanbonmatsu et al., 2011) and studies of HOPE VI (Popkin & Cove, 2007).

The one article that looks at all housing voucher, public housing, and LIHTC households in large metropolitan areas is Lens et al. (2011). These authors estimated the neighborhood crime rates faced by the typical voucher household, and compared those rates with LIHTC and public housing residents, in addition to poor renters and the overall population. They found that voucher households live in significantly safer neighborhoods than LIHTC units, which were located in similarly high-crime neighborhoods as public housing, contrary to research on poverty.

Other Measures of Neighborhood Opportunity

Horn et al. (2014) linked data on housing subsidy recipients to school location and performance data to estimate the extent to which these households live in areas with high-quality schools. Overall, they found that voucher households with children lived in areas near to schools with math proficiency rates that were 3% higher than those of public housing households with children. However, voucher households lived near worse-performing schools than LIHTC, poor renters, all renters, and households in fair market rate (FMR) units.

A recent article from the Urban Institute (Turner et al., 2011) identifies neighborhood opportunity across several domains. Three of the indicators are essentially the flipside of the underclass and distress measures defined by Ricketts and Sawhill (1988) and Kasarda (1993), respectively. The resulting measure includes thresholds for work participation, income, college completion, percentage white, and job density. Their goal in this article was to examine the extent to which MTO participants were able to access higher opportunity neighborhoods. Notably, they found that the MTO program did not noticeably increase participants' occupancy in higher opportunity neighborhoods. Furthermore, many MTO households that did gain access to these neighborhoods lost access fairly quickly.

McClure (2011) further advocates for a more complex measurement of neighborhood opportunity:

the development of an opportunity index should examine the potential for improved educational attainment, greater safety from crime, a higher probability of obtaining gainful employment, as well as finding a good quality dwelling unit at an affordable rent (McClure, 2011, p. 10).

McClure used a factor analysis to produce a neighborhood opportunity index with the goal of narrowing the list of variables (or factors) that explain the majority of the variation in the initial variables—possibly because of the high level of correlation between the various constructs. Using this factor analysis, he recommends that an analysis of neighborhood opportunity should include the

incidence and level of poverty, educational attainment, employment rates, employment accessibility, race, and the presence of other assisted households. He further suggested that the measure should be employed at the block-group level where possible. McClure notes that missing from this measure are school quality and crime rates, because of a lack of data availability.

In sum, we can conclude that there is little research focusing on neighborhood opportunity for the Section 8 program, but there is important work that assesses the neighborhood locations of LIHTC units. Notably, how the LIHTC program compares with other subsidies on these metrics depends on how neighborhood opportunity is assessed. The LIHTC program compares favorably with vouchers and public housing neighborhoods in terms of the performance of zoned schools (Horn et al., 2014). On the other hand, LIHTC units are in much higher crime areas than housing voucher households are (Lens et al., 2011). In terms of poverty, voucher and LIHTC households are very comparable.

Rental Subsidies and Expirations

There is almost no research that focuses on properties leaving the subsidized housing stock and what this means for neighborhood opportunity. Owners who receive a subsidy through the LIHTC or Section 8 NC/SR programs agree to abide by affordability restrictions for a fixed period of time. The length of affordability restrictions on subsidized properties varies by program, state, and when the property was developed. For example, early LIHTC properties only had a 15-year affordability restriction period, and this was later changed to extend the initial compliance period by another 15-year extended-use restriction period. In some states, the affordability period is even longer—in California, the period extends to 55 years (California Tax Credit Allocation Committee, 2016). The Section 8 NC/SR program generally required a 20- to 40-year affordability period. Given the program began in the early 1970s, some owners were no longer required to abide by affordability restrictions starting in the 1990s.

At the end of an initial affordability period, an owner in the Section 8 NC/SR program (California Tax Credit Allocation Committee 2016) is given the option to renew their contract with HUD for another period of time, or leave the program. Generally, HUD can offer contract renewals of varying lengths (i.e., a 1-, 5- or 20-year contract); however, obtaining longer term contracts requires higher levels of approval, which makes them less common, and all contracts are subject to annual appropriations.² If an owner chooses to renew the contract, they are not offered subsidies beyond the Section 8 program as of right, but the renewal period provides an opportunity for owners to adjust property rents to better align with market rents or building operating costs (U.S. Department of Housing and Urban Development, 2015b). In the case where an owner chooses to leave the program they must go through a formal process of opting out, which, among other things, requires notifying tenants of their decision. A Section 8 NC/SR subsidy can also end because a property failed out of the program. HUD inspects properties in this program, and if a property fails two consecutive inspections, HUD has the right to terminate the contract. A property can also fail out because of foreclosure. In all three of these cases, tenants are offered a voucher that they can use to rent their existing unit or another unit on the private market, as a form of tenant protection. An analysis of tenants in these properties found that only 48% of these households use their voucher, and those households who do not use their voucher lose, on average, over \$400 in rental support per month (Reina & Winter, 2016). As this study notes, these findings are surprising, and there are various mechanisms that could explain a low use rate, including potential flaws in how these tenant protection vouchers are offered and the constraints of voucher households more generally (i.e., lack of deposits to secure housing, landlord resistance, etc.). Those who do use their voucher tend to move from their existing unit, and if they change neighborhoods they are generally moving to a slightly lower poverty neighborhood, but such gains are marginal and vary widely based on household characteristics (Reina & Winter, 2016).

