Cityscape

A Journal of Policy Development and Research

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A Journal of Policy Development and Research

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Symposium

American Neighborhoods: Inclusion and Exclusion

Guest Editors: Paul Joice and Meena Bavan

Guest Editors' Introduction

Inclusion and Exclusion in American Neighborhoods

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The views expressed in this article are those of the authors and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. government.

The year 2013 saw the commemoration of a few of the most significant events in the history of the civil rights movement: the 150th anniversary of the Emancipation Proclamation and the 50th anniversary of the March on Washington, when the Reverend Martin Luther King, Jr., delivered his famous "I Have a Dream" speech. On August 28, 2013, policymakers and advocates gathered on the steps of the Lincoln Memorial in Washington, D.C., to celebrate the great progress and achievements that have been made. Supreme Court rulings in 1917 and 1948 proscribed the use of municipal ordinances and restrictive covenants to discriminate on the basis of race (*Buchanan v. Warley*; *Shelley v. Kraemer*). In 1963, President John F. Kennedy issued Executive Order 11063 to ban racial discrimination through the Federal Housing Administration (FHA) and in public housing. In the years after the March on Washington, Congress passed several landmark civil rights laws, including the Fair Housing Act of 1968, which outlawed racial discrimination in the private housing market, and the Fair Housing Amendments Act of 1988, which expanded protection to families with children and people with disabilities. Since these legal decisions and legislative acts, residential racial and ethnic discrimination and segregation have declined substantially. A U.S. Department of Housing and Urban Development (HUD)-sponsored Housing Discrimination Study in 1977 found that Black renters were frequently denied access to advertised units that were available to equally qualified Whites; by 2012, the net difference in advertised unit availability to equally qualified Black and White renters had virtually disappeared. A similar trend characterizes the for-sale market; in 2012, when equally qualified White and Black homebuyers called to make an appointment to view an advertised home for sale, they were treated equally in 95.5 percent of cases (Turner et al., 2013). Discrimination in the housing market has not disappeared entirely, but blatant discrimination has declined substantially. Furthermore, neighborhood segregation—the extent to which minority individuals tend to live near others of the same race—peaked around 1970 and has declined 27 percent since that time (Cutler, Glaeser, and Vigdor, 1999; Litschwartz, 2013).

Lingering Disparities

One particularly visible sign of progress on civil rights was a man standing on the speaker's podium at the Lincoln Memorial on the 50th anniversary of the March on Washington: Barack Obama, the first African-American President of the United States. President Obama, like many of the speakers that day, emphasized that, although much progress has been made on civil rights, many important racial and ethnic disparities remain. As of July 2014, the unemployment rate for Black adults was 11.0 percent compared with only 5.2 percent for White adults and 6.1 percent overall (BLS, 2014). Among Black children born into the lowest quintile of the income distribution, 54 percent remained in the bottom quintile as adults, compared with 31 percent for White children. Among Black children born in the middle quintile, 45 percent fell back to the lowest quintile as adults, compared with only 16 percent for White children (Isaacs, 2008).

In the housing world, similar disparities remain. The same national study of housing discrimination against racial and ethnic minorities that showed significant reductions in some forms of blatant discrimination indicates that housing discrimination continues, simply in more subtle forms. Minority renters and homebuyers are likely to be told about and shown fewer housing options, constraining their choices. For example, the study found that in about one-half of in-person rental tests, one tester was told about more available units than the other tester, with White renters significantly more likely to be favored than minority renters. In addition, in about one-third of in-person rental visits, one tester was shown more units than the other tester, again with White renters significantly more likely to be favored than minority renters. Similar trends were found in the sales market for Black and Asian homebuyers and, in some cases, minority homebuyers were also steered toward neighborhoods with a lower percentage of White households (Turner at al., 2013).

In addition to ongoing housing discrimination, minorities are also affected by broader patterns of segregation. Exhibit 1 presents the racial and ethnic composition of the United States in the 2010 census. Examining racial and ethnic composition at the census block-group level makes it clear that most neighborhoods are nowhere near as diverse as the country. Although only 63.7 percent of the U.S. population is White, non-Hispanic, the median block group is 76.1 percent White, non-Hispanic. Nationwide, 57,968 block groups (26.6 percent) have a White, non-Hispanic population equal to or greater than 90 percent. Looking at minority population, the block-group level figures are similarly extreme. Although 12.2 percent of the U.S. population is Black, non-Hispanic, one-half of block groups in the country have a Black, non-Hispanic population of 3 percent or less. Nearly one-third of block groups (67,169 or 30.8 percent) have a Black, non-Hispanic population of less than 1 percent. Most Black households live in a block group that is at least 42.9 percent Black. Hispanic households may be slightly more integrated than Black households but, in most block groups, they are still underrepresented; the population of the median block group is 5.7 percent Hispanic, and 21,825 block groups (10 percent) have a Hispanic population of less than 1 percent. Most Hispanic households live in a block group in which the population is at least 44.1 percent Hispanic.

Exhibit 1

Racial and Ethnic Composition of the United States (excluding Puerto Rico), 2010

	Population	Percent
Total	308,745,538	
Not Hispanic or Latino	258,267,944	83.7
White alone	196,817,552	63.7
Black or African-American alone	37,685,848	12.2
American Indian or Alaska Native alone	2,247,098	0.7
Asian alone	14,465,124	4.7
Native Hawaiian or other Pacific Islander alone	481,576	0.2
Some other race alone	604,265	0.2
Two or more races	5,966,481	1.9
Hispanic or Latino	50,477,594	16.3
White alone	26,735,713	8.7
Black or African-American alone	1,243,471	0.4
American Indian or Alaska native alone	685,150	0.2
Asian alone	209,128	0.1
Native Hawaiian or other Pacific Islander alone	58,437	0.0
Some other race alone	18,503,103	6.0
Two or more races	3,042,592	1.0

Source: 2010 census

The numbers and percentages in exhibit 1 confirm the experience many of us have in our daily lives; although neighborhood diversity has increased since 1970, our cities are still full of homogenous neighborhoods. It is important to ask why this pattern persists and what its implications are. Segregation historically was promoted by government action such as racially restrictive covenants and ordinances and by redlining by the FHA. Although the most blatantly exclusionary policies have been overturned, some continuing policies, such as large-lot zoning and limits on multifamily housing, can have the effect of restricting housing opportunities for minority populations. The most prevalent and stubborn forces preventing integrated neighborhoods, however, may be the economic and social realities that minority households face. High-opportunity neighborhoods with low crime and poverty, good schools, and other public amenities have high housing costs that put them out of reach to low-income minority families; and when these families do manage to find an opportunity, perhaps through well-located assisted housing, they find it difficult to fit in with their new neighbors. The goal of this symposium is to examine the forces that limit inclusion in American neighborhoods.

Neighborhood Effects

Some may wonder why any of this matters. If the goal is to help all Americans, regardless of income or race, access opportunity, why not focus on the people themselves rather than the neighborhoods in which live? Why focus specifically on the racial composition of the neighborhood? These questions are complicated and have inspired a significant body of research during the past few decades; many researchers have concluded that neighborhood conditions affect a wide range of individual outcomes (Ellen and Turner, 1997; Jencks and Mayer, 1990).

Two watershed moments in the study of race in American neighborhoods were the 1976 Supreme Court decision in *Hills* v. *Gautreaux* and William Julius Wilson's 1987 book *The Truly Disadvantaged*. The *Gautreaux* decision launched a massive housing mobility project with the explicit goal of reducing segregation in Chicago public housing. Research on the program showed broad-based improvements in education outcomes for children whose families relocated to lower poverty and less segregated neighborhoods (Rubinowitz and Rosenbaum, 2000). The Gautreaux demonstration was a vigorous effort to break the cycle of poverty that gripped poor, minority households— a phenomenon that Wilson's book put in the spotlight.

In 1994, HUD launched Moving to Opportunity (MTO), a demonstration program meant to rigorously test the findings from Gautreaux. A total of 4,604 low-income households in Baltimore, Boston, Chicago, Los Angeles, and New York participated in the program and were randomly assigned to one of three groups: (1) the treatment group, which received a housing choice voucher to use in a low-poverty neighborhood, plus relocation support; (2) the Section 8 group, which received an unrestricted voucher and no special support; and (3) a control group, which remained on the waiting list for assistance. The findings from the final impact evaluation indicate that households in the treatment group did experience significant improvements in health—both physical and mental. The treatment group did not have significantly better outcomes, however, on measures of economic self-sufficiency or education (Sanbonmatsu et al., 2011). In the context of this symposium, one notable caveat is that MTO generated only modest changes in the racial composition of census tracts where treatment households lived (Ludwig, 2012).

The MTO findings have led to a vigorous debate about the importance of neighborhood effects (Clampet-Lundquist and Massey, 2008; Edin, DeLuca, and Owens, 2012; Ludwig, 2012; Ludwig et al., 2008; Turner et al., 2011).[1] In his book, *Great American City: Chicago and the Enduring Neighborhood Effect*, Robert Sampson (2012) addresses the state of the neighborhood effects literature post-MTO. He offers a series of neighborhood facts: (1) considerable social inequity exists between neighborhoods, especially in terms of socioeconomic and racial diversity; (2) concentrated economic disadvantage often coincides with racial and ethnic concentrations; (3) public safety and health issues are bundled at the neighborhood level and can be predicted by other neighborhood characteristics; and (4) positive indicators, such as affluence and computer literacy, are also clustered geographically (Sampson, 2012). Although questions remain about the mechanisms by which neighborhood conditions affect individual outcomes, these four simple facts make it clear that neighborhoods matter and that policymakers and researchers should be concerned about inclusion and exclusion at the neighborhood level.

In stark contrast with the exclusionary government policies of the early and middle 20th century, today HUD has a strategic goal specifically to "reduce housing discrimination, affirmatively further fair housing (AFFH) through HUD programs, and promote diverse, inclusive communities." A variety of HUD programs and policies seek to achieve this goal.

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[1] For an extensive discussion of MTO, see the *Cityscape* symposium, Moving to Opportunity (Volume 14, Number 2), at http://www.huduser.org/portal/periodicals/cityscpe/vol14num2/index.html.

One of HUD's signature programs in the Obama Administration is Choice Neighborhoods, which seeks to reinvest in distressed communities, often with a high concentration of minority households. This place-based strategy seeks to increase diversity and opportunity by improving neighborhoods that are currently occupied by low-income individuals. The interagency Promise Zones and Neighborhood Revitalization Initiative seek to align programs from other agencies with Choice Neighborhoods to bring about comprehensive neighborhood revitalization.

Although HUD's Housing Discrimination Studies have shown declines in blatant forms of racial housing discrimination, more subtle forms of discrimination persist that limit housing choices for minority and low-income (assisted) households. Education and enforcement efforts conducted by local fair housing organizations that are funded through HUD's Fair Housing Initiatives Program and Fair Housing Assistance Program are critical to continued enforcement to identify systemic patterns of discrimination and to identify policies and practices that may have a disparate effect on minority households.

