The What, Where, and When of Place-Based Housing Policy’s Neighborhood Effects

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Abstract

Ever scarce affordable housing production resources, in addition to their primary function of providing housing for those in need, are increasingly enlisted for the dual goals of strengthening distressed communities and increasing access to higher opportunity neighborhoods. Information on spillovers can inform investment decisions over time and across communities. We leverage recent, high quality research on neighborhood effects of Low Income Housing Tax Credit (LIHTC) production, synthesizing evidence according to neighborhood context. We also summarize the evidence on project features moderating impacts of publicly subsidized, place-based rental housing, in general.

We conclude that context matters. Producing LIHTC housing in distressed neighborhoods positively impacts the surrounding neighborhood – in terms of modest property value gains and increased safety. By contrast, higher opportunity neighborhoods experience small property value reductions, and no impacts on crime. Big questions remain, however, about impact heterogeneity – via tenant mix, property design, and ongoing property management, as examples - with the scarcity of systematic data representing one of the field’s largest constraints.

Keywords: low-income housing, neighborhood, development/revitalization

Introduction

A large and growing body of evidence demonstrates the costs of living in distressed communities, for both children and adults (Ellen and Turner 1997; Leventhal and Brooks-Gunn 2000; Briggs 2005; Chetty, Hendren, and Katz 2015). In response, housing policy, in addition to its primary function of providing housing for those in need, is increasingly enlisted for the dual goals of expanding opportunities in lower poverty communities, which are often richer in the resources for individual and family well-being and strategies to revitalize high poverty communities. At the state level, tools for targeting housing investments are growing, but are largely seen as weak, in part due to a lack of concrete guidance.1

Evidence on the neighborhood effects of publicly subsidized housing can support both of these goals. First, concrete evidence of neighborhood effects (both costs and benefits) can be used to counter opposition to the production of affordable housing in resource-rich communities – increasing the pace and volume of housing produced. Second, evidence on neighborhood effects can be used to inform policymaker decisions on which projects are most likely to yield hoped for community benefits while minimizing negative consequences. The Supreme Court’s recent decision in favor of disparate impact claims (Texas Department of Housing and Community Affairs v. the Inclusive Communities Project Inc.) and HUD’s final Affirmatively Furthering Fair Housing rule make these abstract needs for evidence more concrete. Developers, planners, policy makers, and advocates need to know how their practices will affect outcomes and opportunities for all their constituents (Williams and Brennan 2015).

1 The federal administrator of the LIHTC program, the U.S. Department of the Treasury, has established project preferences and selection criteria for states administering credits. However, the states still lack federal guidance on how to further define those preferences, rank them against each other, or relate them to other local housing priorities (Khadduri 2013). Meanwhile, state agencies have limited evidence of how allocation thresholds and preferences affect what is actually developed (Gustafson and Walke 2002; Ellen et al. 2015).
This paper synthesizes recent evidence on neighborhood effects of affordable housing production through the Low Income Housing Tax Credit program. As the Federal government’s primary means of affordable housing production and preservation today, subsidizing one third of all new construction of multifamily units in the U.S. since the late 1980’s (Khadduri et al. 2012), it is critical that we understand how these projects are affecting America’s neighborhoods. This single focus also limits the difficulties of synthesizing impact evidence across a host of public programs. At the same time, the LIHTC program affords considerable discretion in project designs and features. Therefore, the secondary goal of this literature review is to synthesize the evidence on site- and project features moderating neighborhood impacts of publicly subsidized, place-based rental housing, in general.

This review makes three important contributions to the field. First, it provides an evaluation of impacts by neighborhood context defined by opportunity and distress – consistent with the distinct policy goals and often distinct expectations across community types. Second, it specifies what we know and do not know about the heterogeneity of impacts based on project features. Given the highly contingent nature of neighborhood spillovers and the considerable flexibility in project dimensions afforded by funding programs, such accounting is sorely needed. Finally, this review leverages the wealth of quality research conducted in just the last few years. The most recent of several prior reviews was completed in 2008 – more than five years ago (Freeman and Botein 2002; Galster 2004; Nguyen 2005; and Ellen 2007) with many studies since 2010. These recent studies, since 2000, consistently enlist sophisticated statistical analyses and, often, large datasets best able to isolate the impacts of subsidized projects.

After describing our methods, the paper next summarizes LIHTC evidence across distinct neighborhood contexts – high opportunity, distressed, and moderate poverty neighborhoods. We also briefly summarize recent, high quality research on housing produced through other programs to bolster our LIHTC conclusions. In turn, we summarize recent knowledge of the site- and project-specific features moderating neighborhood impacts, such as pre-existing conditions at the site and project scale. Here, we cast a broader net including studies of various housing production programs, in order to maximize lessons. We close with a discussion of the research, policy, and practice implications.

Methods

To address study goals, we broadly defined relevant subsidized housing projects as either rehabilitation or new construction of public and private affordable rental housing, financed with federal, state, and/or local public resources, and targeting families, seniors, and/or residents with disabilities. We focused on English language documents reporting some form of empirical information (either primary research or a literature review) on various community outcomes associated with subsidized housing - either in isolation

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2 While our focus is on place-based investments (as Owens considers people-focused policies in this issue) this distinction is somewhat artificial. Fifty percent of all LIHTC households also receive some form of rental assistance (O’Regan and Horn, 2013).

3 In a thoughtful review of this literature ten years ago, Nguyen (2005) suggests that synthesizing evidence for a single housing program from across a number of different cities would further our understanding of neighborhood spillovers.

4 See Freeman and Botein (2002), Galster (2004), and Nguyen (2005) for detailed discussions of the methodological challenges with estimating neighborhood impacts and the limits of most early research in this area.
or as part of a larger revitalization effort. Articles or books that consist of policy or theoretical discussion without empirical information were excluded.

**Literature search**

We enlisted multiple methods to identify the breadth of available evidence – searching both the academic and grey literatures (see Appendix A for more details on search methodology). Our criteria for inclusion were those sources:

- Enlisting high quality research designs, such as multivariate techniques able to control for mediating factors that may influence the relationship between affordable housing and nearby neighborhood conditions.
- Presenting primary research published by 2000 or later – reflecting both the current development landscape and the greater methodological rigor in studies during this period.
- Examining *housing-focused* public programs (e.g. LIHTC, public housing, Section 8 Rehabilitation and New Construction, HOME, and HOPE VI). (We excluded studies examining public investments towards other neighborhood resources, such as New Markets Tax Credits and Brownfields redevelopment.)
- Examining neighborhood dimensions of particular concern to host communities and local decision-makers (e.g. property values, neighborhood racial and income composition, crime and education). Studies examining the siting of subsidized projects and the crowd-out of public investments were excluded.

**Appraisal**

We conducted a systematic review of the 16 studies examining Low Income Housing Tax Credit project impacts on property values, neighborhood demographics, crime, and education (See Appendix Table A summarizing the focus and methods of these studies). Within this group of studies, LIHTC projects are either the study’s exclusive focus or one of multiple project types considered. More than half of these studies were published since 2010. The body of work represents LIHTC projects located in all regions of the country – expanding the geographic scope of earlier research. More than half of studies are national in scope or focus on projects in a large portion of the states - the remaining studies focus on a single locality. Housing market impacts (specifically, property values) are the most commonly examined outcome (N=9). Meanwhile a sizable portion of LIHTC studies examine impacts on neighborhood demographic patterns such as poverty rates or income composition (N=9), as well as racial composition (N=2). A small number of these studies examine impacts on crime (N=3) and school quality (N=1). We reviewed each of these studies using a template to collect information on study goals and context, methods, and findings – overall and by neighborhood context.

Our search identified an additional set of recent, methodologically rigorous studies examining a wider range of housing programs. These eight studies examine new construction and rehabilitation projects funded through local and federal sources, including both public and private properties. Several of these studies include LIHTC-funded projects within their sample, but LIHTC-specific impacts are not
reported. In order to leverage this body of important work, a separate appraisal was conducted of these studies.

**Synthesis – LIHTC impacts by neighborhood context**

We organized the evidence on the neighborhood impacts of LIHTC developments according to neighborhood context. Focusing on neighborhood context recognizes the dual goals of housing production discussed above. That is, concrete evidence associated with high opportunity neighborhoods can be used to counter local opposition to the production of affordable housing and perhaps increase access. Meanwhile, evidence from more distressed communities can inform policymaker decisions about the types of projects (in terms of both siting and timing) most likely to yield hoped-for community benefits. We are also motivated by conclusions from earlier literature reviews of the importance of context to the nature of spillovers (Ellen 2008; Freeman and Botein 2002; Galster 2004; Nguyen 2005; Olsen and Zabel 2015). Finally, this approach allows us to leverage the explicit and careful exploration of neighborhood heterogeneity among recent research, as compared to earlier studies.