Subsidy expirations occur differently in the LIHTC program. All LIHTC properties have an initial compliance period, where ownership is established as a limited partnership between a general partner and investors. At the end of this initial compliance period, the limited partnership has an interest in ending its ownership because the investors no longer receive a benefit from the partnership and are also no

longer subject to Internal Revenue Service penalties for noncompliance with the program (Khadduri, Climaco, Burnett, Gould, & Elving, 2012). For those LIHTC properties built before 1990, this is also the point at which the property is relinquished of any affordability restrictions through the LIHTC program. At the end of the initial subsidy period, these properties' owners often take one of four paths: (a) recapitalize and remain affordable; (b) remain affordable with no additional subsidy; (c) increase rents; or (d) convert to homeownership (Khadduri et al., 2012). In 1989, the federal government amended the LIHTC program to extend the affordability restriction to 30 years instead of the original 15-year restriction period (Begley, Brazil, Reina, & Weselcouch, 2011). As a result, for those properties built from 1990 on, owners have the options at year 15 to sell the property to the general partner or another entity that can take one of two paths with the property: (a) recapitalize and remain affordable for another 15 years; or (b) remain affordable with no additional subsidy. An owner cannot formally opt out of the program unless they prove to the administering agency that the property is no longer financially viable. Also, a LIHTC subsidy is not renewable by design, meaning owners cannot extend the existing subsidy. Owners who choose to recapitalize must submit an application for any new public subsidies. Public agencies have shown an interest in preserving these properties, and often do, but these agencies have fixed resources and must balance the tension between preserving existing units and developing new ones (Schwartz & Meléndez, 2008).

Thus far, properties that have exited the LIHTC program, meaning those built before 1990, have largely remained affordable (Khadduri et al., 2012; Schwartz & Meléndez, 2008). In this article, we focus specifically on properties that have ended their initial compliance period, did not recapitalize through the LIHTC program, and did not receive another form of subsidy from another federal program, despite having to remain affordable for an additional 15 years. We refer to these properties as expired LIHTC, and expiring LIHTC, because the initial compliance period and benefits from the subsidy ended, or will end, not because the affordability restrictions ended. This is a significant moment for LIHTC properties because these properties have been operating for 15 years and likely need some rehabilitation and recapitalization, and the ownership is being restructured because investors are looking to leave the limited partnership. As a result, whereas additional subsidy is not as of right, the end of the initial compliance period offers a unique opportunity for properties to be recapitalized with additional subsidy, and the desire for investors to exit also offers a valuable leverage point for attracting additional resources.

Consistent with existing research, we find that a large share of LIHTC properties that ended their initial compliance period between 2000 and 2010 either recapitalized through the LIHTC program or continued to receive support from another federal program, which makes a tract-level analysis of what happens to properties that expired during this time statistically infeasible. However, going forward there are far more properties that will approach the end of the initial compliance period, and administering agencies will be faced with a new tradeoff of whether to use scarce resources to: (a) recapitalize existing LIHTC properties that are subject to extended use restrictions; (b) recapitalize and preserve properties financed through other programs that may or may not be nearing the end of use restriction periods³; or (c) develop new affordable housing units. Whereas these three options are not mutually exclusive because of subsidy layering on properties, the first option alone could tie up a large share of future LIHTC funds. As a result, one study suggests that agencies looking to preserve LIHTC subsidies should set clear guiding principles, carefully examine housing markets, and pay attention to repositioning properties at risk of increasing rents or converting to homeownership (Khadduri et al., 2012).

Despite the fact that the LIHTC program is the largest financing program for new subsidized affordable housing and all owners of LIHTC and Section 8 NC/SR will at some point be given the option to exit the stock of subsidized rental housing, and government agencies are increasingly facing a tradeoff between preserving affordability, recapitalizing units, and developing new affordable housing, there is little research about what this means for neighborhood opportunity. Generally, theory suggests that the two main reasons owners may choose to leave rental subsidy programs are if they believe the immediate or long-term return that they can obtain from the market minus any costs associated with leaving the program is higher than the return allowed by the rent structure for these programs, or because the owner no longer wants to deal with the administrative burdens associated with receiving

the subsidy from the federal government (Finkel, Hanson, Hilton, Lam, & Vandawalker, 2006; Ray, Kim, Nguyen, & Choi, 2015; Reina & Begley, 2014; US GAO, 2007).

There are four main studies that predict which owners will opt out of rental subsidy programs. A national study of Section 8 NCR/SR program finds that owners of properties that target families, properties owned by for profits, those with rents below the local FMR, and those in the worst condition may be more likely to opt out of a subsidy program (Finkel et al., 2006). An update to that study supports those findings but also finds that a strong local rental market and strong regional home sales markets also increase the likelihood that an owner opts out (Ray et al., 2015). These articles echo findings from another study that focuses on the Mitchell-Lama program in New York City and finds that owners of properties in areas with high price appreciation have higher odds of opting out of their rental subsidy. This means that properties in neighborhoods that are becoming less affordable are the ones where the stock of privately owned subsidized housing is decreasing (Reina & Begley, 2014). That study also found that properties where all affordability restrictions expired were more likely to opt out, as were those owned by for-profit developers. Similarly, a study of LIHTC expirations found that LIHTC properties are more likely to be preserved if a nonprofit is part of the ownership structure or there are additional affordability restrictions (Meléndez, Schwartz & Montrichard, 2008). Interestingly, that study also found that high rents alone did not contribute to a property converting to market rate, but that properties with high rehabilitation costs were more likely to remain affordable because it is difficult for them to be converted to market.

Ellen and Weselcouch (2015) conducted an analysis of subsidized properties in New York City and found that properties where the owner opted out of a subsidy contract were in higher cost and higher amenity neighborhoods than those where new and existing subsidized units were located. This means that there is an increasing concentration of subsidized units in lower opportunity neighborhoods in New York City.

Existing research has evolved to document neighborhood opportunity for housing subsidy recipients, focusing on public housing, voucher, and LIHTC programs. This research has been important in shaping housing policy, specifically in the development of housing mobility programs. This article builds on this rich literature by turning the focus on housing subsidies that have expired or will soon expire. Given the large numbers of LIHTC and Section 8 NC/SR subsidy expirations on the horizon, this is a timely inquiry.