In addition, HUD is currently developing enhanced regulations related to the AFFH requirement of Section 808(e)(5) of the Fair Housing Act. This rule would encourage community development partners—in particular, state and local governments and public housing authorities—to proactively work to develop more inclusive communities, acknowledging that opportunities for success are influenced by a variety of neighborhood factors beyond housing. Local government policies to affirmatively further fair housing include enhanced mobility programs accompanied by housing counseling and supportive services, enacting small area fair market rents to allow for HUD payment standards to be higher in high-opportunity neighborhoods, and implementing inclusionary zoning ordinances to provide affordable housing along with new market-rate development.

Finally, recent research suggests that it is not enough to simply ensure that people of different backgrounds are able to live in proximity (as summarized by Joseph, 2013). To achieve more integrated mixed-income communities, it is essential to also create opportunities for community engagement—including planning that involves all members of a community and developing public spaces that can promote social capital and interaction across diverse income and ethnic groups.

Symposium Articles

This symposium explores recent research on several topics related to ongoing segregation and efforts to develop sustainable and inclusive mixed-race, mixed-income communities. All articles were peer reviewed through a double-blind process.

Another recent *Cityscape* symposium, Mixed Messages on Mixed Income (Volume 15, Number 2), explored recent research related to mixed-income neighborhoods. A natural overlap exists between research on mixed-income and mixed-race populations, because in American society the correlation between income and race is persistent. As noted previously, American neighborhoods historically have been—and continue to be—highly segregated by race and by income. Thus, as housing and community development practitioners seek to develop mixed-income neighborhoods, they are also usually dealing with complicated issues around race and class.

In Mixed Messages on Mixed Income, contributors discussed many challenges related to the development of mixed-income neighborhoods. Levy, McDade, and Bertumen (2013) present the basic elements of a mixed-income housing strategy and discuss the theory of how such neighborhoods are expected to benefit low-income households. Several articles in that issue present case studies of particular mixed-income developments, programs, and strategies (Basolo, 2013; Keller et al., 2013; Kleinhans and van Ham, 2013; Oakley, Ruel, and Reid, 2103; Skobba and Goetz, 2013). A consistent finding of these and other studies—best summarized by Joseph's (2013) synthesis of income-mixing policies—is that mixed-income strategies often fall short of the ambitious goals theorized to result. As a result, a major question that remains relates to the extent to which individuals of different income levels actually interact and create opportunities for mutually beneficial relationships. Two of the articles in this symposium explore that question through the lens of race and class.

Laura M. Tach's article, "Diversity, Inequality, and Microsegregation: Dynamics of Inclusion and Exclusion in a Racially and Economically Diverse Community," includes finely grained qualitative analysis of the South End, an economically, racially, and culturally diverse neighborhood in Boston. Tach directly takes on the question of how individuals of varied backgrounds actually interact in a neighborhood that appears on the surface to be very diverse. She finds that race- and class-based patterns of inclusion and exclusion emerge from the daily routines of residents, which create a phenomenon she describes as "microsegregation."

The second article in the symposium—"Building Ties: The Social Networks of Affordable-Housing Residents," by Elyzabeth Gaumer, Ahuva Jacobowitz, and Jeanne Brooks-Gunn—includes a discussion of social networks in a mixed-income environment. The authors present novel analytic work on the nature and extent of the social networks of low- and moderate-income households living in a new affordable housing development in New York City. They find that residents interact less frequently with building neighbors, report fewer close ties in the building, and do not perceive building neighbors to be essential resources compared with networks of individuals who are more similar to residents who live in the same neighborhood but not the same building. They find that building residents do serve as an informational resource to residents, however.

The third article in the symposium—"Why and Where Do Homeowners Associations Form?" by Ron Cheung and Rachel Meltzer—takes a different approach to the issue of inclusion and exclusion. Homeowners associations (HOAs) have proliferated in recent decades, particularly in high-growth regions like Florida. The authors examine spatial and temporal variation in the formation of HOAs in Florida. This analysis is related to inclusion and exclusion in two important ways. First, the authors find that race/ethnicity and income are important predictors of where HOAs form. To the extent that HOAs represent an innovative form of local governance, minorities and low-income individuals may be missing out on more effective provision of public services. Second, HOAs essentially fragment the services traditionally performed by local government, creating an environment in which public services are provided unevenly even within a single jurisdiction. Just as suburbanization and "White flight" left behind distressed inner cities, HOAs may produce an uneven playing field, excluding nonresidents from the opportunities available to residents.

In the final article in the symposium, "Race, Segregation, and Choice: Race and Ethnicity in Choice Neighborhoods Initiative Applicant Neighborhoods, 2010–2012," Matthew F. Gebhardt examines the Choice Neighborhoods Initiative (Choice), which forms the centerpiece of HUD's involvement in the interagency Neighborhood Revitalization Initiative. Choice seeks to build on the tradition of HOPE VI, revitalizing distressed public and assisted housing and transforming neighborhoods of concentrated poverty into neighborhoods of opportunity. Gebhardt analyzes the characteristics of the neighborhoods that have received funding through Choice planning grants, with a specific focus on the sociodemographic and socioeconomic characteristics of the neighborhoods. He finds that although racial desegregation is not an explicit goal of the program, Choice Planning Grant-applicant neighborhoods are in fact highly segregated by race and ethnicity, and this segregation is linked to disparities in educational attainment, unemployment, and income. The intention of the program is, of course, to transform these neighborhoods into less segregated, high-opportunity neighborhoods, and it will be important to monitor progress toward this goal in the coming years.

The articles in this symposium find many challenges that continue to hinder the development of inclusive neighborhoods. This symposium should be of particular interest to local practitioners working to develop more diverse, inclusive neighborhoods and to help low-income individuals access and benefit from neighborhoods of opportunity.

Acknowledgments

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Diversity, Inequality, and Microsegregation: Dynamics of Inclusion and Exclusion in a Racially and Economically Diverse Community

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Abstract

Racial and economic diversity are popular policy and planning goals because they can promote inclusion, offering residents of different races and economic positions access to similar resources and opportunities to interact. Diverse communities may also be sites for deliberate and inadvertent exclusion, however, through interpersonal and organizational conflict, discrimination, and relative deprivation. This article examines the dimensions of inclusion and exclusion in a stable racially and economically diverse urban neighborhood—the South End in Boston, Massachusetts—that includes a mix of races and cultures and million-dollar homes alongside subsidized housing. Drawing on secondary data and indepth interviews with 30 residents and key stakeholders, I describe residents' perceptions of diversity, daily routines, and use of public neighborhood spaces and show how race- and class-based patterns of inclusion and exclusion emerge from these routines. Despite its diverse array of resources and opportunities, the neighborhood remains socially and organizationally differentiated through patterns of microsegregation—homogenous pockets of interaction and organization within the larger neighborhood.

Introduction

Diverse urban communities are exceptions to widespread and longstanding patterns of racial and economic segregation in the United States (Jargowsky, 1996; Massey and Denton, 1993). Despite the historical persistence of segregation and its resulting spatial inequalities, racially and economically diverse communities do exist and some are even stable fixtures of the urban landscape (Ellen, 2000; Maly, 2008; Nyden et al., 1998). Although many academics, policy-makers, and planners espouse diversity as a desirable alternative to segregation, diversity poses its own unique challenges when residents have different preferences and unequal power to realize those preferences. This article examines what we can learn from stably diverse urban communities about promoting inclusion and reducing exclusion.

Background

The desire to promote racial and economic integration stems in part from the adverse consequences of the alternative—segregation. Segregation by race and income reduces access to high-quality housing, institutions, and services for poor and minority residents, which reproduces and exacerbates racial and economic inequalities (Acevedo-Garcia and Osypuk, 2008; Brooks-Gunn, Duncan, and Aber, 1993; Massey and Denton, 1993; Oliver and Shapiro, 1997; Pattillo-McCoy, 1999). Integration has the potential to reduce such inequalities by providing residents access to similar resources and amenities and by offering opportunities to interact (Joseph, Chaskin, and Webber, 2007). These potential benefits may not be realized in all integrated communities, however, and integration may even present new challenges that can undermine personal well-being and long-term community sustainability and desirability (Chaskin, Khare, and Joseph, 2012; McCormick, Joseph, and Chaskin, 2012; Pattillo, 2007; Putnam, 2007). The extent to which integration brings about desired benefits hinges on whether it results in *social seams* (public neighborhood spaces as settings for interaction), high-quality amenities and resources that serve diverse groups, strong social organization to realize community goals, and diverse social networks that bridge differences (Chaskin and Joseph, 2011, 2010; Tach, Pendall, and Derian, 2014).

Social Seams

Public neighborhood spaces—such as parks, street fronts, retail and service establishments, schools, community recreation centers, and libraries—can serve as social seams, or places where different social groups can come together through the shared use of institutions and resources (Jacobs, 1961; Nyden et al., 1998). These settings are desirable features of a community because they provide settings in which cross-group interaction, and even engagement, can occur. They give residents reasons to come together during the routine activities of daily living and provide venues to realize shared needs and interests.

Social seams in diverse communities must accommodate the needs and interests of different social groups, however, so conflict and contention may arise concerning the types of goods and services provided at social seams or about divergent behavioral expectations (Chaskin and Joseph, 2013). In addition, the mere presence of such amenities and institutions does not necessarily translate into equal use if less advantaged residents are deliberately or inadvertently excluded from them (Chapple and Jacobus, 2009). Freeman (2006) found evidence for these dynamics in his analysis of low-income residents' views of their gentrifying neighborhoods in New York City. Many of the residents Freeman interviewed appreciated the new retail investment, particularly new supermarkets and drug stores, that accompanied the influx of affluent residents to their neighborhood. Residents were also quick to point out, however, that not all businesses catered to their tastes or price points, and some residents even reported resentment and feeling priced out of new businesses. The types of goods and services attracted by more advantaged residents may offer positive externalities, but certain types of businesses signal subtle (and even not so subtle) forms of exclusion as well. The challenge for diverse communities, then, is to create and sustain social seams that meet the needs of diverse resident populations; a secondary challenge is to craft social seams so that they serve as sites for meaningful positive interactions.

Social Networks and Interaction

Diverse communities often are touted for their potential to facilitate diverse social networks among residents, which can offer instrumental benefits, such as access to information and resources, and expressive benefits, such as increased tolerance or social trust. Inspired in part by William Julius Wilson's (1987) canonical account of social isolation in segregated, concentrated-poverty communities, researchers have hypothesized that increasing diversity may benefit less advantaged residents by providing access to the resources contained within the information networks of more advantaged residents (Ellen and Turner, 1997; Jencks and Mayer, 1990; Joseph, Chaskin, and Webber, 2007). Residents of segregated, high-poverty neighborhoods report lacking access to social networks that promote social mobility (Briggs, 1998; Campbell and Lee, 1992; Elliott et al., 1996; Rankin and Quane, 2000), and exposure to the weak ties of more advantaged residents could promote social mobility by increasing awareness of, and access to, employment and educational opportunities (Granovetter, 1973).