In order to organize the evidence by neighborhood context, we defined three neighborhood types consistent with these policy goals and the realities of LIHTC production across space: high opportunity neighborhoods, distressed neighborhoods, and moderate poverty neighborhoods. Perhaps not surprisingly, there is no consistent standard for defining neighborhood context across the studies reviewed. For studies examining high opportunity neighborhoods, the authors often enlist resident income and wealth as proxies for opportunity, with others also associating opportunity with majority white populations. For distressed neighborhoods, authors often proxy using median income, while several focus on poverty rates ranging from 25-50%; in one instance elevated crime rates are used as an indicator of disadvantage. A final group uses the definition of Qualified Census Tract provided by IRS regulations. Qualified Census Tracts include those where at least 50 percent of households have incomes below 60 percent of the Area Median Income or (starting in 2002) tracts with a poverty rate of at least 25 percent. However, the total population of designated QCTs within a metropolitan area cannot exceed 20 percent of the metropolitan area’s population (Hollar and Usowski, 2007). Among the group of studies providing evidence in moderate poverty neighborhoods, we find the greatest variety among criteria -

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5 Several important studies of neighborhood spillovers in New York City include projects funded through a mix of programs, often including LIHTC but for which LIHTC-specific findings are not reported (Schill et al. 2002; Ellen and Voicu 2006; Schwartz et al. 2006; Lens 2013b). They are included in the review of impacts from other housing programs.

6 Freeman & Rohe 2000; Green, Malpezzi and Seah 2002; Freeman 2003; Funderburg and MacDonald 2010; Deng 2011a, Albright, Dericksen, and Massey 2013; Di and Murdoch 2013; Diamond and McQuade 2015; Woo, Joh, and Van Zandt 2015.

7 Funderburg and MacDonald 2010 (along with home values); Di and Murdoch 2013; Diamond and McQuade 2015; Woo, Joh, and Van Zandt 2015.

8 Green, Malpezzi and Seah 2002; Freeman 2003; Ellen et al. 2007; Ellen, O’Regan, and Voicu 2009; Deng 2011a.

9 Examining LIHTC projects across the entire city of Austin, TX, Woo and Joh (2015) conclude from pre-development crime rates that they are located in ‘disadvantaged neighborhoods,’ but do not offer other characteristics of host neighborhoods.

10 Baum-Snow and Marion 2009; Freedman and Owens 2011; Freedman and MacGovack, 2015.

including housing market characteristics (e.g. property values, homeownership rates), income levels and poverty rates, and racial composition.\textsuperscript{12}

We then categorized evidence by context based upon the data that studies provide and how authors discuss the context for study projects and the nature of their analyses.\textsuperscript{13} For one subset of studies (N=7) we essentially extracted average impact estimates because the sample of study projects is located in only one neighborhood type. This group includes studies of projects in a high-opportunity suburban context (in the case of Albright, Derickson, and Massey 2013) and projects exclusively in distressed inner-city neighborhoods (as exemplified by Ellen et al. 2007).\textsuperscript{14} About half (N=9) of the remaining studies provide evidence across multiple neighborhood contexts. For three studies we simply ‘translated’ the authors’ three groupings into our three neighborhood categories (Funderburg and MacDonald 2010; Deng 2011a; Woo, Joh, and Van Zandt 2015). In three studies, we extracted findings for the two neighborhood contexts available (Green, Malpezzi, and Seah 2002; Ellen, O’Regan, and Voicu 2009; Di and Murdoch 2010). In the final three studies, the authors provide disaggregated findings that we assigned to our neighborhood categories (Freeman and Rohe 2000; Freeman 2003; Diamond and McQuade 2015).\textsuperscript{15} See Figure 1 for the breakdown of evidence by neighborhood context based upon this methodology.

Using this categorization scheme, we summarized LIHTC evidence in each of three neighborhood contexts, and according to neighborhood outcome: property values, neighborhood demographics, and crime and education.

\textit{Synthesis – Site- and project features moderating neighborhood impacts}

Given the limited discussion of how project features shape neighborhood impacts, we supplement our sample with an additional 17 articles identified in our search that examine spillovers of subsidized housing but do not include analyses of Low Income Housing Tax Credit developments, specifically. We focus on work that pays attention to the particular features of publicly subsidized projects that influence

\textsuperscript{12} Freeman and Rohe 2000; Freeman 2003; Ellen, O’Regan and Voicu 2009; Funderburg and MacDonald 2010; Deng 2011a; Woo, Joh, and Van Zandt 2015.

\textsuperscript{13} Given the information available in the reviewed studies, this categorization scheme is as much art as science. It fails to account for the multiplicity of neighborhood dimensions that are likely relevant to spillovers. Beyond poverty rates, other area level features and trends may be equally important such as the presence of local amenities such as transportation or the presence of a larger public revitalization effort (as suggested by Deng 2011a). We also recognize that the definition of neighborhood and sub-market types can yield contrasting spillover findings (Koschinsky 2009; Boswell 2011). Therefore, while this approach can move our understanding forward, we must take care in conclusions across contexts.

\textsuperscript{14} Deng (2011a) and Woo and Joh (2015) also afforded impact evidence in only one neighborhood context. Finally the three studies focusing on projects in QCT- or QCT-like neighborhoods afforded evidence exclusively in distressed neighborhoods (Baum-Snow and Marion 2009; Freedman and Owens 2011; Freedman and MacGovack 2015).

\textsuperscript{15} Diamond and McQuade (2015) organize their analyses and discussion by high income tracts (the top two income quartiles, Q3 and Q4) and low income tracts (the bottom two income quartiles, Q1 and Q2). They conduct separate analyses by all four quartiles (except for the outcome of crime). We assigned findings from Q1 to the low-income category (findings from Q1 tracts with high minority concentrations were categorized as distressed), findings from Q2 tracts were categorized as moderate poverty; and the findings from Q3 and Q4 were categorized as high opportunity. Both Freeman (2003) and Freeman and Rohe (2000) identify five neighborhood strata based on the likelihood of receiving a project. We used information on neighborhoods in each strata to assign findings across strata to our neighborhood categories.
the size and nature of neighborhood impacts – either in their analysis or in their discussion. We reviewed all of these studies, extracting authors’ impressions about ‘what matters’ among project features and evidence on the heterogeneity of impacts. We summarized the available evidence from the full set of 32 rigorous studies on site- and project-specific features likely to influence the size and nature of neighborhood impacts.

**Findings**

**LIHTC developments in distressed neighborhoods**

As discussed previously, one primary motivation for government involvement in subsidized housing within distressed neighborhoods has been the idea that these investments have the potential to improve their surrounding communities. The primary mechanism researchers have used to evaluate whether affordable housing developments, and LIHTC developments in particular, have improved neighborhood conditions is through examining impacts on property values. Property values are particularly appealing as improvements to the neighborhood are clearly measured by the increased willingness to pay for housing within the neighborhood. Construction could remove boarded-up buildings or vacant lots and replace them with a property of higher quality than surrounding units, directly improving the surrounding community. Alternatively, LIHTC developments could encourage additional public or private real estate investment or promote commercial investments to meet growing resident demand – leading to more indirect neighborhood improvements. Both of these changes would be captured in measures of improved property values. At the same time, concern arises when only property values are considered as they fail to describe how conditions within neighborhoods are changing. In this section we begin with what is known about impacts of LIHTC developments on property values and then further examine what is known about whether and how neighborhood conditions have changed as a result of these new developments.

Most recently, Diamond and McQuade (2015) examine impacts of LIHTC developments on property values in 129 counties across 15 states, covering approximately 20 percent of all LIHTC developments. For the subset of developments in the lowest income quartile tracts, they find significant increases to property values within close proximity to a tax credit development. Specifically, they find that housing values within 0.1 miles of a tax credit development increase by 6.5 percent after the development is placed in service. This is the strongest evidence presented to date that subsidized housing in distressed neighborhoods can improve property values.

We identified eight additional studies that have examined the impacts of LIHTC developments on property values, five of which consistently find modest, positive property value impacts associated with

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16 Freeman and Botein (2002) provide a fuller discussion of the theories of why subsidized housing is expected to affect surrounding neighborhoods. Additional mechanisms are included in the ‘Moderating Neighborhood Effects’ section discussion of project features moderating neighborhood impacts.

17 The population growth from subsidized housing may not be entirely positive. Based on their study of dispersed public housing Santiago, Galster, and Tatian (2001) conclude that the negative externalities of adding more low-income households to a poverty concentrated neighborhood could trump any potentially positive externalities from rehabilitation of a distressed property.

18 For discussions of these mechanisms see Freeman and Botein 2002; Schwartz et al. 2006; Ellen et al. 2007; Ellen 2008.
projects located in distressed neighborhoods (Ellen et al. 2007; Baum-Snow and Marion 2009; Ellen, O’Regan and Voicu 2009; Deng 2011b; Freedman and McGavock 2015, Woo, Joh & Van Zand, 2015). Where examined, these authors find that impacts are either sustained or increase over time. Two studies find no impact on property values. Funderburg and MacDonald (2010) include only three properties in distressed neighborhoods, making it difficult to draw any solid conclusions from this limited sample. Green, Malpezzi and Seah (2002) separately examine results in four metropolitan areas in Wisconsin, and overall they find no impact on property values. However, in Milwaukee, the city with the highest share of developments in high poverty neighborhoods, they find some small evidence that properties closer to tax credit developments experience slower rates of appreciation. This example highlights the concern that average effects can mask important variation across sites, which we come back to in our final section on impact heterogeneity.