Data and Methods

Our goal in this article is to identify the types of neighborhoods in which we see LIHTC and project-based Section 8 subsidies expiring, and those where new LIHTC units are being built. We compare the average neighborhood opportunity—using several characteristics—of properties that are exiting and remaining in the LIHTC and Section 8 programs and those entering the LIHTC program. We also compare these neighborhood characteristics with outcomes for housing voucher and public households, in addition to renter households below the poverty line, as credible comparison groups for households in LIHTC and Section 8 properties.

We link data sets with information on active and expired housing subsidies and append them to neighborhood-level demographic characteristics (such as poverty, race, and income) and neighborhood features such as crime rates, school quality, and job accessibility. We proxy for neighborhoods using the census tract.⁴ For public housing and housing voucher subsidies, we use data from HUD's Picture of Subsidized Households, which is available publicly for 2000 and 2004 to 2010. We also have data from 2000 to 2014 from the National Housing Preservation Database (NHPD), and use these data for the LIHTC⁵ and project-based Section 8 unit locations. The NHPD was built, and is updated, by the Public and Affordable Housing Research Corporation (PAHRC), and the National Low Income Housing Coalition, and is publicly available. These organizations also provided us with a nonpublic database that provides additional history on the expired properties. One factor that complicates studying subsidized housing is that many properties receive multiple forms of subsidy, requiring us to identify all

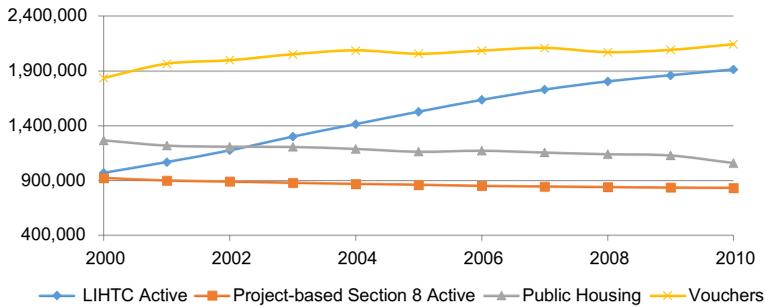


Figure 1. Housing subsidies, 2000 to 2010. LIHTC = Low-Income Housing Tax Credit.

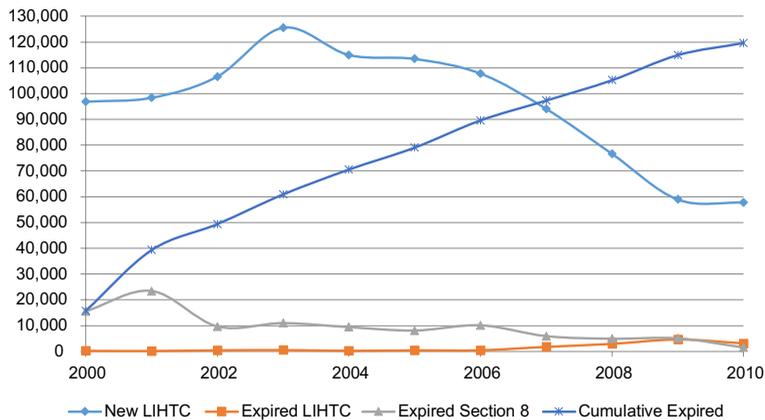


Figure 2. Inflows and outflows of Low-Income Housing Tax Credit (LIHTC) and Section 8 program units.

subsidies on a property to determine the actual restriction end dates and whether owners opted out of all subsidy programs (Reina & Williams, 2012). The benefit of the NHPD is that it tracks properties over time and across multiple programs. Thus, if an LIHTC property reaches the end of its initial compliance period (its effective subsidy expiration date), we can see whether this property received a new round of LIHTC financing or remained subsidized through another federal subsidy program.

There are several important limitations of these data. First, we do not have reliable information about whether owners choose to renew their project-based Section 8 contract. We can only see whether a property, and the units in those properties, remained in the program or exited. Another limitation is that the further one goes back in time, the less reliable the data are, which is why we do not focus on subsidy expirations before 2000.

Figure 1 displays the changes in the different subsidy programs since 2000, where we observe several important trends. First, whereas the overall stock of subsidized rental housing increased since 2000, this increase is due to growth in the number of vouchers and additional units developed through the LIHTC program. During this time the number of public housing and project-based Section 8 units decreased. In Figure 2, we highlight inflows and outflows of units in the major privately owned project-based subsidy programs, and again we see that all new units developed are from the LIHTC program, and almost all units leaving the subsidized stock are from the project-based Section 8 program. Whereas the number of new LIHTC properties dwarfs the number of LIHTC properties that expired between 2000 and 2010, the number of LIHTC expirations will dramatically increase going forward. For example, fewer than 6,000 LIHTC passed the year 15 mark before 2010 and neither were recapitalized through the LIHTC program nor received another subsidy from another federal program. As previously stated,

given the small number of LIHTC properties that expired between 2000 and 2010, we only analyze LIHTC expirations between 2011 and 2020. For the foreseeable future, growing numbers of LIHTC properties will continue to reach the end of their initial compliance period, and in 2020 properties will start to reach the end of extended use restriction periods. In addition, whereas the number of project-based Section 8 contracts ending in any given year is a small share of the overall portfolio, no new units are being developed through this program, meaning an increasing share of project-based Section 8 units have expired or will expire.⁶

The raw numbers of inflows and outflows also do not tell the whole story with respect to affordability. There are several other factors to consider: the depth or size of the subsidy, whether the subsidy is renewable, and the location of the unit. The project-based Section 8 program offers a deeper subsidy than the LIHTC program does. Households in a property covered by project-based Section 8 are guaranteed to pay no more than 30% of their income in rent, whereas LIHTC residents may pay a higher share, and the evidence suggests they typically do, and only some households living in LIHTC properties are low income (O'Regan & Horn, 2013). Second, a project-based Section 8 contract is renewable, whereas once a LIHTC property reaches the end of its initial compliance period and subsequently its extended use period, there is no option to renew the tax credit subsidy, which creates a barrier to recapitalization and continued affordability. Finally, there could be variation in neighborhood opportunity where units are located, and we want to consider whether the units entering the subsidized portfolio offer access to similar or higher opportunity neighborhoods than those leaving the portfolio. This final point is the focus of this article.