These benefits are contingent on the development of cross-race and cross-class social ties, however, and it is unclear whether propinquity alone leads to diverse networks. Empirical studies of mixed-race neighborhoods and mixed-income developments suggest that, although residents share the same physical neighborhood space, the amount of social mixing and interpersonal interaction among income and racial groups is often quite modest (Breitbart and Pader, 1995; Brophy and Smith, 1997; Buron et al., 2002; Chaskin and Joseph, 2010; Chaskin, Khare, and Joseph, 2012; Hogan, 1996; Joseph, 2008; Kleit, 2005; Pader and Breitbart, 1993; Rosenbaum et al., 1998, 1991; Tach, 2009). Residents interact more with others who are similar in terms of race, language, family composition, housing type, and

social standing (Briggs, 1997; Brophy and Smith, 1997; Kleit, 2005, 2001a, 2001b; Lee, Campbell, and Miller, 1991; Tach, 2009). This differentiation of neighborhood life has been a fixture of neighborhood case studies dating back to the 1920s. Gerald Suttles (1968) termed this differentiation "ordered segmentation"—the orderly, territorial differentiation of social groups—when he observed it in a Chicago slum neighborhood that outsiders viewed as internally homogenous. This ordered segmentation helped to produce social order and shared expectations within an area, but it also resulted in conflict when such physical and symbolic boundaries were crossed.

Even if residents of different social groups do not form social ties, their coexistence in the same neighborhood can make a difference by exposing residents to different lifestyles and behaviors. This exposure might provide material benefits for less advantaged residents from so-called positive role models among more advantaged groups (Brower, 2009; Joseph et al., 2007; Wilson, 1987). Propinquity to more advantaged groups may not be universally positive, however. It may also undermine well-being for less advantaged residents through relative deprivation; having a lower income than one's reference group may increase stress and depression and undermine physical health (Long et al., 1982; Luttmer, 2005; Parducci, 1995).

Diversity may also provide expressive benefits for residents by influencing tolerance and social trust, although the direction of this effect is ambiguous. Group threat theory posits that close contact with other groups may lead to increased competition and reduced trust (Blalock, 1967; Blumer, 1958), whereas group contact theory argues that close proximity may yield greater understanding, tolerance, and trust (Allport, 1954; Gaertner et al., 1993; Pettigrew and Tropp, 2000). Evidence has been found to support both of these theories in the context of racial outgroups (Bobo, 1999; Quillian, 1995, 1996; Taylor, 1998), and experimental settings have offered a possible reconciliation: greater tolerance and trust may result when outgroup contact is meaningful—such as by working together toward a shared goal—rather than superficial (Aronson, Bridgman, and Geffner, 1978; Cook, 1990; Slavin and Cooper, 1999).

Social Organization

Neighborhood diversity can also influence *social organization*, defined as "the ability of a community to realize the common values of its residents and maintain effective social controls" (Sampson and Groves, 1989: 777). Social organization has been operationalized as the prevalence and strength of social networks, organizational participation, and the collective supervision and social control of local problems (Sampson and Groves, 1989). Although social ties are often a necessary precondition for neighborhood social control, they are not a sufficient condition because, even if social ties are strong, they may be only weakly related to action (Pattillo-McCoy, 1999; Sampson and Raudenbush, 1999; Wilson and Taub, 2006). Proponents argue that increasing the diversity of less advantaged neighborhoods might boost

social organization (Joseph et al., 2007; Wilson, 1987), but it is also possible that diversity might undermine neighborhood social control and organization by eroding social ties because of resident turnover, heterogeneity, and mistrust (Sampson and Groves, 1989; Shaw and McKay, 1942). In addition, although social control is typically considered a positive community attribute that enhances safety and quality of life, it may also result in the increased surveillance, alienation, and harassment of less advantaged residents.

Formal social organizations—such as neighborhood associations, community nonprofit organizations, and other neighborhood-based institutions—are important venues for enacting social control and improving neighborhood quality of life. Case studies have identified two different models of formal social organization in stably diverse communities (Maly, 2008; Nyden et al., 1998). Many racially diverse neighborhoods that emerged during the post-Civil Rights era were biracial, were economically homogenous, and self-consciously attempted to foster diversity through broad neighborhood coalitions and organizations dedicated to explicit diversity goals. By contrast with these older diverse-by-design communities, more recently neighborhoods have become diverse by circumstance, the result of broad demographic and economic forces rather than explicit planning (Nyden et al., 1998). These neighborhoods take a multiethnic form, and economic diversity accompanies racial diversity. In these contexts, neighborhood organizations are segmented and differentiated, resulting in fewer social seams for cross-group interaction and few formal organizations working toward explicit diversity goals. Janowitz (1952) labeled these neighborhoods communities of limited liability, or places where resident involvement in community is voluntary, partial, and differentiated.

These compounding forms of difference, combined with the fact that neighborhood diversity was not an explicit planning goal, make unifying diverse neighborhood interests challenging. In a case study of the diverse-by-circumstance Venice community in Los Angeles, California, ethnographer Andrew Deener (2012: 1) found that diversity and exclusivity existed in "constant tension" as "competing groups struggle to control distinct collective representations through architectural styles, commercial trends, use of public spaces, symbolic commemorations, and the formation of political, religious, social service, and other types of organizations."

Nyden et al. (1998) identified common features of communities that have remained stably racially diverse despite the challenge of fostering sustainable, inclusive social dynamics in diverse communities: they had (1) well-functioning community organizations and institutional structures (some actively promoted diversity, and others were not diverse but worked to improve general quality of life); (2) substantial political and financial resources; and (3) skilled and dedicated leadership that was sensitive to group difference and willing to work across those boundaries.

The Present Study

The present study builds on prior research on neighborhood social seams, social networks, and social organization in several ways. First, it examines the dimensions of inclusion and exclusion that have emerged in the context of *stable* diversity. Although many communities remain diverse for relatively brief periods of time, the South End in Boston, Massachusetts, has remained economically diverse for several decades and racially diverse for even longer. This study also takes a multilevel approach to community social dynamics, analyzing how both individual residents and neighborhood organizations produce patterns of inclusion and exclusion in the context of diversity. Finally, this study compares what residents *say* about diversity with their actions within the community and finds that values for diversity do not always translate into inclusive use of neighborhood space. Taken together, this analysis aims to add contextual and analytical nuance to the existing literature on neighborhood diversity.

Data and Method

Racial and ethnic diversity in the South End dates back to the early 20th century, and the neighborhood has been economically diverse since the mid-20th century. I first provide a historical overview of the forces that fostered stable racial and economic diversity in the South End and then describe the data-collection procedures and characteristics of study participants.

Case Description: The South End

Close to downtown Boston and the central business district (exhibit 1), the South End was built in the 19th century to attract upper class families, with large English-style townhomes surrounding oval parks.[1] After the depression of 1873 and development of the nearby posh Back Bay neighborhood, the South End lost its appeal to the wealthy. Property values dropped, and speculators bought up the homes, turning many of them into rooming houses. The South End became a destination for new immigrants to the city. It was an economically poor but culturally vibrant community. For more than a century, it was the most diverse neighborhood in the city; in the 1940s, 36 racial and ethnic groups were represented in the area, and the neighborhood school was nicknamed the "little League of Nations," and later the "little United Nations" (King, 1981). The area also gained a negative reputation as a skid row because of its dense concentrations of rooming houses, bars, gambling, and crime. The quality of the housing stock gradually declined, driven by absentee slumlords and impoverished tenants.

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[1] See Goodman (1994), Green (1975), Kennedy (1992), Keyes (1969), King (1981), Lukas (1985), Mollenkopf (1983), Small (2004), and Whitehill (1968) for additional historical accounts of the South End.

Exhibit 1

Contextual Map of the South End in Boston, Massachusetts

Source: *http://www.bostonredevelopmentauthority.org/getattachment/5ba2b90c-eaca-4c14-b44d-c9fd0ab489e4/*

By the time urban renewal came to Boston in the 1950s, the South End was a prime target. In fact, it became the largest urban renewal project in the country. The renewal program aimed to redevelop the area so that it would attract higher income residents, widening the city's tax base and promoting private investment in the neighboring business districts. When planning for renewal began, social service organizations, low-income residents, and housing advocates mobilized to demand that affordable housing be constructed in the South End. Many of these protests were ultimately successful, resulting in a range of affordable housing options, and some of the nonprofit organizations later became major housing developers in the area.

The struggle for affordable housing laid the foundation for the neighborhood's present economic diversity. After urban renewal, the South End experienced large-scale gentrification and skyrocketing real estate prices. The area did not become solely high income, however, but maintained an economically diverse resident population because of the wide range of affordable housing options in the neighborhood—public housing projects, affordable developments, and mixed-income buildings. As exhibit 2 shows, the income distribution of the South End has remained quite diverse since 1990, with a stable and substantial presence of very low-income households despite a growing share of affluent households. In 2010, 15 percent of households had incomes of less than $10,000, 33 percent had incomes of $10,000 to $50,000, and 20 percent of households had incomes of more than $150,000.

Exhibit 2

Selected Characteristics of South End Residents, 1990–2010

Characteristic	Percent[a]		
	1990	2000	2010
Racial-ethnic composition			
Non-Hispanic White	43.0	47.3	54.9
Non-Hispanic Black or African-American	26.3	20.4	13.7
Asian/Pacific Islander	14.5	13.5	13.4
Some other race	0.8	2.9	3.2
Hispanic or Latino	15.4	15.6	14.9
Households			
Family	34.6	31.3	34.5
Nonfamily	65.4	68.7	65.5
Foreign born	19.1	20.3	28.5
Language			
Only English	68.7	68.8	62.2
Spanish	12.8	13.8	12.9
Asian or Pacific Island language	13.4	8.9	12.8
Other language	5.1	8.5	12.2
Educational attainment			
Less than 12th grade, no diploma	24.5	20.1	15.0
High school graduate	14.0	15.4	12.3
Some college	18.7	15.0	14.0
Bachelor's degree	24.9	27.0	28.4
Graduate or professional degree	17.9	22.5	30.3
Household income			
Less than $10,000	8.8	12.9	14.0
$10,000–49,999	39.0	32.8	33.1
$50,000–99,999	27.6	21.5	21.6
$100,000–149,999	12.5	14.3	10.8
$150,000 or more	12.1	18.5	20.5
Poverty rate	21.3	23.0	24.0
Owner-occupied units	20.3	27.8	33.0
Median value ($)	568,705	1,080,933	808,791
Renter-occupied units	79.7	72.2	67.0
Rent of less than $300	14.8	18.3	15.9
Rent of $300–999	37.3	32.8	31.9
Rent of $1,000–1,499	47.3[b]	17.4	15.8
Rent of $1,500–1,999	—	14.0	14.0
Rent of $2,000 or more	—	17.6	21.9
Total population	22,497	22,586	28,781
Population density per square mile	29,119	29,337	38,021

[a] Unless otherwise indicated.