Beyond direct effects on the housing stock and nearby property values, another common expectation for LIHTC developments in distressed neighborhoods is that they will contribute to income diversity in the neighborhood. To the extent that LIHTC projects produce units for moderate-income residents, they could directly attract higher-income residents from outside the neighborhood. Albeit less directly, LIHTC projects could also be expected to increase the incomes of existing residents through subsequent increases in neighborhood economic vitality - made possible, in part, by private investments catalyzed by the LIHTC project, itself (Mallach 2008). ‘Neighborhood or contagion effects’ represent another possible indirect route to income changes. This theory suggests that new higher income residents serve as good role models for area neighbors or they are able to provide access to resources or networks that help neighbors find employment or advance economically (Crane 1991; Wilson 1987).

Some authors have examined one dimension of these hoped-for demographic changes - whether higher income households are more likely to live in these distressed neighborhoods after LIHTC developments are completed. Diamond and McQuade (2015) create a fuzzy match between their property sales data and the Home Mortgage Disclosure Act (HMDA) data which includes household income for new homebuyers, and find evidence that homebuyers purchasing properties near to newly completed LIHTC developments have slightly higher incomes than those living there previously. Earlier research has found no impact on higher income in-movers, and some evidence of overall declines in median household income at the census tract level (Freeman 2003; Baum-Snow and Marion; 2009; Freedman and McGavock 2015) but those studies have not utilized micro-data as do Diamond and McQuade (2015). Given the small impact detected by Diamond and McQuade, it may be that tract level analyses have not been able to pick up these small changes, and perhaps these results confound the mechanical result of low-income residents moving into newly constructed affordable units with these larger neighborhood processes.

In fact, there is some evidence that poverty rates may increase slightly as a result of LIHTC developments (Freedman and McGavock 2015), though the authors are not able to separate tenants of LIHTC developments from the remainder of the tract population. In contrast Ellen, O’Regan and Voicu (2009) find no association between completion of LIHTC units in a distressed neighborhood and poverty rates, a

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A ‘fuzzy match’ is one where not all criteria are required to be the same in order to match two observations. This is often used when handling large administrative datasets as it allows probable matches to be made in the presence of missing or incorrect data.
result supported by Ellen, Horn and O’Regan (2015) who have updated this analysis with another decade of LIHTC developments and included data on LIHTC tenants.

Figure 1. Recent Evidence of LIHTC Spillovers, by Context

<table>
<thead>
<tr>
<th>Property Values</th>
<th>Income Diversity</th>
<th>Crime</th>
<th>School Quality</th>
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<tr>
<td>High Opportunity</td>
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<td>Green, Malpezzi &amp; Seah, 2002</td>
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<td>Di &amp; Murdoch, 2013</td>
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<td>Diamond &amp; McQuade, 2015</td>
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<td>Woo, Joh &amp; Van Zandt, 2015</td>
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<tr>
<td>Low-Income/Distressed</td>
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<td>Green, Malpezzi &amp; Seah, 2002</td>
<td>+/-</td>
<td></td>
<td>Di &amp; Murdoch, 2013</td>
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<td>Ellen et al., 2007</td>
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<td>Baum-Snow &amp; Marion, 2009</td>
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<td>Deng, 2011b</td>
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Note: Within this group of studies, LIHTC projects are either the study’s exclusive focus or one of multiple project types considered. Deng, 2011a provides evidence of LIHTC impacts in all three contexts, but findings are not reported for each neighborhood outcome, separately. Therefore, it is not included here.

* Freeman (2003) assesses the indirect effect of LIHTC on poverty concentration via the class-selective in-migration to LIHTC neighborhoods.

\ This negative effect is driven by price depreciation in higher income areas that are low-minority.

\ Woo, Joh & Van Zandt (2015) find no impacts in Cleveland’s high opportunity neighborhoods, but evidence of declines in those of Charlotte. However, for the four project Charlotte sample the findings were only significant at the 10% level.

\ Woo, Joh & Van Zandt (2015) find positive impacts of LIHTC in Cleveland’s distressed neighborhoods. Similarly, Charlotte’s distressed neighborhoods experienced improvements as the significant pre-development, 10% price gap between impact and control areas disappeared post LIHTC development.

\ Freedman & McGovack (2015) explore multiple dimensions of income composition. They find that the small, negative impact on median household income and small positive increase in the fraction of low-income households in the block group are likely mechanical.

\ Woo, Joh & Van Zandt (2015) find modest, negative impacts of LIHTC in Charlotte’s moderate neighborhoods; however these negative effects appear mitigated by increasing project size. By contrast, LIHTC projects are not found to affect Cleveland’s moderate poverty neighborhoods.

\ Exploring poverty concentration, Ellen, O’Regan, & Voicu (2009) find that the completion of more LIHTC units in a tract during the 1990s is associated with increases in the poverty rate during the decade.
Another aspiration for creating subsidized housing units in distressed areas is to increase neighborhood safety. Through removing blight and vacant lots ripe for criminal activity, LIHTC developments may directly stem crime by signaling to potential criminals that the area is inappropriate for engaging in crime (Wilson and Kelling 1982) and adding more ‘eyes on the street.’(Schwartz et al. 2006; Ellen 2008). The stability of neighborhood residents may also increase due to housing subsidies, indirectly decreasing crime through the greater social organization of the neighborhood such stability affords (Lens 2013a). These new developments may also attract a greater police presence either on their own or through a concerted and problem-oriented policing strategy perhaps tied to the LIHTC development, itself (Mallach 2008; Freedman and Owens 2011). In fact, the three studies that examine crime impacts of LIHTC developments in distressed neighborhoods find that these developments are associated with declines in crime (Freedman and Owens 2011; Diamond and McQuad 2015; Woo and Joh 2015). The analysis by Freedman and Owens (2011) examines impacts at the county level, suggesting that these reductions are not the result of displacing crime to other areas within the county.

Improvements in local housing conditions could also translate into improvements in the quality of local institutions, particularly schools. If a greater share of low income children in a school have stable housing, this could reduce turnover within the local school (though it could increase turnover in the short-term as new housing can mean new students in the school). This increased stability could both improve the individual child’s ability to learn and allow teachers to accomplish more in the classroom. Additionally, if LIHTC developments are attracting higher income families into the neighborhood (or themselves house a more economically diverse group of families) - and attend neighborhood schools - this could lead to increased economic diversity within the classroom, again making it easier for a teacher to effectively communicate material. There has been very little examination of how LIHTC developments shape local school quality. Di and Murdoch (2013) focus specifically on the relationship between LIHTC developments and school quality, for the state of Texas, and find no evidence that LIHTC developments have a sustained impact on the quality of local schools in distressed neighborhoods. More work is needed to understand how affordable housing developments can be leveraged to improve the quality of education in distressed neighborhoods.

LIHTC developments in high opportunity neighborhoods

Another rationale for government subsidies for affordable housing is to increase the range of neighborhoods low-income households can reach, allowing low-income households to access opportunity

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20 Lens (2013a) provides a thorough discussion of the theoretical explanations from the planning and criminology traditions on how and why crime and subsidized housing (including both place-based and tenant based) may be linked in U.S. cities. This review of theory is about why LIHTC should increase safety, but there are equally important theories and evidence examining crime increases from subsidized development. In fact, much of the early research in this area focused on crime rates in public housing and explanatory factors of project physical characteristics and design, socioeconomic features of subsidized communities, and policing. Santiago, Galster and Petit (2003) review theories and evidence related to public housing, in particular, including the breakdown of social cohesion and resulting lure of crime-prone individuals to the neighborhood.

21 For example, to the extent that a LIHTC project is part of a larger community revitalization initiative, a strengthened local economy may yield additional public resources for public schools (via an improved tax base). This may attract higher-income in-movers willing to invest in local public schools (Khadduri, Schwartz and Turnham 2007). At the same time, ‘school-centered revitalization efforts’ can attract or retain children who might otherwise attend private or charter schools beyond neighborhood boundaries.
rich neighborhoods. Though gaining access to these low poverty neighborhoods is often politically difficult, to date 18 percent of LIHTC developments, and 24 percent of newly constructed developments, have been built in neighborhoods where poverty rates are less than 10 percent (which is a summary measure often used to describe high opportunity neighborhoods) (Ellen, Horn and O’Regan 2015). Understanding how these developments affect their surrounding neighborhoods could help developers and advocates in their quest to build more LIHTC developments in high opportunity neighborhoods.