To assess neighborhood opportunity for existing and expired subsidized housing units, we add demographic data from the 2000 U.S. Census and (U.S. Census Bureau, 2001) the 5-year waves of the American Community Survey (U.S. Census Bureau, 2015) that begin in 2005 and end in 2013.⁷ We also estimate tract-level employment accessibility using methods replicated from Lens (2014) and Shen (2001). These articles estimate job openings using multiple years of data from the U.S. Census Bureau's Longitudinal Employer Household Dynamics (LEHD; U.S. Census Bureau, 2013) files and a distance decay function to weight jobs inversely proportional to their distance to resident census tracts. We also take advantage of a nationwide database on reading and math test scores for public schools. These data allow us to estimate the quality of the public school that is nearest to each census tract.⁸ Finally, we use HUD's Location Affordability Index (LAI; U.S. Department of Housing and Urban Development, 2014) to compare census tracts according to the estimated transportation costs of residents below 50% area median income (AMI). We utilize two variables from this data set—for households below 50% of AMI, the proportion of that income spent on transportation.⁹ Ideally, housing subsidies would not be expiring where transportation costs are low.

We concentrate on several variables that have been shown to affect household outcomes and/or are continually cited as the most important neighborhood features to families in subsidized housing. These are: percentage in poverty, percentage nonwhite (to identify location in racially integrated neighborhoods), unemployment rate, percentage of female-headed households, percentage with a high school diploma, spatial job accessibility, location affordability, and school performance (2008–2009 school year only), and for a subsample of census tracts (91 cities) in 2000, we have data on major violent and property crimes from the National Neighborhood Crime Study (NNCS; Peterson & Krivo, 2010).¹⁰ Table 1 provides descriptive statistics on the housing subsidy variables and these neighborhood features. This table and all subsequent analyses are limited to census tracts with population greater than 200, in counties with population greater than 100,000 as of the 2000 census. We then conduct bivariate analyses to provide a description of the types of neighborhoods where subsidies are entering and exiting.

In What Types of Neighborhoods Do Subsidies Expire?

Tables 2 and 3 provide averages for each neighborhood characteristic, weighted by the prevalence of each housing subgroup in that census tract.¹¹ These groups are not mutually exclusive for properties because a property can have more than one form of subsidy on it, and a property active from 2000–2010

Table 1. Descriptive statistics.

Variable	Obs	Mean	SD	Min	Max
Expiring LIHTC, 2011–2020	53,666	6.3	36.9	0	1,008
Active LIHTC, 2010	53,666	28.9	89.9	0	2,123
New LIHTC, 2000–2010	53,666	15.6	61.5	0	1,460
Expired LIHTC, 2000–2010	53,666	0.1	5.4	0	1,100
Expired Section 8, 2000–2010	53,666	1.7	42.1	0	7,807
Expiring Section 8, 2011–2020	53,666	4.3	24.9	0	1,154
Active Section 8, 2010	53,666	12.4	51.5	0	3,690
Section 8 not expiring, 2011–2020	53,666	8.2	43.9	0	3,569
Vouchers, 2010	53,666	33.9	54.1	0	1,678
Public housing, 2010	53,666	15.3	83.7	0	2,609
Violent crime rate, 2000 (8,048 census tracts)	7,957	29.6	37.2	0	880
Property crime rate, 2000 (10,938 census tracts)	10,819	169.2	201.2	0	5,878
Math proficiency, 2008	52,032	.73	.18	.05	1
Reading proficiency, 2008	52,037	.71	.19	.09	1
Transportation costs (low income), 2010	53,290	32.3	8.7	7	92
Median rent, 2010	53,072	1,044.5	376.9	99	2,001
Job accessibility index, 2010	50,685	1.3	3.3	-7	534
Median household income, 2010	53,523	60,074.6	30,014.9	2,499	250,001
Unemployment rate, 2010	53,605	0.10	0.06	0	1
No high school, 2010 (%)	53,654	0.09	0.07	0	0.78
Nonwhite, 2010 (%)	53,654	0.42	0.31	0	1
Poverty, 2010 (%)	53,523	0.12	0.12	0	1
Female-headed households, 2010 (%)	53,554	0.32	0.12	0	1
Change ^a in poverty rate, 2000–2010 (%)	53,501	0.03	0.08	-0.87	1
Change in unemployment rate, 2000–2010 (%)	53,583	0.04	0.06	-1	1
Change in no high school grad rate, 2000–2010 (%)	53,634	-0.03	0.04	-0.72	0.34
Change in female headship rate, 2000–2010 (%)	53,535	0.02	0.07	-0.61	0.87
Change in median rent (2010 \$), 2000–2010 (%)	52,988	0.26	6.42	-0.92	935
Change in median income (2010 \$), 2000–2010 (%)	53,506	-0.02	0.27	-0.96	31
Change in nonwhite, 2000–2010 (%)	53,634	0.06	0.09	-0.73	0.65

Note. LIHTC = Low-Income Housing Tax Credit. *SD* = standard deviation.

^aPercent change is expressed as percentage point changes from 2000 to 2010. Median rent and median income are expressed as percentage changes from 2000 to 2010.

can also be one expiring in 2010–2020. We have 12 distinct groups in total: LIHTC subsidies expiring between 2011 and 2020, all active LIHTC properties, new LIHTC properties that became active between 2000 and 2010, and LIHTC properties not set to expire until after 2020; all of the same groups for the Section 8 program but substituting new properties with those that expired between 2000 and 2010; housing voucher, public housing, and renter households below the poverty line in 2010; and all tracts in cities with population greater than 100,000. Note that we include Section 8 subsidies that expired in the 2000s, but not LIHTC properties that expired during the same time, because of very low numbers of LIHTC properties that expired. We do not include new Section 8 properties because this subsidy program no longer produces new units.