[b] The highest rent category in the 1990 census was more than $1,000.

Note: Values adjusted for inflation to 2012 dollars.

Sources: 1990, 2000, and 2010 decennial censuses; 2008–2012 American Community Survey 5-year data

The economic diversity of the neighborhood is reflected in its educational distribution, housing values, and rent prices. In 2010, one-fourth of the population had a high school degree or less education, one-fourth had a bachelor's degree, and another one-fourth had a graduate or professional degree. In addition, about one-third of the housing units were owner occupied, with a median value of $808,791; property values were even higher in 2000, before the housing market collapsed. By contrast, 15 percent of renters paid less than $300 per month for their apartments, and another 30 percent paid less than $1,000; given the high market-rate rents in this area, it is clear that these low rents are because of the availability of subsidized rental housing.

The South End remains racially and ethnically diverse as well. Since 1990, the population has been about 50 percent non-Hispanic White, about 15 percent Asian, and about 15 percent Hispanic. The share of African-American residents has declined since 1990, from about 25 to about 14 percent, and the share of non-Hispanic White residents has grown slightly, from about 40 to about 50 percent. Despite this shift, all four racial-ethnic groups retain a substantial presence in the community. This diversity is also reflected in the fact that more than one-fourth (28 percent) of residents were foreign born and spoke a range of languages.

Despite the fact that the South End has been stably diverse along racial and economic lines for quite some time, continued gentrification has resulted in an increasingly bifurcated distribution of resident incomes in the neighborhood, with economic inequalities overlapping with racial differences. For example, among the White population, nearly three-fourths had at least a bachelor's degree and more than one-third had a graduate or professional degree in 2010. By contrast, more than one-half of the non-White residents in the neighborhood had a high school degree or less education. These differences are also reflected in the income distribution, with a $68,000 median household income among White residents compared with median household incomes of only $20,000 for African-American residents and $17,000 for Hispanic residents. White residents also constituted the vast majority of homeowners in the neighborhood, whereas non-White residents were nearly all renters.

Data Collection and Analysis

To understand how racial and economic diversity influenced residents' experiences in the community, I conducted indepth qualitative interviews with 30 residents, systematically observed public spaces, and interviewed key informants who held leadership positions in the community. Interview respondents were selected through a random sample of addresses. I used a proprietary marketing database to generate an address roster covering every street in the neighborhood. I randomly sampled 50 addresses from that roster, anticipating a 75-percent response rate. The sample was stratified by street to ensure that I interviewed residents living in every part of the neighborhood.[2] Respondents were contacted first via a mailed letter that described the study and then, if they did not respond to the letter, by in-person recruitment.

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[2] The final sample of 30 contained residents in every section of the neighborhood that was in the original sampling frame of 50 addresses. Response rates were lower among sampled addresses in subsidized complexes than they were among addresses for nonsubsidized housing. Addresses in subsidized complexes were oversampled by a factor of two to one in the original sampling frame to account for the likely lower response rate among them.

This technique resulted in a sample that reflects the racial, economic, and spatial composition of the neighborhood. As exhibit 3 shows, respondents lived in every part of the neighborhood, including the major subsidized complexes of Castle Square, Cathedral, Methunion Manor, and Villa Victoria. Exhibit 4 shows the descriptive characteristics of the interview sample. About one-half of the respondents were non-Hispanic White, one-fourth were African-American, and one-fourth were Hispanic. The sample was divided roughly evenly among respondents who lived in households with their families and respondents who lived alone; the latter were typically elderly residents, students or young professionals, or those living in single-room occupancy buildings that offered supportive or transitional housing. The sample was also economically diverse, with household incomes spread evenly across the income distribution from very low to very high. Slightly more than one-half of the respondents owned their homes or condominiums, about one-fifth paid market-rate rents, and about one-fourth paid subsidized rents for their units.

Exhibit 3

Approximate Respondent Locations Within the South End
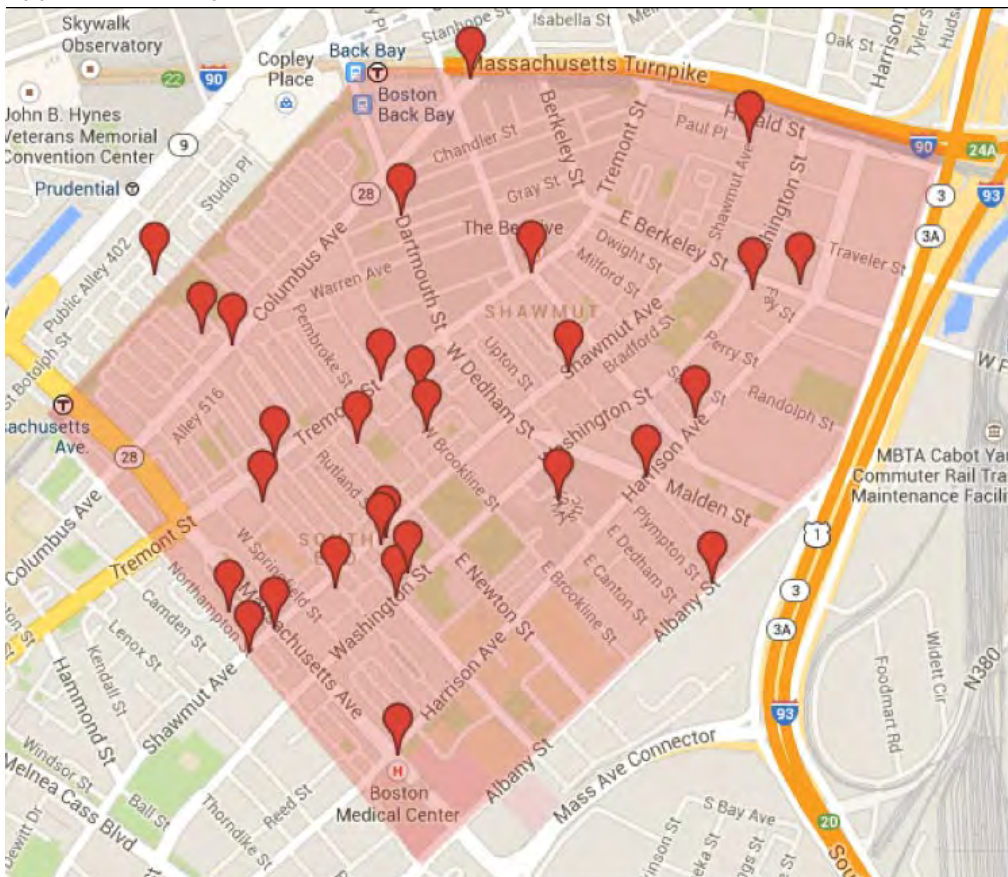
Note: Locations are approximate to protect respondent confidentiality.

Exhibit 4

Characteristics of Respondent Sample

Characteristic	Percent
Racial-ethnic composition	
Non-Hispanic White	50.0
Non-Hispanic Black or African-American	26.7
Some other race	3.3
Hispanic or Latino	20.0
Households	
Family	53.3
Nonfamily	46.7
Household income	
Less than $10,000	20.0
$10,000–49,999	23.3
$50,000–99,999	26.7
$100,000–149,999	16.7
$150,000 or more	13.3
Housing status	
Owner	53.3
Market-rate renter	20.0
Subsidized renter	26.7

Note: N = 30.

Respondents participated in semistructured interviews that lasted about 1.5 hours. They were asked a common set of open- and closed-ended questions about the following topics: (1) residential history; (2) perceptions of the neighborhood; (3) experiences with organizations; (4) interactions, trust, informal engagement, and efficacy in the neighborhood; (5) social ties inside and outside the neighborhood; (6) employment and background information; (7) delinquency, risky behavior, and victimization; and (8) comparisons with other communities. I also generated detailed maps of residents' daily routines by having them walk through where they went in a typical week and plotting the locations and routes on a map. I followed these questions with probes asking residents why they went where they did, why they did not go to other areas, and how they chose which route to take to get to a destination. I supplemented the resident interviews with 10 additional interviews with key informants in the community, including leaders of neighborhood-based associations and local nonprofit organizations, business owners, and artists. Respondents were compensated for their participation; all names and potentially identifying details presented in the following sections have been modified to preserve confidentiality.

Interviews were digitally recorded and transcribed in full using an audio transcription service. I then coded them using a set of deductively derived thematic codes based on the interview topics, which I subsequently refined inductively based on the open-ended responses provided by the respondents. I created summary matrices of responses to allow for systematic comparison of perspectives across racial and economic groups.

During my fieldwork, I also conducted a systematic observation of public neighborhood spaces, including four parks, two community centers, and a variety of neighborhood business

establishments in different parts of the neighborhood. During these observations, I noted the types of residents using the space, including their approximate age, gender, race-ethnicity, and likely social class based on visual cues such as clothing and accessories. I draw primarily on data from the qualitative resident interviews in this article, but I use data from the interviews with stakeholders and the systematic observations of public space to triangulate, supplement, and qualify the findings that emerged from resident interviews.

Results

Drawing on indepth interviews with 30 residents and key stakeholders and on systematic observation of public neighborhood spaces, I examine what residents say about the diversity of their community. I then contrast what residents say about their neighborhood with what they do—their actions within the neighborhood. Residents say that they appreciate the South End's diversity, but a closer examination of their daily routines and use of neighborhood organizations and public spaces revealed little cross-race or cross-class contact. Instead, residents engaged in *microsegregation*, or homogenous pockets of interaction and organization within the larger neighborhood.

What Residents Say: Perceptions of Diversity

Diversity is a defining feature of the South End's identity. Virtually everyone described the South End as the most diverse neighborhood in Boston or in all of New England when asked to describe the neighborhood. Although this diversity was usually mentioned first in terms of racial-ethnic diversity, residents were quick to point out the economic and lifestyle diversity of the area as well. For many residents, the racial and income diversity of the South End went hand in hand. John, a White, moderate-income city employee, had recently moved himself, his wife, and his daughter into a two-bedroom affordable condominium in a mixed-income building. As he explained it, "The building is occupied by owners: one-third low income, one-third moderate income—that's us—and one-third own it outright. That's the makeup of my building. It's an ethnic bouillabaisse mixture, okay? And we love living there." Angel, a Hispanic low-income resident who had lived in the South End since the 1970s, said, "There is a great interesting mix of people, of income ranges and races and all sorts of things. Because no one ever owned it [the South End]. It wasn't like other neighborhoods in Boston that had been Irish forever, or had been Black, or had been whatever. It was always a mix. So, people just mixed better 'cause no one owned it." Hannah, an African-American resident who grew up in the racially segregated Roxbury section of Boston before moving to the South End as an adult, remarked—

> I don't know the statistics, but it has to be one of the most racially and ethnic and economically diverse areas of Boston. I mean, I can't think of anywhere with such a mix of people. Like. . . just looking around the park, it's very diverse, and obviously, I mean, it's an obvious statement, but the luxury condos and housing projects. I can't think of anywhere that has both ends of the spectrum in such a way.