As housing wealth continues to constitute a large portion of American household wealth it is understandable that communities are protective of their neighborhoods, and express concern that affordable housing developments in their backyards could negatively impact their home values. Concerns range from worries about the quality of physical structures relative to the local homes, management of properties once they are built, and overall site design, in addition to general concerns about the impacts of increased density, costs of municipal services and even perhaps removing an amenity, such as a park, older building or open space (Pendall 1999; Freeman and Botein, 2002; Galster et al. 2003; Ellen 2008). Diamond and McQuade (2015) analyze the largest set of LIHTC developments in high income neighborhoods, and they find some evidence of house price depreciation in high-income neighborhoods with LIHTC projects. While negative, these effects are rather small (they estimate that an average LIHTC construction in a neighborhood with median income above $54,000 leads to housing price declines of approximately 2.5% within 0.1 miles of the development site) and that these effects are largely experienced by majority white communities. More diverse neighborhoods of comparable incomes do not experience any price declines. Given that Diamond and McQuade (2015) have no data on the incomes and race of the tenants living in these LIHTC developments, it is thus currently not possible to identify whether these impacts are being driven by the physical structure in the neighborhood or the composition of households moving into the neighborhood. That these negative impacts on property values only occur in majority white communities does provide some suggestive evidence that these impacts are driven more by the diversity of tenants coming into the neighborhood than by the physical structure of the development. More research which includes information on LIHTC tenants is needed to separately identify the impacts of the structure from that of the changing neighborhood demographics. Interestingly, three far smaller studies focus on higher income communities that are predominantly white. Two studies find no property value impacts (Albright, Derickson, and Massey 2013; Green, Malpezzi and Seah 2002) while another finds small, negative impacts more consistent with Diamond and McQuade (Funderburg and MacDonald 2010). Finally, Woo, Joh and Van Zandt (2015) find no impacts in Cleveland’s high opportunity neighborhoods, but evidence of declines in those of Charlotte. However, for the four project Charlotte sample the findings were only significant at the 10% level.

Diamond and McQuade (2015) are also able to examine how household composition changes around LIHTC developments, using their matched HMDA dataset. They find evidence that LIHTC projects may contribute to increasing income diversity in high-opportunity neighborhoods, when considering incomes of incoming homebuyers. This is consistent with another nationwide study that finds the poor are no

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22 http://eyeonhousing.org/2013/09/housing-remains-a-key-component-of-household-wealth/

23 The ‘Moderating Neighborhood Effects’ section includes a discussion of recent evidence on the role of tenant mix, the quality of project designs and materials, and ongoing property management.
more likely to move in than non-poor households subsequent to the tax credit development, again providing evidence that LIHTC developments may contribute to income diversity (Freeman 2003).

Another fear often expressed by higher income communities when faced with building affordable units is the potential increase in crime. Residents worry that these developments will attract criminals from other neighborhoods, that tenants themselves (particularly if they are low-income) may commit crimes in the surrounding neighborhood, or that simply the influx of so many new residents will lead to breakdowns in community organization and represent more potential victims, creating a space for increased crime in the community (Dear 1992; Freeman and Botein 2002; Galster et al. 2002; Lens 2013a). The larger body of research examining relationships between crime and public housing suggests that the concentration of disadvantage of large developments, rather than their physical design, likely contributes to small crime increases in surrounding neighborhoods (Lens 2013a).

Drawing once again from Diamond and McQuade (2015), LIHTC projects do not appear to increase crime in high income areas.\(^{24}\) If anything, their evidence suggests that these developments may provide small increases in safety, perhaps driven by the increased density associated with these developments leading to more eyes on the street. A far smaller study, which focused on one project in a suburban, majority-white, middle class community also failed to find that the completion of a LIHTC development affected crime in the surrounding municipality (Albright, Dericksen, and Massey 2013). The authors attribute property management’s formal control mechanisms (e.g. tenant selection and monitoring, on-site staff, and engagement with local police) for promoting safety. Through their qualitative investigation, they also identify a variety of informal mechanisms of social control by the residents, themselves, that promote safety onsite and in the community - such as actively sharing information and monitoring people’s behavior in and around the complex.

Finally, residents in high-opportunity neighborhoods also worry that the introduction of affordable housing could overcrowd schools and that the low-income students from LIHTC units will directly (and immediately) reduce school performance because of their relatively lower student performance. Unfortunately, we have very little evidence with which to assess such effects. Based on one quality study, such concerns may be unfounded (Di and Murdoch 2013). In fact, Di and Murdoch (2013) find that the addition of new LIHTC units in higher income areas has a positive impact on performance ratings of nearby elementary schools and no effect on passing rates for 5th grade standardized tests.

**LIHTC developments in moderate poverty neighborhoods**

Thus far, we have considered the two neighborhood types that are most often the focus of spillover discussions – areas characterized by high levels of distress, needing revitalization, and those with high levels of opportunity. Beyond these extremes, neighborhoods with a more complicated mix of strengths and assets, or in a delicate period of flux, may also host LIHTC projects. In fact, just over one quarter of LIHTC developments (26.8 percent) are located in moderate poverty neighborhoods, or neighborhoods with poverty rates between 10 and 20 percent (Ellen, Horn and O’Regan 2015). Moderate-poverty neighborhoods can be seen as particularly susceptible to even small negative spillovers from LIHTC

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\(^{24}\) Diamond and McQuade’s (2015) investigation of crime is based on 127 LIHTC sites in the cities of Chicago, San Francisco, and San Diego and crime statistics over 7 to 15 year periods. Because of the small sample size they cut the data only by high/low income and high/low minority tracts.
projects if these neighborhoods are already close to a ‘tipping point’ of greater distress. Research on neighborhood change suggests that thresholds matter – that is, once a neighborhood surpasses a certain poverty level (for example), the negative effects of this condition are significantly greater (Galster, Quercia and Cortes 2000). Some researchers have been sensitive to these potential ‘tipping points’ and have separately examined spillovers in moderate poverty neighborhoods.

Once again, beginning with impacts on property values, building affordable housing in moderate poverty neighborhoods could destabilize these areas as perhaps these additional low-rent units could contribute to the recreation of concentrations of poverty within the neighborhood (as argued by Galster et al.2003 and Ellen 2008). Alternatively, if the neighborhood is beginning a decline, and the new LIHTC development is viewed as an increased investment in the neighborhood, it could spur other re-investments. Thus, in moderate poverty neighborhoods, the expected impacts on property values are more ambiguous (Freeman and Botein 2002).

Only three studies that we examined separately look at impacts on property values in moderate poverty neighborhoods. Diamond and McQuade (2015) find essentially no property value impacts in moderate-poverty neighborhoods, while one other very small study finds either no effects or a slight reduction in appreciation rates (Funderburg and MacDonald 2010). A mixed understanding of LIHTC impacts in moderate poverty neighborhoods also emerges from Woo, Joh, and Van Zandt’s examination in Charlotte and Cleveland (2015). While LIHTC projects have a modest, negative impact on prices in Charlotte’s moderate neighborhoods, these negative affects appear mitigated by increasing project size. A one-unit increase in the number of LIHTC units at the time of sale increases housing prices by 0.1 percent. By contrast, LIHTC projects have no price effects on Cleveland’s moderate poverty neighborhoods. Thus it appears that LIHTC developments are neither driving neighborhoods to ‘tip’ towards lower income nor sparking sufficient improvements to transition into them into higher income neighborhoods.

Another way that this ‘tipping’ could be viewed is through a change in the composition of tenants within these moderate income neighborhoods. Diamond and McQuade (2015), again relying on HMDA data, find evidence of increases in the incomes of new homebuyers, providing some suggestive evidence that these developments are viewed as positive amenities within these communities. Ellen, O’Regan and Voicu (2009), on the other hand, examine impacts of LIHTC developments on poverty rates in moderate poverty neighborhoods, and find some evidence that poverty rates increase slightly in moderate poverty neighborhoods if these neighborhoods are already close to a ‘tipping point’ of greater distress. Research on neighborhood change suggests that thresholds matter – that is, once a neighborhood surpasses a certain poverty level (for example), the negative effects of this condition are significantly greater (Galster, Quercia and Cortes 2000). Some researchers have been sensitive to these potential ‘tipping points’ and have separately examined spillovers in moderate poverty neighborhoods.

25 When applying the definition of ‘moderate poverty’ neighborhoods enlisted here (10-29% poverty rate), the tipping point literature suggests a subset of neighborhoods are vulnerable to even small increases in concentrated poverty resulting from affordable housing production. That is, those that are above the 20% poverty rate threshold could see meaningful increases in negative outcomes such as crime and school leaving as a result of marginal increases in poverty rates. ‘Moderate poverty’ neighborhoods at the lower end of the poverty rate distribution (say, 10-20%) could experience meaningful declines in neighborhood housing values with each marginal increase in poverty rate. As discussed above, the recent literature does not suggest consistent or sizable increases in neighborhood poverty rates from production of LIHTC projects.

26 “In the medium-quality market, the expected impacts are more ambiguous. If we assume subsidized housing is built at the medium-quality level, the impact of the physical attributes should be neutral. The perceived impacts of the occupants themselves are likely to be negative, particularly if the occupants are of a different race, unless the occupants are deemed to be part of the deserving poor, such as the elders. In such a case, where, for example, an elderly development is built in a middle-niche market, there should be no effect on property values that could be attributed specifically to subsidized housing.” (362)
neighborhoods. Interpreting these findings together, a LIHTC development in a moderate poverty neighborhood appears to be viewed as an amenity, while at the same time bringing in additional low income households to the neighborhood.

Finally, these neighborhood changes could also lead to increases in crime, through similar pathways as in high opportunity neighborhoods and could also destabilize schools. To date we have not found any empirical evidence on these relationships. Given the large share of LIHTC developments built in moderate poverty neighborhoods and the wide literature on ‘tipping points’ it is critical that we learn more about how LIHTC developments are shaping moderate poverty neighborhoods.