In Table 2 we provide the results for each group for what we consider structural neighborhood characteristics—violent and property crime rates, school test scores, transportation costs as a share of income, median rents, and job accessibility index. These weighted averages provide a measure of the neighborhood characteristics available to the typical household within each housing subgroup. For example, when we look at the Section 8 properties that expired between 2000 and 2010, the average violent crime rate for that group is 78 violent crimes per 1,000 persons. This is the highest average crime rate faced by any of the groups, and is significantly higher than the violent crime rate faced by the active Section 8 properties in 2010.¹² Overall, Section 8 units expired in particularly disadvantaged neighborhoods. This is most evident when looking at violent and property crime rates, and the relatively low median rents and job accessibility numbers in Table 2. There is little variation in school test scores across all subsidized groups, with all portfolios being located in tracts with average scores below the average tract.

Table 2. Neighborhood structural characteristics weighted by housing group prevalence sample: All census tracts in U.S. counties with population 100,000 or greater.

	Violent crime rate, 2000 (8,048 census tracts)	Property crime rate, 2000 (10,938 census tracts)	Math and reading test score proficiency, 2008 (%)	Transportation costs, 2010	Median rent, 2010	Job accessibility index, 2010
Expiring LIHTC, 2011–2020	54	256	66	30	\$906	1.29
Active LIHTC, 2010	54	252	65	28	\$862	1.35
New LIHTC, 2000–2010	56	257	65	29	\$871	1.38
Expired Section 8, 2000–2010	78	288	64	27	\$827	1.66
Expiring Section 8, 2011–2020	40	206	67	28	\$853	1.30
Active Section 8, 2010	51	231	63	27	\$808	1.47
Section 8 not expiring, 2011–2020	47	230	65	27	\$800	1.44
Vouchers, 2010	40	182	64	29	\$941	1.19
Public housing, 2010	58	227	64	25	\$696	1.78
Renters below poverty line, 2010	38	177	65	30	\$894	1.17
All tracts	25	151	73	33	\$1,069	1.01

Note. LIHTC = Low-Income Housing Tax Credit.

Table 3. Neighborhood demographic characteristics weighted by housing group prevalence sample: All census tracts in U.S. counties with population 100,000 or greater.

	2010					
	Median household income	Unemployment rate (%)	No high school (%)	Nonwhite (%)	Poverty (%)	Female-headed households (%)
Expiring LIHTC, 2011–2020	\$42,927	13	12	62	21	41
Active LIHTC, 2010	\$40,830	13	13	61	22	42
New LIHTC, 2000–2010	\$40,938	14	13	62	22	42
Expired Section 8, 2000–2010	\$39,507	14	12	64	23	45
Expiring Section 8, 2011–2020	\$44,658	12	12	52	19	42
Active Section 8, 2010	\$39,718	13	13	55	22	44
Section 8 not expiring, 2011–2020	\$40,739	13	12	54	22	44
Vouchers, 2010	\$43,256	13	13	61	20	41
Public housing, 2010	\$31,812	16	16	69	31	50
Renters below poverty line, 2010	\$41,439	13	14	61	24	39
All tracts	\$62,304	10	9	41	12	31

Note. LIHTC = Low-Income Housing Tax Credit.

For LIHTC properties, the new, active, and expiring properties are generally located in similarly situated neighborhoods, although median rents are higher in neighborhoods with LIHTC properties set to expire during the 2010s. When considering these structural neighborhood characteristics, we can conclude that the Section 8 properties that expired in the 2000s were typically located in more distressed neighborhoods than the entire portfolio of these properties. Also, the LIHTC properties expiring in this upcoming decade are in slightly more expensive neighborhoods than the overall portfolio, but all other such characteristics are very similar across the LIHTC groups.

Table 3 provides the same measures, using neighborhood demographic characteristics. The differences across all housing groups are more muted for these characteristics, but there are some notable observations when looking specifically at LIHTC and Section 8 properties. Section 8 properties that expired in the 2000s are in neighborhoods with similar incomes and poverty rates to the active portfolios, but Section 8 properties expiring in the 2010s are in neighborhoods with higher incomes and lower poverty, unemployment, and female headship rates, suggesting that households may lose access to less distressed neighborhoods if these subsidies are not preserved.

Across the two tables, a consistent pattern emerges. The active portfolio of LIHTC properties is in slightly higher opportunity neighborhoods than are Section 8 properties. Each of these portfolios is generally in a neighborhood that looks similar to those of housing voucher and poor renter households, worse off than the general population, and better off than public housing properties. Section 8 properties that expired in the 2000s appear to be in particularly low-opportunity neighborhoods. On the other hand, the properties in the Section 8 program that are due to expire in the 2010s appear to be in relatively higher opportunity neighborhoods—these are the properties that may result in a loss to program participants in terms of neighborhood opportunity. Section 8 properties eligible to expire in the 2010s are in neighborhoods with the lowest violent crime rates and highest math scores, that have relatively high median rents, incomes, and job accessibility, and relatively low poverty rates, and are more racially integrated. LIHTC properties expiring in the 2010s have particularly high median rents and relatively high incomes, but aside from those two measures appear to be in similar neighborhoods to existing and new LIHTC properties.