In addition to talking about racial and economic diversity, residents also mentioned a diversity of lifestyles in the neighborhood—gay residents and artists juxtaposed with young professional couples with baby carriages and with addicts and homeless individuals using the neighborhood's hospital, clinics, homeless shelters, and transitional housing. Gloria, a White professional, said, "You've got the very rich and the very poor. And you've also got the whole alternative scene. Versus there are some neighborhoods that have more minorities but not as many rich people [and are] not really alternative."

The only notable lack of diversity residents observed was the absence of a significant middle-class presence. As Harry, a White, middle-aged, moderate-income resident, commented, "A middle? No . . . there's no middle class here. I mean, I don't see—they don't fit in here. I see that you have money that can afford these buildings and the rent, okay. If you don't have the money for rent, then you maybe get one of those low-income subsidized apartments, stuff like that. But other than—anything in between, no." The perceived absence of a middle class is starker than the actual income statistics suggest (see exhibit 2), but it is clear that very rich and very poor residents are disproportionately represented in the South End. Subsidized housing constructed during urban renewal ensured that low-income households were able to remain in the face of growing property values, but middle-income residents have fewer housing options. Middle-income residents like Harry either purchased homes in the neighborhood decades ago, when prices were affordable, or they were lucky enough to find one of the few moderate-income subsidized units that exist in the neighborhood, as John did.

Many residents—rich and poor, White and non-White—mentioned that the diversity of the South End was part of what attracted them to the idea of living in the area. They were looking for the diversity of lifestyles and races and the cultural richness that comes with it. Rosa, a Peruvian woman who grew up in a predominantly Hispanic part of Boston said, "I didn't want to be somewhere where there was only like one race, you know, just Hispanics or just White, just Black. I just wanted something very diverse. . . . It's really rich in culture, and that's what I really like and I enjoy."

Respondents also perceived certain personal benefits to living in a diverse neighborhood, although the type of benefits they perceived varied along race and class lines. Few respondents of any race or income bracket mentioned upward mobility as a potential benefit of living in a diverse community, but many affluent and White respondents reported that living in the South End had made them more tolerant of others from different backgrounds. For example, Marilyn, an affluent White architect, said, "The social aspects are so beneficial and so interesting. . . . You really see the struggles—you know, it's the kinda neighborhood that you see things and, boy, makes you appreciate what you have. . . . It makes you wanna reach out to some extent also and be more understanding of people in different situations."

By contrast, the main benefit perceived by many lower income and minority respondents was a greater feeling of safety. Many had either lived or spent considerable time in more disadvantaged, segregated neighborhoods with higher rates of crime and victimization. They felt much safer in the South End, where indeed violent crime rates are lower than in many of Boston's

poorer neighborhoods. They noted that the presence of groups with more power—namely the more affluent homeowners—demanded a greater presence of and responsiveness from police and city services. For example, Regis, an African-American subsidized tenant in a mixed-income building, recalled that when men from a nearby halfway house were suspected of "shooting up" in the tool shed of the community garden next door, his neighbors "made up little cards so everybody had all the security numbers and could call 911 from their cell. We got rid of them, but it was a lot of work. . . . That never would have happened in Mattapan [the high-poverty neighborhood where he lived before]."

Residents recognized the potential benefits of diversity, but not all were as optimistic as Marilyn and Regis. Sam, a high-income resident and leader of a neighborhood association, said—

> This neighborhood, in my opinion, has great opportunities to promote people getting along from different backgrounds. You certainly see people of different colors and different sexualities and backgrounds walking around on the street. . . . So the opportunity, I think, is there. . . . So it's a question of, do they go to the same daycare center, and do their children interact? Do they shop at the same stores?

Although virtually all the respondents stated that diversity was something they valued and many felt that they benefited from that diversity in some way, Sam's questions foreshadow important issues: whether propinquity translated into actual interaction and whether those encounters resulted in experiences of inclusion or exclusion.

What Residents Do: Microsegregation Amid Diversity

Despite residents' appreciation of the South End's diversity, a closer examination of their daily lives and their use of neighborhood organizations and public spaces revealed that proximity and appreciation for diversity did not lead to much cross-race or cross-class contact. Instead, residents developed patterns of microsegregation, or homogenous pockets of interaction and organization within the larger neighborhood. Microsegregation occurred informally—through daily routines, interactions, and use of neighborhood space—and also more formally through neighborhood associations and organizations. In turn, patterns of microsegregation fueled race- and class-based perceptions of inclusion and exclusion that belied the simple, idealized characterizations of diversity residents initially espoused.

Spatial Differentiation

Although the South End covers less than 1 square mile, it has a long history of spatial differentiation, with small groupings of residential blocks containing distinct social groups and identities. Indeed, a city planning document from the 1960s noted that the South End is "a neighborhood more by definition of geography and architecture . . . than because of any inherent unity of interest" (Keyes, 1969: 52). This differentiation is still clearly visible today. For example, exhibit 5 shows the mosaic pattern of household incomes by census block groups within the South End. Block groups with median household incomes of more than $100,000 are adjacent to block groups with median incomes of less than $20,000.

Exhibit 5

Median Household Incomes of Block Groups Within the South End, 2010

Source: 2006–2010 American Community Survey 5-year data, prepared by Social Explorer (http://www.socialexplorer.com/ac152ddd94/view)

The variation in income across these small areas is directly related to the presence and type of subsidized housing. Some areas remain homogenously low income because of the siting of large subsidized housing developments, and areas that lacked any subsidized housing have become nearly completely affluent. Areas that have maintained an economically diverse resident population have done so primarily through the integration of scattered-site afford-able units and smaller nonprofit-owned affordable developments that were constructed during urban renewal alongside market-rate housing (Tach, Pendall, and Derian, 2014). The

affordable units were constructed with funding from the 221(d)(3) program, the Low-Income Housing Tax Credit (LIHTC) Program, Community Development Block Grants (CDBG), and the HOME Investment Partnerships Program.[3]

Income differences in the South End overlap with racial differences; areas with little affordable housing are disproportionately White, and areas with plentiful affordable housing are disproportionally non-White. Exhibit 6 shows a similar mosaic pattern for the non-White

Exhibit 6

Percentage Non-Hispanic White Population Block Groups Within the South End, 2010

Source: 2010 decennial census, prepared by Social Explorer (http://www.socialexplorer.com/ac152ddd94/view)

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[3] Section 221(d)(3) offered below-market interest rates for nonprofit and for-profit developers in exchange for including units affordable to low- and moderate-income families; it was replaced by the Section 236 program in 1968 and by the Section 8 New Construction and Substantial Rehabilitation Program in 1974. The LIHTC Program offers housing developers subsidies, in the form of tax credits, to finance the development of affordable housing. The CDBG program provides formula grants to state and local governments to use for a range of community development needs, including, but not limited to, affordable housing. HOME provides formula grants to states and localities to use, often in partnership with local nonprofit organizations, to fund the construction or rehabilitation of affordable housing.

share of the population, which mirrors that of low- and high-income populations in exhibit 5. Racial differentiation also appears among the affordable housing complexes. Castle Square is disproportionately Asian, owing to its close proximity to Boston's Chinatown. Villa Victoria is disproportionately Hispanic, particularly Puerto Rican, reflecting the presence of ethnic organizations involved in the provision of affordable housing. Villa Victoria was developed by Inquilinos Boricuas en Acción, or IBA, a Puerto Rican community organization that opposed urban renewal in the 1960s and gained the authority to develop and manage the 435-unit affordable housing complex as a result of those struggles. The organization continues to offer education, workforce development, and arts programming for the community. Finally, the Cathedral public housing project (recently renamed the Ruth Lillian Barkley Apartments) retains dense concentrations of African-Americans, which reflects the legacy of racial segregation in the Boston Housing Authority (Vale, 2005).

Most respondents were aware of these pockets of income and racial homogeneity within the South End. Alex, an affluent White architect who lived in the South End for more than a decade, observed that—

> If you take the South End as a whole, it's an extremely diverse place. But if you zoom in a little bit closer, it's extremely segregated. . . . If you look at it a little closer, you'll see the Blacks live here, the Puerto Ricans live here, the Asians live here, Whites live here. It's not a tremendously integrated place. I mean it is along the edges, you know, at the intersection of those . . . but by and large, you know, there's a lump of these, there's the lump of those, and there's the lump of those.

Rosa, a low-income young Hispanic resident, observed the same "lumps" in the South End—

> You know, it's mixed, but then it's not mixed. You have like certain areas with a lot of Latinos. You have certain areas that are a lot of gay[s]. One street's really quiet and then you walk down the street it's the projects and a lot of stuff go on down there. . . . Where I am, it's really nice; great restaurants, it's awesome. Then when you go on the other side of the project, it's a lot of stuff going on, you can hear shooting of guns, shooting and violence. . . . My street is really White, and you have a lot of gays that live there. And then you have down the street the projects. . . . It's like a culture shock [when] you go to different sections.

The "culture shock" Rosa described happens on a very small geographic scale, from street to street and block to block. Descriptions like hers show that the demographic and economic differentiation seen in census data reflects socially and culturally meaningful differences for residents.