Neighborhood impacts from a broader range of housing programs

The analysis of evidence from other housing programs reinforces the neighborhood patterns observed among LIHTC-focused studies (see Figure 2). Based on six studies of property value impacts in distressed neighborhoods, subsidized development affords improvements – paralleling findings from LIHTC projects. Four studies find consistently positive impacts (Schill et al. 2002; Ellen and Voicu 2006; Schwartz et al. 2006; and Edmiston 2012). Koshinsky (2009) finds no impacts in distressed neighborhoods, overall. However, the evidence presented does point to property value gains in areas with high concentrations of African American and Asian residents that are near single-family zones, and poor areas with high concentrations of Latino residents. The one exception in this group of studies is Santiago, Galster, and Tatian’s (2001) finding of public housing projects slowing property value growth. However, this effect is found in the subset of particularly vulnerable neighborhoods characterized, in part, by relatively high concentrations of publicly subsidized housing. It is possible that the concentration of subsidized projects, rather than an individual project, is driving this pattern (as our review of evidence on scale and concentration suggests, see ‘Moderating Neighborhood Effects’). Finally, one study (Lens 2013b) fails to find that subsidized projects affect crime in distressed neighborhoods.

The two studies examining impacts in high opportunity neighborhoods find evidence of property value gains (Santiago, Galster and Tatian 2001; Koshinsky 2009). On the surface, this counters the findings of small declines from LIHTC projects in high opportunity neighborhoods. However, Koshinsky’s (2009) positive finding is driven by sales in poor, lower-value-housing pockets in these more affluent areas and Santiago, Galster, and Tatian (2001) similarly note the siting of projects in the more distressed pockets of Denver neighborhoods. Furthermore, these authors suggest that the high maintenance standards in the Denver housing program may have contributed to these positive impacts. Considering impacts on crime, Lens (2013b) examines a host of housing programs in New York City and finds that subsidized projects have no impact on crime in high opportunity neighborhoods.

The pattern of spillovers in moderate poverty neighborhoods again parallels that found from studies of LIHTC projects. Subsidized projects are not resulting in dramatic changes to property values – either for the better or worse – in these neighborhoods (Koshinsky 2009). Two studies of crime, again find no effects in moderate poverty neighborhoods (Santiago, Galster and Petit 2003 and Lens 2013b).

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27 As noted above, due to sample size issues, Diamond and McQuade (2015) do not examine crime effects in moderate poverty areas.
**Figure 2. Recent Evidence of Spillovers from non-LIHTC Housing, by Context**

<table>
<thead>
<tr>
<th>Property Values</th>
<th>Crime</th>
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<tbody>
<tr>
<td>Santiago, Galster &amp; Tatian, 2001</td>
<td>+</td>
</tr>
<tr>
<td>Koshinsky, 2009</td>
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<tr>
<td>Santiago, Galster &amp; Tatian, 2001</td>
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<tr>
<td>Schill et al, 2002</td>
<td>+</td>
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<tr>
<td>Ellen &amp; Voicu, 2006</td>
<td>+</td>
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<tr>
<td>Schwartz et al, 2006</td>
<td>+</td>
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<tr>
<td>Koshinsky, 2009</td>
<td>{ /}+^c</td>
</tr>
<tr>
<td>Edmiston, 2012</td>
<td>+</td>
</tr>
<tr>
<td>Low-Income/Distressed</td>
<td></td>
</tr>
<tr>
<td>Santiago, Galster, &amp; Petit (2003)</td>
<td>{}</td>
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<tr>
<td>Koshinsky, 2009</td>
<td>{}</td>
</tr>
<tr>
<td>Lens, 2013b</td>
<td>{}</td>
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</tbody>
</table>

*Note: These studies examine new construction and rehabilitation projects funded through local and federal sources, including both public and private properties. Several of these studies include LIHTC-funded projects within their sample, but LIHTC-specific impacts are not reported. Edmiston (2012) examines community development corporation housing investments. No further clarification on funding sources. Ellen and Voicu (2006) examine rehabilitation projects funded using a combination of city and federal dollars, and donated city-owned land and properties. Koshinsky (2009) examines projects for: (1) housing for seniors and residents physically disabled; (2) housing with supportive services; (3) scattered-site public housing; and (4) apartments without services for tenants with very low and low incomes. They are funded by local, state, and federal sources. Lens (2013b) examines new construction and rehabilitation projects funded with diverse sources, including city capital funds, LIHTC’s, federal rent subsidies, and city-owned land. Santiago, Galster, and Tatian (2001) and Santiago, Galster, and Petit (2003) examine scattered-site public housing created through rehabilitation. Schill et al. (2002) and Schwartz et al. (2006) examine city supported development of rental or owner-occupied housing through provision of city-owned buildings together with low-interest financing.

^a This positive finding is driven by sales in poor, lower-value-housing pockets in these more affluent areas.

^b Among low- and moderate value neighborhoods, overall, scattered-site public housing has positive impacts at distances of 1001-2,000 feet, but not at closer distances. The authors conclude that the more substantial negative externalities localized around public housing sites counteract the otherwise positive externalities they afford. In the subset of particularly vulnerable neighborhoods (characterized by residents that are more than 20% black, high poverty rates, high rates of out-of-wedlock birth, and relatively high concentrations of publicly subsidized housing) public housing projects slow property value growth.

^c Overall, there are no impacts in distressed neighborhoods. However there is some evidence of positive impacts amidst particular neighborhood settings – that is, areas with high concentrations African American and Asian residents that are near single-family zones, and poor areas with high concentrations of Latino residents.

**Moderating neighborhood impacts – What we know about project- and site features**

On the whole, we find that LIHTC spillover research in the past 15 years offers hope to those distressed communities seeking neighborhood revitalization. It should also somewhat temper anxieties within higher opportunity communities about hosting LIHTC projects. Of equal importance, however, is the conclusion that the size and nature of neighborhood effects is highly contingent on the project itself. Policy makers, developers, and communities need further guidance on how to maximize hoped for neighborhood improvements and minimize the risks of investing their ever-limited affordable housing resources. This section summarizes what recent research on various types of subsidized rental housing developments – reveals about moderating neighborhood spillovers. We first present those features for which rich and consistent evidence supports solid conclusions, followed by outstanding questions supported by thinner and mixed-method evidence to date.
Eliminating blight. We expect that replacing an eyesore in the community with new housing would be immediately capitalized into higher prices. Additional neighborhood investments may also be sparked when ground is broken and the market sees real progress on a tenuous project. Research on spillovers from subsidized production in the past 15 years suggests that these positive ‘removal effects’ exist and can be considerable (Santiago, Galster, and Tatian 2001; Schwartz et al. 2006, Ellen et al. 2007). For example, in New York City, replacing dilapidated housing and vacant land with city- and federally-assisted projects afforded immediate property value improvements up to 12 percentage points (Schwartz et al. 2006; Ellen et al. 2007).

Scale and Concentration Effects. It is easy to grasp the distinct feel of several larger-scale multifamily developments clustered in your neighborhood as compared to that of one triple decker. Bigger subsidized projects and at higher concentrations make a greater relative contribution to the resident population and housing stock. The majority of recent studies examining project size support this conclusion that bigger is better, when it comes to neighborhood revitalization (Ellen and Voicu 2006; Schwartz, Ellen, Voicu, and Schill 2006; Ellen et al. 2007; Lee 2008; Ellen, O’Regan, and Voicu 2009; Deng 2011b). That is, where effects are positive, larger projects result in bigger property value impacts. In the case of scattered-site public housing, where developments are small, increasing the number of projects within the neighborhood also increases property values (Santiago, Galster, and Tatian 2001).

Despite this consensus, the recent research does not support unfettered development. There is strong evidence that the ‘bang’ from each additional unit in a project diminishes with size (Schwartz, et al. 2006; Ellen et al. 2007; Ellen, O’Regan, and Voicu 2009; Deng 2011b). Projects can also be ‘too big.’ While, nationwide, LIHTC projects average 77 units, evidence from New York City provides some sense of a project ‘too big’ for positive spillovers. According to Ellen et al. (2007), positive property value impacts from the ‘average-sized’ LIHTC project in New York City (276 units) become risks when reaching more than 770 units. For Sec. 202 projects in New York City, with an average size of 121 units, Ellen et al. (2007) also find that ‘large’ projects (of at least, 220 units) actually hamper nearby property values. Certainly, scale effects are highly contingent on the surrounding density and scale of development – with New York City well at the upper end of the distribution. Finally, some research suggests avoiding ‘overconcentrating’ subsidized units in the neighborhood (and, therefore, potentially low-income tenants) lest expected property value gains disappear or become declines (Santiago, Galster, and Tatian 2001; Lee 2008; Koschinsky 2009).

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28 One prior literature review, including earlier studies, also came to this conclusion (Ellen 2008).
29 Among the several federal programs examined, Ellen at al. (2007) find that in the case of Section 8 New Construction/Substantial Rehab program projects in New York City, increasing the scale in distressed neighborhoods results in larger property value declines. However, this finding is distinct from the overall pattern of increasing gains from larger projects and results from a program no longer producing meaningful numbers of new projects.
30 The average LIHTC project (including preservation projects) for units placed in service over the period from 1995-2013 is 77 units and only 24% of projects were over 100 units (http://www.huduser.gov/portal/datasets/lihtc/tables9513.pdf).
31 Moreover, the average LIHTC project (including preservation projects) for units placed in service over the period from 1995-2013 is 77 units and only 24% of projects were over 100 units (http://www.huduser.gov/portal/datasets/lihtc/tables9513.pdf).
Construction Type. Two recent studies examine both types of development and find property value impacts to be largely the same (Ellen and Voicu 2006), but one suggests such comparability is limited to projects that are at least 50 units in size (Deng 2011b). LIHTC impacts on school quality also appear insensitive to construction type (Di and Murdoch 2013).