To better summarize some of these results, we developed aggregated neighborhood measures, and present them in Table 4. In the first column, we average the rankings of nine of the groups¹³ across the neighborhood characteristics in Tables 2 and 3. In these columns, low numbers (i.e., 1–5) reflect higher neighborhood opportunity, and high numbers denote disadvantaged characteristics. Looking at the LIHTC program, we see that this aggregate measure shows that units set to expire in the 2010s are in relatively desirable neighborhoods. The average ranking for those properties is 4.0, compared with 4.3 for the entire portfolio and 5.2 for those that just entered the portfolio during the 2000s. Given these numbers, new LIHTC properties are clearly in neighborhoods that perform worse than existing and expiring LIHTC properties, echoing the small differences we observed in Tables 2 and 3. The story is the same for Section 8 properties—whereas the average ranking for those that expired in the 2000s was 6.2 (behind public housing as the second lowest ranked), the average ranking for those that are set to expire in the 2010s is 2.6—the highest ranked neighborhoods of all the housing subsidy groups.

Next, we calculated standardized values (Z scores) for each neighborhood characteristic, and took the average of those Z scores as another way to aggregate these values. These measures factor in the magnitude of differences between groups, which is not possible by looking at average rankings. The

Table 4. Aggregated neighborhood statistics for housing subsidy group sample: All census tracts in U.S. counties with population 100,000 or greater.

	2010 Average ranking ^a (from Tables 2 and 3)	Percentage in high-opportunity tracts ^b	Percentage in low-opportunity tracts ^b	Tract average Z score ^a
Expiring LIHTC, 2011–2020	4.0	3.4	32.4	–0.38
Active LIHTC, 2010	4.3	3.1	33.5	–0.41
New LIHTC, 2000–2010	5.2	3.1	35.1	–0.42
Expired Section 8, 2000–2010	6.2	6.3	44.6	–0.42
Expiring Section 8, 2011–2020	2.6	4.1	28.6	–0.30
Active Section 8, 2010	4.8	3.0	33.1	–0.41
Vouchers, 2010	3.3	2.6	33.2	–0.37
Public housing, 2010	6.9	1.1	42.2	–0.67
Renters below poverty line, 2010	4.3	2.6	32.4	–0.43

Note. LIHTC = Low-Income Housing Tax Credit.

^aLower numbers suggest higher opportunity.

^bApproximately 14% of tracts are high opportunity, and 14% are low opportunity.

Table 5. Change indicators by housing subsidy group (percentage change from 2000 to 2010) sample: All census tracts in U.S. counties with population 100,000 or greater.

	Poverty rate (%)	Unemployment rate (%)	No high school graduate rate (%)	Female headship rate (%)	Median rent (% 2010 \$)	Median income (% 2010 \$)	Non-white (%)
Expiring LIHTC, 2011–2020	5	4	–3	5	19	–7	7
Active LIHTC, 2010	4	4	–3	3	21	–5	6
New LIHTC, 2000–2010	4	4	–4	4	22	–5	6
Expired Section 8, 2000–2010	0	3	–4	0	30	4	2
Expiring Section 8, 2011–2020	3	4	–3	2	19	–4	6
Active Section 8, 2010	4	4	–4	2	20	–4	4
Section 8 not expiring, 2011–2020	4	4	–4	2	20	–5	5
Vouchers, 2010	4	4	–3	3	22	–4	6
Public housing, 2010	2	2	–5	1	27	2	2
Renters below poverty line, 2010	6	4	–3	3	21	–7	7

Note. LIHTC = Low-Income Housing Tax Credit.

Table 6. Aggregated change indicators by housing subsidy group sample: All census tracts in U.S. counties with population 100,000 or greater.

	Average change ranking ^a (from A1)	Percentage in tracts with high positive change ^b	Percentage in tracts with high negative change ^b	Tract average change Z score ^a
Expiring LIHTC, 2011–2020	7.0	4.6	11.8	–0.13
Active LIHTC, 2010	4.6	6.8	8.3	–0.04
New LIHTC, 2000–2010	4.3	6.2	9.5	–0.05
Expired Section 8, 2000–2010	1.3	20.0	4.2	0.25
Expiring Section 8, 2011–2020	4.3	5.9	4.5	0.00
Active Section 8, 2010	3.6	7.8	4.4	0.04
Vouchers, 2010	3.9	6.2	6.5	–0.02
Public housing, 2010	1.6	12.8	2.2	0.23
Renters below poverty line, 2010	6.1	4.1	8.9	–0.13

Note. LIHTC = Low-Income Housing Tax Credit.

^aLower numbers suggest higher opportunity.

^bApproximately 5% of tracts had high negative change, and 5% had high positive change.

Z score can be interpreted as the number of standard deviations from the average U.S. neighborhood across the neighborhood characteristics. For all of the housing groups, the average Z score is negative, reflecting the fact that they are located in less desirable neighborhoods than the average U.S. household is, and subsidies in higher opportunity neighborhoods have average Z scores closer to zero. In Table 4, we see that the values range from 0.30 standard deviations below the national average (expiring Section 8 units) to 0.67 standard deviations (public housing). The results confirm that the neighborhoods where LIHTC properties are set to expire in the 2010s are slightly worse off than other LIHTC properties (–0.38 for the 2010s vs. –0.41 for the active portfolio), and the Section 8 properties eligible to expire in this decade are in better neighborhoods than the overall portfolio is (–0.30 for the 2010s vs. –0.42 for the 2000s). Further, the Section 8 properties soon to expire are in better neighborhoods than any other portfolio we analyze, including vouchers.

Finally, we aggregated neighborhood characteristics by identifying the percentage of each housing group that is located in high- (and low-) opportunity neighborhoods. Neighborhoods qualified if they were in the top (or bottom) half of the distribution of neighborhoods in all of the following characteristics: math scores, poverty rates, unemployment rates, high school attainment, percentage nonwhite,

and percentage female-headed households. Calculations were made theoretically consistent across all characteristics—we correct for the fact that higher math scores are desirable and unemployment is undesirable by using the appropriate half of the distribution.