Neighborhood Organizations

The spatial differentiation of social groups within the South End is accompanied by the differentiation of neighborhood organizations. Each collection of streets or squares has its own neighborhood association, as illustrated in exhibit 7. Some neighborhood associations date back to the late 19th century, and others formed during the mid-20th century when they played a key role in urban renewal planning (Keyes, 1969). The Boston Redevelopment

Exhibit 7

Boundaries of South End Neighborhood Associations
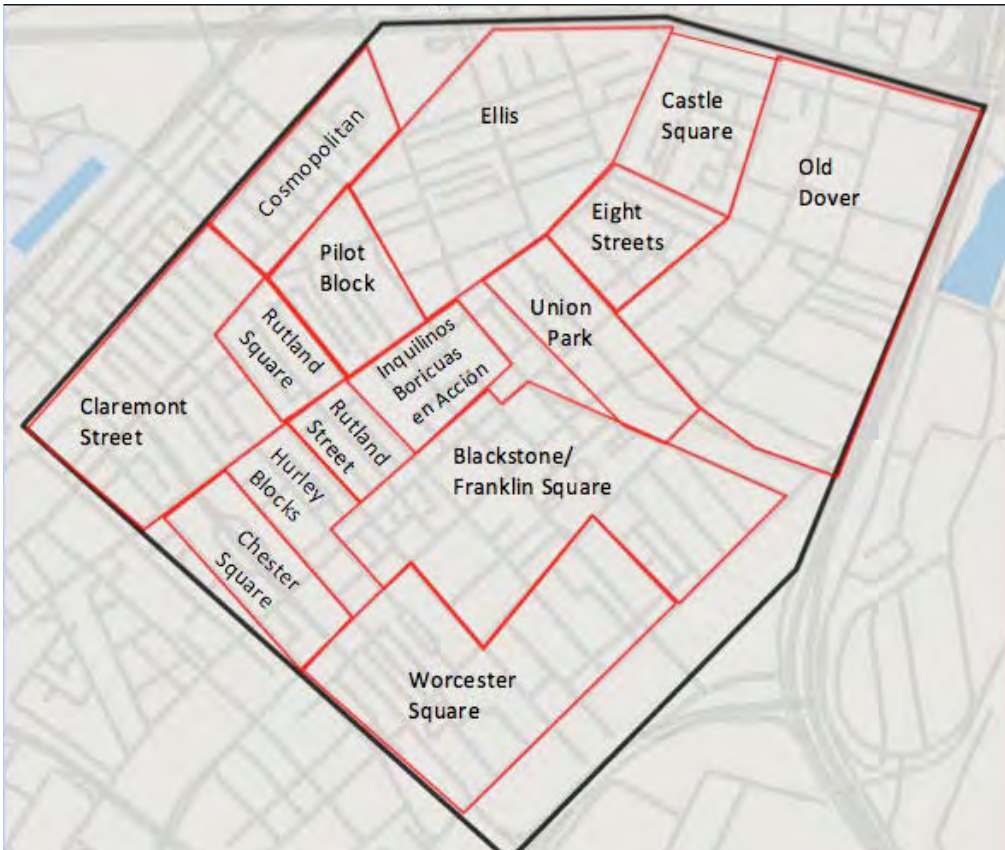
Authority (BRA) presented its initial renewal plan to each neighborhood association and later negotiated specific changes to the plan with each association (Keyes, 1969). The associational boundaries have changed little since that time.

Today, most associations still take an active role in planning within their borders by facilitating community meetings about policing, safety, sanitation, and commercial and residential permit approvals. They also organize social events. Exhibit 8 showcases the range of activities in which each neighborhood association engaged. Most associational activities reflect the distinct interests and needs of residents in their comparatively small constituencies. For example, block associations in affluent areas had wine tastings or activities focused on gardening, historic preservation, or fundraising. Block associations with dense concentrations of lower income or non-White residents—typically based in affordable housing complexes—often focused more on social services and ethnic cultural celebrations. As one respondent put it,

Exhibit 8

South End Neighborhood Associations and Activities

Neighborhood Organization	Types of Activities
Blackstone/Franklin Square Neighborhood Association	Park rejuvenation, including maintenance; conservation; historic preservation.
Castle Square Tenants Organization	Tai Chi/Kung Fu, Lotus Fair, Chinese New Year, English classes, teen center, adult technology programs, youth after-school and summer programs.
Chester Square Area Neighborhood Association	Child-oriented holiday events (Easter egg hunt, pumpkin decorating, Christmas caroling), summer barbecues, park and neighborhood cleanups, flower planting.
Claremont Neighborhood Association	Street fair; barbecue; holiday party; lobby City Hall on issues of trash, crime, and park mainte-nance.
Eight Streets Neighborhood Association	Coffee hour, tree lighting, Halloween party, park cleanup, potlucks.
Ellis South End Neighborhood Association	Greening your home, progressive dinner, patio dinner, wine tasting, neighborhood cleanup, speakeasy theater event, craft show, book group.
Inquilinos Boricuas en Acción	Chinese New Year celebration, Black History Month celebration, Puerto Rican art displays, youth education programs, adult education programs, computer training.
Old Dover Neighborhood Association	Neighborhood crime watch, friends of the park, art galleries and art walk, farmers/craft market.
Pilot Block Neighborhood Association	Wreath hanging, maintain private alley surfaces, preservation.
Rutland Square Association	Neighborhood cleanup, smoking ban, Friends of South End Library.
Worcester Square Area Neighborhood Association	Concerts in the park, holiday party, youth base-ball, fundraisers, landscaping and gardening.

Note: This list is illustrative, not exhaustive.

"All these different little neighborhood associations, they have their own little issues that they get all uptight about, like keeping their streets clean or parking or whatever. But they all have their little politics and—yeah, their little issues."

Although association activities reflected their constituents' distinct racial, economic, and cultural profiles, association leaders across the board also acknowledged that their member-ships were not as diverse as their resident populations. Younger residents, renters, and those in subsidized housing were underrepresented in the membership. As one association leader remarked, "People that show up to the meetings tend to own their house or their condo. They tend to be over 40 and more affluent and White." Another leader commented, "I see younger people in the neighborhood all the time. . . . We see African-Americans, Hispanic people, but we haven't been able to draw them into the neighborhood association somehow." An executive board member for an association containing a subsidized housing development commented

that, "We've never had any residents from [subsidized] housing come to a meeting, and we're not really sure why." This exclusion was not always deliberate, and a few associations had even tried to actively recruit a more diverse membership. One association had created two-tier fees based on income for community garden plots to increase economic diversity; another had a membership drive in which they tried to recruit lower income members by distributing flyers in subsidized housing complexes; a third created a college scholarship for first generation college students.

Consistent with stakeholders' perceptions, however, only a minority of respondents in the qualitative sample regularly participated in their neighborhood association, and participation was concentrated among higher income homeowners. Respondents across income and racial groups reported similar reasons for nonparticipation—a paucity of time and interest. As one middle-income nonparticipant put it, "If you've been at work all day, to go and spend 2 or 3 hours dealing with [neighborhood issues], it's hard."

These concerns were more common among lower income and minority renters, which largely explained their lower rates of participation. First, the perceived lack of time to attend meetings was compounded by material concerns. As one African-American mother of two explained, "If you're a single parent, you know, you're not gonna pay a babysitter to go to a meeting." Another subsidized renter noted that people in his building did not attend because "people are worrying about how they gonna pay to put food on the table or come up with rent, or worrying about daycare. I feel like a lot of it is socioeconomic. It's all about the money."

Second, few residents were interested in the mundane aspects of permitting and project approval that occurred at the typical community meeting, but they were more likely to attend if they perceived that the issue would have a direct effect on their lives. This finding was particularly salient for homeowners, who reported being more invested because they planned to be in the neighborhood for longer and because the issues affected their property values. For example, one homeowner started to attend when she was building a deck and needed her association's approval to get the deck built. Another noted that he started to attend "admittedly from a selfish point of view. When we had parking issues, I would go and raise my points and contribute to that conversation." Another renter-turned-owner reflected that—

> If you own, you have a vested interest . . . but if they're renting, they're like, well, whatever, it's not my building. I can move out next month, you know? I think that affects the participation here. The ownership thing is a big deal. . . . I've been in the South End as a renter and as an owner, and you definitely feel more connected [as an owner] and stuff like that.

Finally, beyond the lack of time and interest, a broader form of alienation dampened lower income and minority participation. As one African-American renter noted when explaining why he did not participate in his neighborhood association, "I don't relate to the moneyed gentry here. I really have nothing in common with them." Sally, a low-income Afro-Caribbean resident of a subsidized rental unit, moved to the South End 5 years ago, and she recalled thinking that—

> You know, I'd like to get involved in my neighborhood. I'll go to a meeting and, you
> know, try to meet my neighbors and get involved. And it was just really hoity-toity and
> the people who were running it were all homeowners, the people who own property
> here, their interests and concerns are like all about them and their property and their
> taxes and stuff, and they're not the same issues of the low-income people here who are,
> you know, wondering how they gonna pay their bills and if they're gonna get health
> care, and you know, struggling. It's like two different worlds, you know. It seemed like
> the neighborhood association was only representing the homeowners. And so I thought,
> 'they're not really addressing the issues in my life.' And also there were like—there were
> no Black people there. It was all White people. They didn't welcome me—nobody said
> anything to me. I left. I had a bad taste in my mouth. They were not speaking to me, they
> were like speaking to people that were just like them. You know, they weren't addressing
> the neighborhood as a whole.

Sally's account of her alienating experience reflects what I heard from many of the lower
income and minority respondents.

Despite the stark inequities in participation and the seemingly insurmountable "two worlds"
described by Sally, when neighborhood associations held events that reflected broad-based
interests and had few financial barriers, they tended to draw more diverse participation. For
example, in one association, a regular participant estimated that "a typical meeting addressing
permitting issues might be, like, 30, 35 people, whereas the Christmas party will be 100, and
even more to the block party. The wine tasting's on the smaller side, but that's, like, $30. So
that limits the crowd." Other associations also reported more diverse participation when they
held barbecues, movie nights, or musical events. One leader surmised that "educational and
social and arts things help bring people together and break down separations of different kinds."

The organization of the South End into neighborhood associations reveals how the social and
organizational differentiation of residents creates order—and segregation—amid diversity.
By and large, the neighborhood associations were, as one respondent noted, "little fiefdoms."
This condition exists in part because of the historical origins of the associations during urban
renewal, when they each negotiated with BRA individually. As one leader remarked, the
neighborhood associations were originally created as "a way to get the neighbors some control
or have a say in their neighborhood." As a result, periodic efforts over the years to form an
umbrella organization to represent all the South End to the city as a unified group have failed.
Temporary cross-associational alliances have formed periodically, however, when associa-
tions' interests become aligned in the face of external threats to the South End. For example,
several organizations banded together to protest the construction of a new Columbus Center
skyscraper, to fight the closing of the South End public library branch, or to have a say in the
reconstruction of "Mass Ave," a major artery running through several associations.

The associations serve many positive functions: they are repositories of information, maintain
development and land use regulations, serve as intermediaries with government officials,
facilitate social interaction, and improve quality of life through preservation, beautification,
and social activities. Despite these benefits, however, associational differentiation limits

cross-race and cross-class contact, and the associations are not designed to promote diversity or foster intergroup dialogue. As a result, the voices and interests of affluent homeowners were better represented than those of lower income renters, both within associations and with city officials.

Social Seams and Daily Routines

Social seams are shared spaces in neighborhoods—such as parks, grocery stores, retail establishments, neighborhood-based organizations, and schools—where residents of different social groups come together and have the opportunity to interact. Certain social seams in the South End, particularly public parks, appear to serve this function. Residents from different racial, income, and cultural groups reported using the community parks, and many commented on the diverse walks of life brought together in these public spaces. For example, Linnea, an affluent African-American mother, reflected—

> Oh, and the park is just fantastic, 'cause it's—I think it's, like, the one place in Boston where I've really seen, like, every ethnicity, every age, like, all playing together, whether it's, like, the kids playing on the playground, the Little League, basketball, tennis, the dog park—like, it's just—I think for Boston it's one of the few places where you can see just everybody together in one place, . . . when you get to the summer and you see that, and it's like, 'Oh, yeah. It's pretty diverse here after all.'