Unfortunately, research has less to offer about which mode is better. Empirical tests of impact heterogeneity from construction mode are limited by the absence of systematic information about other relevant project features. For example, the scope of rehabilitation can range from moderate to more substantial or gut rehab. A moderate rehabilitation project upgrading elevators and internal heating and cooling systems, for example, is unlikely to signal to the market that the neighborhood is being upgraded. The same can be said for investments that preserve existing subsidized housing with little structural improvements. In such cases, expected property value gains are minimal. Also, the nature of what is being replaced could mitigate new construction impacts, as suggested above. Newly constructed units replacing a valued neighborhood amenity, for example, are unlikely to yield area wide improvements akin to a comparable project replacing a trash-strewn empty lot. Finally, for both new construction and rehabilitation modes, the quality of the final product likely also matters. Completing only modest upgrades to the façade of an existing building - which fail to meet the quality standard of surrounding buildings - is unlikely to yield neighborhood gains.

Along with these stronger conclusions about ‘what matters’, the field still has a number of outstanding questions that are of equal importance to local decision makers. We highlight these questions here to encourage more research in these under-explored areas.

Sector Effects. Both nonprofit and for-profit developers are active in advancing affordable housing goals. And many – but not all - communities benefit from a rich real estate development field including both types of developers. While a long-standing debate wrestles over the preferred sector for catalyzing neighborhood effects, the available evidence remains thin for informing the selection of project sponsors on the ground. Theory suggests that information asymmetries with respect to housing quality may render nonprofit developers a safer bet when pursuing the creation and maintenance of neighborhood benefits. However, some research suggests that the organizational capacity of nonprofit developers can be limited (Schwartz et al. 1996). This raises questions about nonprofits’ ability to generate neighborhood spillovers, particularly for larger or more complicated projects. In the body of recent studies, we have very little evidence of how the sector of developer matters for property value impacts. Of two studies, both find that nonprofit and for-profit sectors can produce projects with positive property value impacts (Ellen and Voicu 2006; Deng 2011b). However, further analyses suggest that organizational capacity, rather than sector in particular, may be contributing to differences in the relative size of impacts (Ellen and Voicu 2006; Deng 2011b). The distinctly lasting impacts of nonprofit projects, over time, suggests that organizational mission may be a discrete, critical dimension (Ellen and Voicu 2006).

Quality of Designs and Materials. Subsidized housing that is a lesser quality than that in the surrounding neighborhood is unlikely to be valued by the community and will not signal to the market that the neighborhood is upgrading. Therefore, a discrepancy in quality between a subsidized project and surrounding properties – meaning relative quality beyond absolute quality — may temper hoped-for

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32 Deng (2011b) also finds that housing authorities can have positive impacts.
property value gains. Quality discrepancies may also retard property value growth or spark moves by neighboring property owners. Along with the quality of materials and construction, how a subsidized project’s design fits into the surrounding neighborhood likely also affects neighborhood spillovers. At the extreme, a high-rise building disconnected from pedestrian traffic threatens the character of a neighborhood of brick, two-story row houses – potentially compromising property values. Design features may also be conducive to onsite crime through the social disorganization they promote, as suggested by critics of ‘tower-in-the-park’ varieties of subsidized housing. In turn, crime may spill over into nearby areas. Such concerns about a standard of quality and design compatibility for subsidized projects have been raised in earlier literature reviews (Freeman and Botein 2002; Nguye, 2005) and are supported by early studies that explicitly examine quality (for example, Cummings and Landis 1993 and Lyons and Loveridge 1993), but are largely lacking from the most recent analyses.

Only one recent study sought to rigorously assess the impact of project design. Funderburg and MacDonald (2010) estimate the average valuation impacts of 11 LIHTC projects on neighboring single family homes in Polk City, Iowa. Their analyses separately consider three project types defined by target population and project design. To disentangle tenant characteristics and project design, the authors use data from a systematic visual analysis of project structure and setting. While they do not find a clear relationship between either project design or neighborhood compatibility and property value impacts, they offer suggestive evidence that design matters. The slight slowdown of property value appreciation among single family homes near clustered LIHTC housing developments is negligible when that housing is high quality and mixed-income.

Property Management. After a development is complete, ongoing property management is critical to how it is perceived by nearby residents and property owners – be it agnostically, as a nuisance or an asset. Conscientious maintenance of the building and grounds, and responsiveness to community concerns, may sustain the physical upgrades to the building and site made possible through the project’s development, while preventing a neighborhood ‘eyesore’. Of equal importance is property management’s tenant screening and monitoring efforts, as well as ongoing communication with nearby residents and property owners. Some early spillover studies offered descriptive evidence that management does matter in these ways (Goetz et al. 1996; Briggs et al. 1999) and subsequent literature reviews have called for more systematic investigation of how (Freeman and Botein in 2002, Khadduri in 2004, and Ellen in 2008).

Recent studies provide little evidence of management’s role in neighborhood spillovers – perhaps, because of the absence of systematic data. However, a number of researchers have enlisted qualitative methods to shed light on their impact estimates, focusing on management (Santiago, Galster, and Tatian 2001; Koschinsky 2009; Albright, Derickson and Massey 2013). Findings from Albright, Derickson and Massey’s (2013) qualitative investigation suggest management’s attention to landscaping can prevent

33 Albright, Dericksen, and Massey (2013) include a careful qualitative component to explain the benign effects they observe of a large LIHTC development in a suburban, majority-white, middle class neighborhood. Their multiple control group time series quasi-experiment found no detrimental effects on three primary outcomes: crime rates, property values, and property taxes. While their analyses cannot assess the discrete role of project design, they conclude design matters. The project was physically and esthetically similar to that in surrounding subdivisions through the use of cul-de-sac designs, spatial layouts, and materials that were roughly similar to those in nearby homes.
negative externalities. In the case of the Ethel Lawrence Homes (in Mt. Laurel, NJ), the authors argue that the key management responsibility is to model and maintain landscaping similar to that of nearby properties. They cite a number of other management tactics such as thorough applicant screening and management staff’s close involvement in the daily lives of residents – both cultivating high levels of formal and informal social control among residents. Attending to safety concerns, management operates a Community Watch and maintains close contact with local police. Santiago, Galster, and Tatian (2001) also enlist qualitative methods to understand their somewhat counter-intuitive finding of home price gains surrounding dispersed public housing units in Denver. They conclude that the Denver Housing Authority’s effective ongoing maintenance practices, and their strict screening and monitoring of tenants are critical to the ultimate success of these projects.34 Finally, in a sophisticated study of spillovers from subsidized and unsubsidized properties in Seattle, Koschinsky (2009) also turns to qualitative methods to explain the predominant property value gains observed. She highlights the importance of directly engaging with neighboring residents and property owners to mitigate negative impacts. The city’s neighborhood notification and community relations guidelines request that developers notify all neighbors within 500 feet, contact neighborhood organizations, invite residents to open houses, and keep open communication. More high quality quantitative analyses are needed to refute or support these claims.

Tenant Mix. Following Freeman and Botein’s (2002) argument, the primary mechanism for spillovers is through neighboring residents’ and property owners’ perception of in-movers. Where in-movers look different – in terms of income and race/ethnicity – and are viewed with suspicion, we would expect negative impacts. Differences may be less important, however, where incoming tenants are viewed as the deserving poor – such as the elderly or the disabled.35 Obviously, just how much ‘difference’ exists is largely a function of the host neighborhood’s racial and income composition and values, with resulting neighborhood changes likely being non-linear. Less stable neighborhoods on the threshold of racial tipping or class succession may be more susceptible to the negative effects of lower-income in-movers than high-income areas (Galster, Cutsinger, and Malega 2008). Moreover, tenant behaviors and neighbors’ perceptions of them are also affected by property management after initial lease-up of the subsidized project, as discussed above.

In order to understand the mechanisms through which LIHTC developments create small, negative spillovers in higher income neighborhoods – as discussed above – it is critical to disentangle the impacts of the development itself from those driven by these perceptions households have of new tenants.

34 Denver Housing Authority’s management of its dispersed public housing program demonstrates that proactive and hands on management is not exclusive to the private sector. In fact, housing authorities may be compelled by the distinctly negative public perception of public housing to double down on management. Unfortunately, the limited resources public housing agencies have long faced for maintenance has fed, in part, to the sweepingly negative perception of public housing that exists today (Goetz 2013).