In the final two columns of Table 4, we display the percentage of each housing population that occupies high- and low-opportunity neighborhoods. This measure captures extreme neighborhoods—only about 11% of neighborhoods qualify as high opportunity, and about 14% qualify as low opportunity. We see here that Section 8 expirations from the 2000s occurred much more frequently in these extreme neighborhoods—high and low opportunity. Expirations in extreme neighborhoods make sense from the standpoint of the property owner. Owners may allow these subsidies to expire in severely distressed neighborhoods because they find it difficult to rent out even subsidized units there, given these rents do not provide much of a discount compared with market rents. And in high-opportunity neighborhoods, it makes economic sense to decline further subsidy and convert their units to market rate.

The properties expiring in the 2010s are similar to the overall portfolios in terms of location in high- and low-opportunity neighborhoods. Roughly 4% of Section 8 and 3% of LIHTC properties set to expire in the 2010s are in high-opportunity neighborhoods. Although these numbers are low, these could be the ideal properties for targeted preservation efforts if the goal is to ensure low-income residents can access particularly strong neighborhoods.

Neighborhood Trajectories

For a subset of variables—median rent and income, poverty, female headship, unemployment rates, percentage nonwhite, and high school completion—we look at the change between 2000 and 2010 to get a sense of how the neighborhoods with expired properties are changing. In Table 5 we display the change in seven indicators from 2000 to 2010, weighted by the number of each housing subsidy group. All else being equal, we would expect expiring Section 8 contracts to not be renewed in improving neighborhoods, and this has been the case. The neighborhoods with Section 8 properties that exited the program in the 2000s were improving relative to the entire portfolio of Section 8 property neighborhoods across every neighborhood indicator. Of all the housing subsidy groups, expired Section 8 neighborhoods were the only ones without an increase in the poverty or female headship rate from 2000 to 2010. These neighborhoods had the largest increase in median rents, and they had a 4% increase in median incomes whereas active Section 8 properties in 2010 saw a decline in neighborhood median incomes, on average. These results suggest that Section 8 properties expired in neighborhoods that were improving, whereas the active portfolio was in neighborhoods that were declining.

In Table 6, we aggregate these change indicators by housing subsidy group. Here, we see a lot of consistency with our previous conclusions that Section 8 units tended to expire in improving neighborhoods. Section 8 expirations in the 2000s were in neighborhoods with the best trajectory according to the average change ranking and the average change Z score. And a full 20% of Section 8 expirations were in neighborhoods with high positive change, whereas roughly 5.5% of all neighborhoods and 8% of Active Section 8 properties were in neighborhoods that met that threshold.

From this array of descriptive measures, a consistent story emerges. Section 8 properties expired in undesirable neighborhoods in the 2000s. Section 8 units that expired in the 2000s were in neighborhoods with very high violent and property crime rates, high poverty rates and minority populations, and relatively low incomes and rents. However, the Section 8 expiration neighborhoods were improving quite rapidly, suggesting that these units expired in areas where things were getting better. This is a major concern going forward, because the properties eligible to expire in the 2010s are in much better neighborhoods than where properties expired in the 2000s. Section 8 properties expiring in the 2010s are in neighborhoods with the lowest violent crime rates, highest math scores, and that have relatively high median rents, incomes, and job accessibility, and relatively low poverty rates. In addition, expiring Section 8 properties tend to be located in higher opportunity neighborhoods that are also on a better trajectory than those of the average voucher and new, active, or expiring LIHTC unit. LIHTC properties expiring in the 2010s have particularly high median rents and relatively high incomes, and

are in neighborhoods of similar quality to voucher households, but these properties are generally also in neighborhoods on the worst trajectory of all portfolios we analyze.

Conclusion

In this article, we use several sources of data at the census tract level to identify the characteristics of neighborhoods where housing subsidies are expiring. We look at the years 2000 to 2010 to observe where Section 8 subsidies already expired, and use data on projected expirations from 2011 to 2020 to examine the location of current and future expirations. These subsidy programs do not offer the only way for low-income households to access particular neighborhoods, and, in some cases, the loss of subsidy may not immediately result in increased rent. However, all else being equal, a number of families equal to the number of units that expire will suddenly find themselves at a higher risk of having to move. Further, they are more likely to have rents raised where market rents are higher, which is in the higher opportunity neighborhoods that housing policymakers and advocates hope that low-income households can access. In addition, as noted earlier, the tenant protection voucher—often provided to tenants that have to leave housing with expired subsidies—does not appear to protect households from these realities. This is particularly important as we consider that those units due to expire from the project-based Section 8 program in the coming years are in higher opportunity neighborhoods than the average unit leased with a voucher is.

For the Section 8 NC/SR program, where no new construction has occurred in decades, the sole source of change is in these expiring subsidies. What these analyses uncover is that Section 8 subsidies expired in areas that were relatively disadvantaged, which at face value could seem like a silver lining in the context of a reduction in subsidized units. However, the neighborhoods that saw a greater share of lost Section 8 subsidies improved substantially (on average) over the decade. Also, the Section 8 NC/SR subsidies that are set to expire in the 2010s are in relatively desirable neighborhoods. Further, we find evidence that these subsidies expired in neighborhoods on each of the extreme ends of the neighborhood opportunity scale. That is, we observe that neighborhoods with very high and very low measures of opportunity saw the biggest loss of Section 8 subsidies. In all, past Section 8 NC/SR subsidies expired in very disadvantaged neighborhoods, but current and future expirations are frequently in high-opportunity neighborhoods.

For LIHTC properties, the story is more mixed, and our analysis is limited by the fact that we cannot look at neighborhoods where LIHTC properties expired because the numbers are low. Although the neighborhood opportunity profile of LIHTC expiration tracts is generally quite mixed, our analyses suggest that many LIHTC expirations in the current decade will occur in slightly higher-opportunity neighborhoods than new and active LIHTC properties, but that these neighborhoods are not necessarily on the best trajectory.