Not all green spaces served this function—some parents avoided certain playgrounds they deemed "too rough" or unsafe; others commented that some parks were gated and not accessible to them. More than any other neighborhood space, however, parks attracted diverse groups of residents who coexisted, if not interacted, in a relatively harmonious manner. Systematic observation of public parks revealed that multiple racial groups often had a significant presence, and the comingling of social classes occurred as well, although anything beyond superficial interpersonal interaction rarely occurred.

Beyond parks, however, many spaces in the South End that could serve as social seams—commercial establishments, neighborhood organizations, and schools—did not bring together diverse groups of residents. Systematic observations within a range of businesses throughout the neighborhood revealed that, with the exception of convenience stores, few businesses appeared to attract racially or socioeconomically diverse clientele. The specialized nature of different organizations and establishments, combined with residents' daily routines and decisions about how to use space, minimized cross-race and cross-class contact at these social seams. Residents of different racial and income groups used different shops in the neighborhood, with affluent residents frequenting posh designer boutiques and high-end grocery stores, attending cultural events sponsored by artists, and eating at chic restaurants and bars. In carrying out these activities, many actively avoided areas with a significant presence of subsidized housing.

For example, Gloria, a White professional, had contact only with other neighborhood residents on her street, which was lined with exclusively million-dollar brownstones, and with those residents with whom she shared particular lifestyles and tastes. Gloria said, "I love the people on my street. We all have dogs. If you have a dog, it's the place to be. Everyone

is immediately a friend if you have a dog." She also said that her "building has a garden in front of it. People will stop and look at my garden, and you stop and talk to them. So I get along with everyone." Gloria's description of the amenities and conveniences she uses in her daily routines also has a distinctly upper class tint: "There's hair salons, places for facials and massages, there's restaurants, there's gyms, there's the grocer. But then there are these small little places, too, like where you can go in and just buy some fresh cheese for the day." Because of these experiences, Gloria believes the South End "just has everything you need. You never feel like you don't fit in. There's something here for everybody, it's just so open and inviting." Gloria believes the South End is very welcoming, is open, and contains everything she needs, but her account ignores large swaths of the neighborhood—racially, economically, and geographically—because the places she frequents are within a small, affluent section of the neighborhood.

Low-income residents used a different and much smaller set of neighborhood commercial establishments and complained of few affordable shopping and dining options in the neighborhood. Many lower income residents felt priced out of their own neighborhood and turned to more affordable options in other neighborhoods. As Jorge, a long-term Hispanic resident, put it, "The retail that is around here, they don't attract diversity because it's pretty much just upscale things—I mean, upscale home furnishing stores, boutiques, specialty gift shops. I mean, they're geared to the influx of new money that's come into the South End." As a result, low-income residents of the South End did not perceive that the South End was welcoming and had everything they needed, as more affluent residents like Gloria did.

Beyond the neighborhood associations described previously, the South End has a dense concentration of nonprofit organizations offering a range of resources and services: food pantries, libraries, computer or language classes, arts and sports programs for youth, and a range of drug rehabilitation and transitional housing services. The neighborhood also has several activist nonprofit organizations with roots dating to the time of urban renewal that focus on affordable housing and has several garden, historic preservation, and ethnic cultural organizations. With a few exceptions, however, these organizations served the needs of particular interest and social groups within the neighborhood; their goal was not to promote diversity or to form coalitions across different social groups. As a result, these organizations rarely served as social seams that wove together different groups; rather, they tended to reinforce the social and geographic segmentation of interests within the neighborhood.

Even schools were segregated within the neighborhood. Few moderate- or high-income residents sent their children to the neighborhood public schools, opting instead for private, parochial, magnet, or charter schools or moving out of the neighborhood when their children reached school age. Sal, a moderate-income White father, commented—

> I'm already thinking about a new job to be able to afford to send my girls to private school. . . . From playing in that playground and living in the community, I'm not racist, but two things. A lot of those kids are rough, and I don't want my little sweet girls to be subjected to trouble every day. Two, just the fact that my girls would be of the 5 percent who are White in the school. . . . So it's not acceptable. I mean, it's a different cultural experience.

Sal combined considerations about culture, school quality, and race in his decision to opt out of the neighborhood school when his girls reached school age, and he showed how the lack of diversity in the schools was perpetuated over time despite a diverse resident population. Other residents described neighbors they knew who had left when their children reached school age. As Isaac, an affluent African-American father, remarked—

> A couple years ago I saw four White boys, and it made me want to talk about it with my wife because it shocked me . . . because most everybody leaves . . . you just don't see any White people that are teenagers. And if they are, they're going to a [magnet school]. You'll never see 'em out on the streets, they're protected. They're not just hanging, . . . in fact, you could just take a walk through the South End on a nice sunny day in the summer, walk through the whole place, and you're probably not gonna see any White teenagers anywhere.

Census data support Isaac's observations: in 2010, many fewer White families in the South End had children (32 percent) than African-American (52 percent) or Hispanic (58 percent) families.

In many ways, the South End is organizationally vibrant, and the range of organizations reflects the diversity of its resident population. Residents can find many of the amenities and resources they need within their neighborhood, although this condition is truer for affluent residents than for poorer residents. At the same time, however, the differentiation of organizational life within the South End also means that meaningful cross-race and cross-class contact is minimal and dialogue and purposeful interaction rarely occur.

Inclusion and Exclusion

The patterns of spatial and organizational differentiation described previously translated into race- and class-based experiences of inclusion and exclusion in the neighborhood. Sarah, a long-time, lower income resident who has observed the waves of gentrification, commented about affluent residents like Gloria: "There are the people who've been here a long time and then the new gentrified, the rich people, who are in their own world. They don't relate to the neighborhood. . . . It's just like two different worlds." This separateness resulted in both material and psychological experiences of exclusion for low-income residents. Rosa, a young Hispanic resident who lived in an affordable unit in a market-rate building, moved to the South End in part because of its diversity, but she observed—

> The upper class are very snobby. I'm gonna be honest, [they] are very snobby, and I feel they kinda look down on anybody that they feel doesn't have money. And they just, they're not really friendly. You can tell what certain areas they live in. Like if I go to a nail salon, you can tell all the snobby women sitting, talking. I mean you know you say good morning, but you know you can just tell. It's like they try to separate themselves but they forget the South End is a melting pot and that we're all in this community, we're all like together; they kinda seem to forget that. It's a big mixture, and I think a lot of them move in, and they have a response that, we're gonna take over and we're living here now so all you people need to move out. I hate to use this, but a lot of them want minorities to move out. Sometimes that's how I feel.

When I asked her what the higher income residents did to give her that sense, she said—

> Sometimes they're like walking around with their stroller and you know it's just like they feel well, I own this brownstone, it's my property. You know if they see you in a certain area of the neighborhood, I'm like 'why are you looking at me weird like that?' Automatically, if they saw me, they would think that I lived in Villa Victoria because that's a big population of Latinos and that's where they all live. I feel like they do stare you down, like, 'What are you doing in this neck of the woods?'

Keisha, a low-income African-American resident, said that it was not only the high prices that kept her out of the neighborhood retail shops—

> Even if I had the money, well, they're not really friendly. You can tell they're kind of snooty. You feel that vibe, that coldness permeating out of the windows, you know, so you look and you keep walking. You keep walking. So yeah, there's definitely a class distinction, and many people are really upset about that, especially those who have less. Who have less, you know, like, all these richy [sic] people moving in, taking over these brownstones, and I was born and raised here and now we can't even afford them. Yeah, so there's a lot of hostility between the two groups.

Thus, lower income and minority residents were materially excluded from commercial establishments in the neighborhood but also experienced a more subtle form of psychological exclusion, where they did not feel welcome in areas frequented by more advantaged residents.

For higher income residents, exclusion manifested itself in the form of self-segregation from lower income spaces and institutions. Many noted that they deliberately avoided the parks and streets near affordable housing complexes, which were perceived as unsafe (even if residents had no direct experiences that compromised their safety). Not all low-income residents live in these developments, but those places (along with homeless shelters and halfway houses) were particularly stigmatized. One moderate-income homeowner said, "There's a playground there [near the projects], and sometimes teenagers hang out there. . . . So I've been told it's not wise to walk down there at night. It's just safer not to, so I don't go on that street in general." About one-half of the more affluent respondents in the sample said they actively determined their daily walking routes to avoid the streets and parks immediately surrounding the subsidized developments. The residents of the affordable complexes were well aware of the stigmatized status of their developments. One resident joked that, "Their [affluent residents'] biggest concern is when things are loud or groups of Blacks get together. I joke with my guys in the street like, 'Oh, there's no more than two young Black men allowed together on the street at any one time. You can't do that.'"

Although these patterns of microsegregation were quite common, in some exceptions cross-group interaction did occur in meaningful ways. Respondents reported cursory but friendly interactions with those of different races or classes who lived in very close proximity to them—in the same building or on the same street. Such interactions were sometimes deeper and more meaningful—such as exchanges of information or children playing together—when respondents had a social identity in common with the neighbor. For example, one lower

income African-American woman reported speaking regularly with a higher income African-American neighbor, who had shared information about scholarships for summer programs for her son. A White mother reported that her children spent time in integrated playgroups at her building's playground. Such interactions were considerably less common, however, when multiple forms of social difference overlapped, as they often did, given the confluence of race, income, tenure, and family type.

Conclusions

In many ways, the South End is the model of a successful, stably diverse community. It has maintained a diverse population for many decades, in part because of organized efforts during urban renewal to create affordable housing that preserved a mixed-income population in the face of gentrification. The South End benefits from close proximity to the central business district and Boston's many cultural attractions, resulting in a tight real estate market that continues to attract affluent residents. The mixed-use design of the community provides access to plentiful neighborhood resources and amenities within walking distance. These features yield a vibrant and varied street life, rich cultural organizations, and a thriving artistic community. Diversity is a prominent part of the neighborhood's identity, and the neighborhood therefore attracts residents who say they value that diversity.

Lower income residents of the South End experience little of the large-scale social and spatial isolation that characterizes other segregated, concentrated-poverty communities in the city (Harding, 2010), and theories of diversity posit that their proximity to higher income residents may result in upward mobility, enhanced safety, and higher quality goods and services (Joseph et al., 2007). Lower income residents in the South End believed that proximity to higher income residents resulted in greater informal social control and increased institutional responsiveness from city services and police, which made them feel safer. Few believed that living there offered them material benefits in terms of upward economic mobility, however. Many affluent and White respondents also believed that proximity to diversity made them more understanding and tolerant of others.

Despite these perceived benefits, the South End also reveals the challenges involved with creating a truly integrated community. First, like many other racially and economically diverse neighborhoods, the South End is spatially, socially, and organizationally differentiated (Chaskin et al., 2012, 2010; Suttles, 1968; Tach, 2009). The South End as a whole is quite diverse but features a great deal of homogeneity within smaller pockets of the neighborhood. Residents are aware of this spatial differentiation, and they reinforce it in their daily routines via the places they frequent and the places they avoid within the neighborhood. In exceptions to this microsegregation—where mixed-income buildings have been constructed, for example—racial and income integration occurs on a much smaller scale. Thus, the type and location of affordable housing is crucially important for structuring the spatial organization of diversity within the neighborhood.