Unfortunately, an empirical understanding is sorely lacking. Several recent studies consider tenant mix when estimating property value impacts, but none of them include data on actual tenants. Overall, it appears that tenant mix may matter (Ellen et al. 2007; Koschinsky 2009; Funderburg and MacDonald 2010). For example, Ellen et al. (2007) find contrasting impacts between elderly projects and those serving families. These analyses largely rely on assumptions based on the population focus of funding programs (e.g. family, elderly). Therefore, observed differences in impacts across tenant populations could be the result of project features (e.g. such as project design or ongoing maintenance) or neighborhood context. Now that data on LIHTC tenants is being collected, and will soon be shared more broadly with the research community, it will soon be possible to answer this critical question.

Conclusions and implications

The overarching goal of this study is to support local decision makers investing affordable housing production resources in their communities. State agents and local officials are often enlisting these scarce resources for the dual goals of strengthening distressed communities and increasing access to higher opportunity neighborhoods, as well as other local objectives. Information on spillovers can inform their investment decisions over time and across communities (and relative to other housing strategies). Meanwhile, recent legal and regulatory decisions further encourage their use of concrete evidence to make these decisions.

We leverage recent, high quality research on neighborhood effects of LIHTC production, synthesizing evidence according to neighborhood context. Based on this analysis we conclude that context matters. Producing LIHTC housing in distressed neighborhoods positively impacts the surrounding neighborhood – in terms of modest property value gains and increased safety. By contrast, higher opportunity neighborhoods experience small property value reductions, and no impacts on crime. Unfortunately, more evidence from moderate poverty neighborhoods is needed. Nevertheless, our accounting for context begins to reconcile what appears as conflicting findings among even methodologically rigorous spillover studies. Our findings also bolster conclusions about the importance of context in earlier literature reviews (Freeman and Botein 2002; Galster 2004; Nguyen 2005; Ellen 2008). We have the advantage of a larger set of sophisticated studies – many attentive to context - and we enlist methods for systematically comparing evidence across neighborhood settings.

36 Jill Khadduri (2004) stresses the importance of examining occupancy patterns in LIHTC projects to understand their neighborhood impacts because of the range of tenant incomes possible in the LIHTC program. While tax credit developments can be home to many households with incomes close to the upper end of the tax credit limit, other projects may be occupied entirely by the poor – particularly where they are rehabilitating preexisting subsidized housing projects.

37 Two studies consider how tenant characteristics moderate neighborhood population changes, in terms of income composition and racial transition (Freeman 2003; Freeman and Rohe 2000). While also hampered by the same data constraints, these studies suggest that tenant characteristics are of only limited relevance to individual neighborhood dynamics. That is, the nature of racial transition is largely the same whether a subsidized project focuses on families or the elderly (Freeman and Rohe 2000). Tenant racial characteristics do not play any role in the class-selective outmigration from neighborhoods with affordable housing developments (Freeman 2003).

38 An outstanding facet of neighborhood context is the level of urbanicity – more research is needed on relative affects across suburban and urban settings.
We also sought to offer information relevant to the many decisions about site- and project-features facing developers and likely affecting neighborhood spillovers. Our biggest conclusion from this review and synthesis of evidence on impact heterogeneity is that big questions remain. We do not know the relative importance of various project features – such as tenant mix, the quality of designs and materials, and ongoing property management – for affording and sustaining neighborhood gains or stemming declines.

The scarcity of systematic data on project features is one of the field’s largest constraints. For example, the extant research has had little to offer about the importance of tenant mix because scholars lack data on tenant populations. HUD’s compilation and public distribution of data on LIHTC tenants will move this body of work forward tremendously. However, systematic data on other features are still lacking. Technology presents some attractive possibilities for large-scale measures on the quality of project designs, building materials, and even compatibility with the surrounding stock, at a minimum. Imagine enlisting the power of the Mechanical Turk to categorize all study projects based on images from Google Street View (https://www.mturk.com/mturk/welcome). Disentangling the effects of various project features, and their importance in different settings, is immediately relevant to two of HUD’s foci in developing its Research Roadmap (that is, ‘Expanding Housing Affordability’ and ‘Place-Based Strategies’, http://www.huduser.gov/forums/research_roadmap.html). The agency is wise to prioritize and invest in the data infrastructure to make this research possible.

These findings have important policy implications. First, federal and local policymakers should continue to enlist LIHTC towards the dual goals of promoting opportunity through production in low-poverty neighborhoods and the revitalization of distressed areas (while serving other objectives of low-income housing for program participants). Second, developers and advocates should use these findings to overcome NIMBY concerns in high opportunity neighborhoods. Third, while our evidence supports these dual goals, our review also suggests that achieving them means ‘doing LIHTC right’ with a careful eye on expectations for each development as well as project siting, size, design, and ongoing property management.

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39 See McClure (2015) for a wider discussion of the importance of data for future research on assisted housing for the poor.
40 The Housing and Economic Recovery Act of 2008 requires state agencies administering the LIHTC program to submit demographic and economic data on LIHTC tenants to HUD. HUD’s Office of Policy Development and Research is working with states to develop a process for compiling, transmitting, and releasing the data (Hollar 2014).
Appendix A – Literature search methods