All of these trends occurred during a time of increasing renter burdens. Unadjusted for inflation, median rents rose 57% on average compared with an average 25% increase in incomes. Further, in the 2000s, over 100,000 Section 8 units lost their subsidy, which accounts for over 11% of the total number of Section 8 units that were in place at the start of the decade. Whereas the number of units that entered the LIHTC program was much larger than the number that left the Section 8 program, the LIHTC program is a less generous subsidy and often does not alleviate rent burdens for low- and very low-income renters to the same extent. Further, the LIHTC program is young enough (implemented in 1986) that the subsidy expiration process is just beginning.

Given the limited investment in housing subsidies at all levels of government, there are difficult and constrained decisions about whether to spend these resources developing new units or recapitalizing and preserving existing units, and which existing units to preserve. The data and methods used in this article should be used by policymakers and advocates to prioritize preservation efforts in neighborhoods with higher opportunity. In particular, when making decisions about whether to preserve a subsidy, there are a host of characteristics that define the potential level of opportunity. These characteristics change over time, and owners are making opt-out decisions based on both levels and changes to

neighborhood opportunity and so should policymakers. Once units convert to market rate, it is much harder to place new ones in opportunity neighborhoods. The methods used for evaluating neighborhood opportunity in the context of new and expiring subsidized rental housing in this article can also be modified and extended by communities, which may value some indicators more than others or be concerned about local subsidy programs not considered here.

Finally, whereas the current tenant protection voucher does not appear to provide an adequate safety net, housing vouchers can be an important tool and resource as we think about access to neighborhood opportunity. One option is to focus on improving the effectiveness of the tenant protection voucher, but this program only applies to households in project-based Section 8 developments. In theory, this voucher shields households from potential rent increases and provides them the option to use their subsidies to move to other locations if they choose, which could ultimately be more efficient. However, as noted by Reina and Winter (2016), the ability for a household to do either likely requires improved oversight of housing authorities administering this benefit as well as direct support to households on how best to use it. Another option is project-basing vouchers, which allows a unique place-based intervention that could prove useful. However, it is estimated that there are 2.76 million families currently waiting for housing vouchers (PAHRC, 2015) and if we cannot serve those families, the project-basing of vouchers may not be a scalable solution. These potential solutions reinforce that we are in a world of constrained resources, and whereas the goal should not be to preserve every place-based subsidy, the decision on when and how to preserve, recapitalize, or build new affordable units involves tradeoffs. Ultimately, such decisions require detailed knowledge about where units are located, which tools may work in that context, and what that means for access to opportunity neighborhoods.

Notes

1. In this study, we focus solely on units built through the Section 8 New Construction and Substantial Rehab programs, which does not include the whole universe of properties with a project-based Section 8 subsidy. Therefore, in this article, project-based Section 8 does not include units financed outside of that program, such as the Section 8 Moderate Rehab program or Loan Management Set Aside program, but it does include properties developed through other U.S. Department of Housing and Urban Development (HUD) programs, such as the Section 202 program, that also received a project-based contract through the Section 8 New Construction and Substantial Rehab programs.
2. "The maximum term of the contract is 20 years. A Contract Administrator (CA) can renew a Section 8 Housing Assistance Payment contract for up to five years. If an owner wishes to renew the contract for more than five years, the CA must refer the contract to the Account Executive for final approval (U.S. Department of Housing and Urban Development, 2015a, b)."
3. After 2020, LIHTC properties begin to reach the end of their extended use periods and join this category.
4. The majority of these data are provided using 2010 tract boundaries. For those variables that were in 2000 boundaries, we utilize the Longitudinal Tract Database (LTDB) which is a public-use file for creating 2010 boundary estimates with 2000 boundary data and vice versa (Logan, Xu, & Stults, 2014).
5. There are two types of LIHTC, that provide different levels of subsidy—the 4% and 9% credit—and we include both in this study.
6. According to HUD, a Public Housing Authority can project-base up to 20% of its housing choice vouchers. These contracts represent new project-based contracts but "HUD does not reserve additional units for project-based vouchers and does not provide any additional funding for this purpose." U.S. Department of Housing and Urban Development (2003).
7. In the panel data set that we construct, we match the annual data to the midpoint year of the 5-year wave. Thus, the 2005 to 2009 American Community Survey is considered 2007 data.
8. The data were provided to researchers at the NYU Furman Center by the Department of Education. We thank the Furman Center for supplying these data geocoded to census tracts. There are several limitations to the data, despite their value as the only national database that can approximate school quality on the census tract level. First, test scores are by no means the only meaningful indicator of school quality. Second, we have no information on nearby private or charter schools. Finally, the most geographically proximate school may not be the school that a census tract's households are zoned for, although Horn et al. (2014) report that the correlation between proximity and formal zoning is very high. See Horn et al. (2014) for more details on these data.
9. It is important to note that transportation costs are estimated based on census tract characteristics, and not actual household spending on various forms of transportation. These characteristics include transportation cost

estimates based on the following census tract-level factors in lieu of actual transportation cost data: density, walkability and street connectivity, employment access and job density, median commute distance, percentage rental units, and percentage single family detached housing units. For more, see U.S. Department of Housing and Urban Development (2014).

10. NNCS data were obtained from the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan. For more on the NNCS, see Peterson and Krivo (2010).
11. We conducted tests for whether the weighted averages for each group and neighborhood characteristic are significantly different from one another, but we do not add these to the tables or discuss differences in statistical significance terms for the sake of simplicity. Given the large number of observations (over 50,000 census tracts for most variables), only numbers that are nearly identical are *not* statistically significantly different. The authors will provide documentation of statistical significance tests upon request.
12. We want to emphasize that the crime data were only available for 91 cities (not entire metropolitan areas), and only in the year 2000. Thus, whereas most analyses involve approximately 54,000 census tracts, the violent crime analyses cover 8,048 tracts and the property crime data cover nearly 11,000.
13. All of the above groups with the exception of the LIHTC and Section 8 groups that do not expire until 2020 and the full sample of census tracts.

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Disclosure Statement

No potential conflict of interest was reported by the authors.

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