We enlisted multiple methods to identify the breadth of available evidence. First, our search of academic literature relied on the Web of Science citation database for both key word (e.g. housing, LIHTC, subsidized, affordable, neighborhood, revitalization, impact, and spillover) and cited reference searches of journal articles and books published from 1990 onward. Second, we conducted a search of the grey literature – that is reports, conference proceedings, white papers and practice briefs. We identified multiple sources of grey literature within the practice and research communities. This included professional associations (e.g. National Council of State Housing Agencies and National Association of Housing and Redevelopment Officials), research institutes and practitioner organizations (e.g. the National Housing Institute, the National Housing Coalition, Local Initiative Support Corporation, and the Affordable Housing Resource Center), think tanks (e.g. Abt Associates, Urban Institute, MDRC) and government departments such as HUD’s Office of Policy Development and Research and the Federal Reserve Bank. We relied primarily on key word searches in Google and reviews of organization websites. Together, this broad search strategy during the Spring of 2015 identified 174 documents, with 105 most relevant to our study goals. During the fall of 2015 an additional study was published that met our review criteria and was included in the review.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Purpose of Research</th>
<th>Setting</th>
<th>Time Frame</th>
<th>Sample Size</th>
<th>Methods</th>
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<tr>
<td>Albright, Derisickson, &amp; Massey</td>
<td>2013</td>
<td>To examine whether the development of the Ethel Lawrence Homes (ELH) lead to increased crime, decreased property values, and increased taxes in Mount Laurel, NJ.</td>
<td>Mount Laurel, NJ. A suburban, majority-white, middle-class community.</td>
<td>Early 2000’s: Phase I (2000); Phase II (2004).</td>
<td>1 project</td>
<td>A mixed-method study, enlisting a multiple time series control group. Difference-in-difference methods compare changes in crime rates, property values, and property taxes before and after ELH, in Mount Laurel, to changes in trends in similar nearby townships (N=3) that do not contain comparable affordable housing developments. Qualitative interviews with residents and officials examine social processes and management practices contributing to municipal outcomes.</td>
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<td>Baum-Snow &amp; Marion</td>
<td>2009</td>
<td>To examine the impacts of low-income housing developments on the neighborhoods in which they are built in terms of property values and neighborhood composition.</td>
<td>National sample of census block groups in metropolitan areas.</td>
<td>Late 1990’s: Projects placed in service by or before 1999 for which credits were allocated 1994 or later.</td>
<td>~4,436 projects</td>
<td>Regression discontinuity analysis (quasi-experimental approach) that exploits rules governing the assignment of tax credits to projects in QCTs. Census group level analyses examine LIHTC units built within a 1 km ring around the census block group. The number of block groups within the 1 km ring that are inside a QCT is used as an instrument for the number of LIHTC units.</td>
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<td>Deng</td>
<td>2011a</td>
<td>To determine whether features of the LIHTC program have made a difference in program outcomes, particularly with regard to their impacts on the surrounding neighborhoods.</td>
<td>Miami-Dade County, FL. Including diverse neighborhoods in terms of race/ethnicity, wealth, and urbanicity.</td>
<td>1990's: Projects completed between 1989-1999.</td>
<td>73 projects</td>
<td>Mixed-method. Quantitative methods compare neighborhood changes across multiple indicators (1990-2000) in each LIHTC neighborhood (census block) to the median of changes among the non-LIHTC block groups in the same sub-cluster of neighborhoods (identified using cluster analysis). Qualitative case study of LIHTC block groups with the most positive changes (N=3) and LIHTC block groups with most negative changes (N=4) including document analysis, interviews, direct observation.</td>
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<td>Deng</td>
<td>2011b</td>
<td>To determine the effect of the development of LIHTC projects on surrounding property values and whether effects vary over time and space, across various project features (i.e. developer owner status, size, construction type, target population, TOD), and neighborhood context.</td>
<td>Santa Clara County, CA. Including central city San Jose and suburbs with a mix of upper income, middle-class, and working-class neighborhoods.</td>
<td>1990's: Projects completed between 1987-2000.</td>
<td>51 projects</td>
<td>Difference-in-difference hedonic estimation, examining price differences between properties near to assisted housing (&lt;1,000 feet) in comparison to properties outside, but within the same census tract.</td>
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<td>Di &amp; Murdoch</td>
<td>2013</td>
<td>To examine whether opening LIHTC units negatively affects neighborhood school scores and performance, including whether effects vary with neighborhood income level and by construction type (rehab v. new construction).</td>
<td>The state of Texas, all elementary schools.</td>
<td>2000's: Projects placed in service 2003-2008. Study period: 2003-04 - 2008-09 academic years</td>
<td>666 LIHTC projects (and associated 4,000+ elementary schools)</td>
<td>Ordered probit model estimating the direction, magnitude and statistical significance of impacts of nearby LIHTC units on campus-level standardized test scores and performance ratings, controlling for school fixed effects and pre-existing trends in school performance.</td>
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<td>Diamond &amp; McQuade</td>
<td>2015</td>
<td>To determine the costs and benefits of LIHTC projects on surrounding areas in terms of home prices, crime rates, and racial and income diversity of home buyers, and how impacts vary across demographically different neighborhoods.</td>
<td>Counties from across the United States with LIHTC projects, and sufficient transactions and home sales data back to 1996. Study counties are concentrated in metropolitan areas of New England, Florida, California, Illinois, North Carolina, Tennessee, the Southwest, and Pacific Northwest.</td>
<td>1990's and 2000's: Projects put in service between 1987 and 2012.</td>
<td>Around 7,098 LIHTC projects located in 15 states and an associated 16 million home sales.</td>
<td>Nonparametrically estimate the impact of LIHTC development on nearby house prices by developing a new difference-in-differences style estimator which exploits smoothness in housing prices across geographic distance and time. The equilibrium price function and observed homebuyer choices are used to estimate homebuyer preferences for proximity to LIHTC properties and thereby quantify the costs and benefits of affordable housing in different types of neighborhoods defined by median income and share of minority population.</td>
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<tr>
<td>Ellen, O'Regan &amp; Voicu</td>
<td>2009</td>
<td>To investigate the impact of LIHTC units on segregation by examining: (1) LIHTC siting (beyond scope); (2) association between LIHTC construction and increased neighborhood poverty concentration; (3) whether LIHTC construction increases property values in surrounding high poverty neighborhoods and how effects vary with neighborhood income level. Finally, (4) whether the completion of a greater number of LIHTC units in a metropolitan area is associated with higher levels of poverty segregation.</td>
<td>(2) Poverty concentration effects examined in all U.S. metropolitan areas. (3) Property value effects examined in NY, NY. (4) Poverty segregation effects examined in 258 U.S. Metropolitan areas.</td>
<td>1990’s: (2) Poverty concentration effects of LIHTC units built in the 1990’s. (3) Property value effects of LIHTC projects built 1987-2003. (4) Poverty segregation effects of LIHTC projects built 1987-1999.</td>
<td>42,077 LIHTC units (and 501,898 property sales).</td>
<td>(2) Census tract-level, reduced form regression measuring the relationship between the number of LIHTC units built during the 1990s and the change in poverty rate in the 1990s, with controls for tract demographic and housing characteristics and MSA fixed effects. (3) Difference-in-difference specification of hedonic regression models comparing sale prices of properties within 1000' of LIHTC developments to those of comparable properties beyond 1000' but within the census tract. (4) A series of MSA-level regression models measuring the association between per capita completion of LIHTC units and poverty segregation.</td>
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<td>Ellen, Schwartz, Voicu &amp; Schill</td>
<td>2007</td>
<td>To determine the effect of the development of federally subsidized rental housing on surrounding property values and whether effects vary by federal housing program, over time and project scale.</td>
<td>New York City, NY. Dense and largely distressed neighborhoods.</td>
<td>1980's and 1990's: Projects completed between 1977-2000.</td>
<td>~77,000 units.</td>
<td>Difference-in-difference hedonic estimation, examining price differences between properties near to assisted units (&lt;2,000 feet) in comparison to properties outside this ring but within the same census tract.</td>
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<td>Freedman &amp; McGavock</td>
<td>2015</td>
<td>To examine the impacts of rental housing development subsidized by the federal LIHTC on local housing construction, poverty concentration, and neighborhood inequality.</td>
<td>National sample of block groups that are within a designated QCT or within a census tract disqualified from QCT status due to HUD population cap.</td>
<td>Mid-Late 2000's: Placed in service 2004-2009.</td>
<td>~8,500 units.</td>
<td>Instrumental variable regression that takes advantage of the quasi-experimental variation in the location of new LIHTC investments generated by a HUD cap limiting the total population in a metropolitan area that can live in a QCT.</td>
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<tr>
<td>Freedman and Owens</td>
<td>2011</td>
<td>To examine the effect of LIHTC activity in a county to the crime in that county.</td>
<td>National sample of U.S. counties.</td>
<td>Projects developed between 2000 and 2007.</td>
<td>Total of 29,087 projects in the dataset, but the number of 'new' projects used in identification is not reported.</td>
<td>Instrumental variable regression that exploits a discontinuity in the funding mechanism for LIHTC (developers receive larger subsidies in census tracts just above a set of poverty thresholds). Specifically, they use the share of the county's population living in Qualified Census Tracts (QCT) as an instrument for LIHTC development. Again, this is a quasi-experimental approach.</td>
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<tr>
<td>Freeman</td>
<td>2003</td>
<td>To examine how individual migration choices are affected by the presence of an affordable housing development, and the subsequent effects on neighborhood poverty concentration.</td>
<td>All metropolitan area census tracts nationwide that are home to Panel Study of Income Dynamics (PSID) households heads.</td>
<td>Late 1980's/Early 1990's: &quot;New&quot; projects completed between 1986 and 1993. Resident moves between 1986-1993.</td>
<td>19,159 projects (including all federally funded affordable housing developments).</td>
<td>Logistic regression models of individual inter-neighborhood mobility estimating the increased likelihood of non-poor/poor household outmigration/in-migration from assisted neighborhoods, as compared to comparable un-assisted neighborhoods (defined using a propensity model).</td>
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<td>Freeman and Rohe</td>
<td>2000</td>
<td>To examine the effect of federal, project-based housing assistance on racial transition during the 1980s.</td>
<td>National sample of census tracts located within an MSA.</td>
<td>1980's: Projects completed between 1980-1990.</td>
<td>30,345 census tracts, with 5,640 receiving federal, project-based housing assistance.</td>
<td>Pretest/post-test quasi-control group research design using propensity methods to create statistically equivalent assisted and unassisted neighborhoods. Compare the change in percent white residents for assisted and non-assisted neighborhoods across neighborhood groups defined by their probability of receiving assisted housing.</td>
</tr>
<tr>
<td>Funderburg &amp; MacDonald</td>
<td>2010</td>
<td>To estimate the valuation effects from new construction of LIHTC projects on neighboring single-family homes including whether effects vary over time and by project type (based upon target population and site design/planning).</td>
<td>Polk Count IA. Central county of Des Moines with diverse study neighborhoods, in terms of urbanicity, racial composition, wealth &amp; home values.</td>
<td>Early 2000’s: Projects completed between 2001-2004.</td>
<td>11 projects.</td>
<td>Multiple panel data regression models (ie. fixed effects and random growth models) comparing changes in assessed values between neighboring single family homes (w/in 1/2 mile) and matched control homes (using propensity score matching) that are located further away, but still within the county.</td>
</tr>
<tr>
<td>Green, Malpezzi &amp; Seah</td>
<td>2002</td>
<td>To determine whether proximity to LIHTC affects property values of single family homes.</td>
<td>Madison, WI and Milwaukee, WI. Including urban and suburban counties.</td>
<td>1990's: Unclear when projects completed, but examined property sales between 1990 and 2001.</td>
<td>Assuming 125 projects for entire study (but not clear in manuscript) and associated 5,451 property sales.</td>
<td>Repeat sales regression models measuring the effect of distance from nearest LIHTC project on price appreciation, enlisting multiple distance measures.</td>
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<tr>
<td>Woo &amp; Joh</td>
<td>2015</td>
<td>To estimate the impact of the LIHTC program on neighborhood crime rates.</td>
<td>Austin, TX</td>
<td>Mid 2000’s – Projects completed 2002 and 2007; crime incidents over the period 2000-2009.</td>
<td>20 projects and 378,681 crime incidents.</td>
<td>Adjusted interrupted time series difference-in-difference specification comparing crime rates in impact neighborhoods (within 2000’ of LIHTC developments) to those of all remaining areas of the city that are not within these impact areas. Examine all Part I crimes and conduct separate analyses for property and violent crimes.</td>
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<tr>
<td>Woo, Joh, &amp; Van Zandt</td>
<td>2015</td>
<td>To estimate the impact of the LIHTC program on property values and impact heterogeneity across local housing markets and submarkets.</td>
<td>Charlotte, NC, Cleveland, Ohio</td>
<td>Mid 1990’s to Mid 2000’s – Projects completed between 1996 and 2000.</td>
<td>75 projects in Charlotte, NC and 123 projects in Cleveland, OH</td>
<td>Adjusted interrupted time series difference-in-difference specification comparing property value levels and trends in impact neighborhoods (within 2000’ of LIHTC developments) to microneighborhoods that are outside of this ring, but within the same census tract.</td>
</tr>
</tbody>
</table>
References


O’Regan, Katherine and Keren Horn. 2013. “What can we learn about the Low-Income Housing Tax Credit Program by looking at the Tenants.” *Housing Policy Debate* 23(3): 597-613.