Residential differentiation has resulted in organizational differentiation as well. The South End has a rich set of neighborhood associations that give residents power and control over their

surroundings and contribute to neighborhood quality of life. Representation in associations, however, skews toward the more advantaged. The fact that these associations have small, relatively homogenous resident constituencies, rather than a broad coalition that represents the interests of the South End as a whole, means that associational and organizational life for most residents remains largely segmented by race and class, similar to diverse-by-circumstance communities but different than diverse-by-design communities (Maly, 2008; Nyden et al., 1998). This organizational segmentation does offer some advantages: it minimizes conflict, gives residents a place to feel comfortable and build social ties, and enacts their needs and preferences. On the other hand, however, it does little to foster cross-group interaction or dialogue. As a result, some of the benefits associated with integration—diverse social networks, role models or exposure to alternative lifestyles, greater understanding of group difference—are likely muted.

Not all benefits of diversity are predicated on cross-group interaction, however. It may be enough for residents to have access to a similar set of amenities and resources (Joseph et al., 2007), which, in many ways, is true in the South End. Residents have access to a broader set of amenities than they might have in a more homogenous neighborhood. Access does not necessarily entail use, however. Lower income and minority residents were priced out of many amenities in the South End and did not feel welcome in places frequented by more advantaged residents. They felt a clear sense of not belonging and relative deprivation, which resulted in resentment of affluent residents in the neighborhood. On the other side, more affluent residents did not feel welcome in places frequented by less advantaged residents, which also led them to avoid those spaces: they did not send their children to local schools, go to certain parks, or walk down particular streets near low-income housing complexes or homeless shelters.

The South End has been economically diverse for nearly 30 years and has been racially diverse for even longer. Despite this stability, the dynamics observed in the South End are similar in many ways to the dynamics observed in gentrifying communities and in newer planned mixed-income developments that have much shorter histories of diversity. Lower income residents of the stably diverse South End perceived benefits in terms of safety but mixed benefits in terms of social control—personally feeling safer yet also feeling greater surveillance—and institutional investment—appreciating the density of retail investment but also feeling priced out (Chapple and Jacobus, 2009; Freeman, 2006; Tach, 2009)—and little benefit in terms of upward mobility (Ludwig et al., 2013). Unlike those studied in previous literature (Putman, 2007), however, higher income residents in the South End also perceived that proximity to diversity made them more tolerant. Despite these perceptions, residents reported little actual integration of institutions and organizations that might promote meaningful cross-group contact. Instead, the key difference between the South End and other newly diverse communities appears to be the extent of organizational differentiation and development, which serves diverse resident interests but also tends to reinforce the segmentation of neighborhood life.

Of course, the data in this study are limited in several ways that preclude strong statements about the consequences of diversity. First, the data are based on a small, albeit geographically and demographically diverse, sample, and it is likely that those who agreed to participate in

the study are more involved in the community than those who did not. The use of interview data and respondent self-reports also means that I may have a biased picture of residents' actual behaviors, although triangulating results with data from stakeholders and from participant observation help to overcome this shortcoming. In addition, the role of organizations and associations emerged as an important finding, but this study was not a formal study of organizations, which would require a different study design. Finally, the South End is somewhat unusual in the coexistence of extreme affluence and extreme poverty and in its density of services and housing for poor residents, owing to its unique location and history. Thus, the dynamics that promoted stable racial and economic diversity in the South End may be difficult to apply to other locations.

In many ways, the South End embodies both the promises and the challenges of maintaining stable diversity. Even when residents appreciate diversity and recognize the organizational and cultural richness that it produces, diverse communities are also microcosms of broader social inequalities. Neighborhood integration may solve some problems associated with large-scale social exclusion while creating new problems associated with microsegregation. Microsegregation was easiest to overcome when neighbors had something in common interpersonally or when organizations designed low-cost events of interest to broad segments of the population. When multiple forms of social difference overlapped, as was often the case, interactions were limited and exclusion was exacerbated. This exclusion makes it particularly challenging to maintain positive social dynamics in neighborhoods with multiple forms of diversity and suggests a key role for community organizations to serve as bridging organizations that facilitate such cross-group interaction.

Acknowledgments

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Building Ties: The Social Networks of Affordable-Housing Residents

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The views presented here are those of the authors and do not necessarily represent the views of the New York City Department of Housing Preservation and Development or the City of New York.

Abstract

Despite decades of investment in affordable housing, little is known about the social connectedness of the population served or the use value of interactions among residents. In this article, we use cross-sectional survey data from recent movers to a single affordable housing complex in New York City (N = 120) to assess the structure of social networks and the content of local relationships, specifically the exchange of expressive, instrumental, and informational support. Respondents living in affordable housing report a diversity of ties, including friends, family, and neighbors. We find that within-building networks differ in key ways from networks of individuals who live in the same neighborhood but not in the same residential building. Residents interact less frequently with building ties, report few close ties in the building, and do not perceive building neighbors to be essential resources. When we examine the content of these relationships, however, we find that building residents do provide and receive multiple types of support, particularly informational resources. We further find that the characteristics of building neighbors are associated with the odds of providing or receiving specific types of support or resources. Expressive (or emotional) support is more likely between similar individuals, and having children is associated with both provision and receipt of support of all kinds. Receiving information about childcare or finding a school or tutor for one's child is more likely from a building tie who is better off. Understanding affordable-housing residents' social context can support policies that target this population and improve our understanding of social integration in this setting.

Introduction

During the past few decades, federal housing policies have increasingly sought to alter the neighborhood conditions of low-income households, either by providing opportunities to move out of high-poverty areas or by redeveloping distressed public housing complexes into mixed-income communities. Most recently, efforts have turned toward revitalizing high-poverty neighborhoods by infusing new services and creating a more diverse housing stock, with the hope of engendering healthier communities and greater income diversity. These approaches seek to improve the lives of the lowest income households by increasing access to better quality schools and safer streets, improving housing quality, and generally reducing concentrated disadvantage and social isolation.

Many place-based strategies include the provision of housing for low-income working households that, although generally better off than households living in public housing or receiving vouchers, often struggle to find adequate housing in the private market—particularly in high-cost cities. In New York City, more than 70 percent of households that would income qualify for low-income affordable housing are rent burdened and 25 percent are severely burdened.[1] Alternative poverty measures[2] that account for the value of rental assistance and other social safety-net benefits and for the local cost of living would define many of these households as living below the revised poverty line (Levitan, 2013).

Affordable-housing programs that serve low-income working households have been active for decades. Since its inception in 1987, the Low-Income Housing Tax Credit (LIHTC) Program alone has placed more than 2 million low-income units in service nationwide.[3] Local initiatives support the creation or preservation of additional affordable housing for households earning up to 80 percent of U.S. Department of Housing and Urban Development (HUD) Income Limits.[4] In New York City, most of the 165,000 units financed as part of the New Housing Marketplace Plan (NHMP)[5]

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[1] Low-income affordable housing typically targets households earning between 30 and 80 percent of U.S. Department of Housing and Urban Development Income Limits. The prevalence of rent burden estimates is based on the authors' analysis of the 2011 Housing and Vacancy Survey (U.S. Census Bureau, 2011), which defines *rent burdened* as paying more than 30 percent of monthly household income toward gross rent and *severely burdened* as paying more than 50 percent of monthly household income toward gross rent. Estimates include those living in subsidized housing or reporting receipt of one or more forms of rental assistance.

[2] Alternative measures include the Supplemental Poverty Measure used in the 2010 decennial census and the poverty measure developed by the City of New York's Center for Economic Opportunity. Both use the National Academy of Sciences' 1997 recommendations, with adjustments based on Interagency Technical Working Group guidelines. See Levitan (2013) for details.

[3] National data are available from the LIHTC database: http://lihtc.huduser.org.

[4] HUD Income Limits are set annually and are adjusted for geography. In fiscal year (FY) 2014, 80 percent of HUD Income Limits (defined as *low income*) for a family of four is equivalent to $67,100 for the New York City HUD Metropolitan Fair-Market Rent Area (HMFA); $68,500 for the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area (MSA); $57,900 for the Chicago HMFA; and $47,050 for the New Orleans-Metairie, LA MSA. By comparison with the official poverty thresholds for 2013, which accounted for family size and composition but not for geography, these incomes translate to roughly 280, 290, 240, and 200 percent of the federal poverty level, respectively.

[5] NHMP was New York City's 11-year housing plan initiated under Mayor Michael Bloomberg to preserve or construct 165,000 units of affordable housing by the end of FY 2014 (June 30, 2014). Of the units financed through FY 2013, 80 percent were targeted to households earning up to 80 percent of HUD Income Limits. *Housing New York* is Mayor Bill de Blasio's 10-year housing plan that began in FY 2014. See http://www.nyc.gov/hpd for details.

(fiscal years [FY] 2004 through 2014) were targeted to these households (City of New York, 2004), and the *Housing New York* plan (FY 2014 through 2024) is committed to financing 140,000 units for households earning 31 to 80 percent of HUD Income Limits (City of New York, 2014). The development of affordable housing is often used as part of public housing redevelopment activities. Affordable-housing residents may serve as higher income residents in complexes with shallow income mixing (as studied by Tach, 2009) or in combination with a wider range of income targets, including residents with incomes well above the median and those in the lowest income stratum, such as relocated public housing residents or those who move with vouchers (as studied by Chaskin and Joseph, 2011). Thus, the population served by affordable housing can act either as the focus of intervention, which is the case with most affordable housing development, or as part of the intervention, which is seen in some mixed-income housing developments, depending on time and place.

A growing body of research focuses on the impact of moving to mixed-income housing on the social networks of poor households (Chaskin, 2013; Kleit, 2005) and the potential for such changes to promote well-being (Briggs, 1998; Joseph, Chaskin, and Webber, 2007; Levy, McDade, and Bertumen, 2013). Less is known about how place-based strategies affect affordable-housing residents' personal networks. In this article, we present a case study of recent movers to a single affordable housing complex in New York City in which we assess residents' relationships with others and the access to social resources that these relationships provide. We focus on two dimensions: (1) the structure of social networks (for example, composition, range, and density) and (2) the content of local relationships—specifically, the extent to which residents exchange different kinds of support or resources with neighbors. This case study is a first step toward understanding the personal networks of the population served by affordable housing and the ways that these housing programs shape the social lives of low-income, nonpoor households.

Background

Housing subsidy programs may improve the life chances of residents through multiple pathways. By ensuring affordable rents, these programs make recipients less likely to experience housing-induced poverty (Stone, 2006) and possibly better able to meet critical expenses. By accessing better quality units, either in the private market with the use of a voucher or by moving to newly constructed subsidized developments, residents may be less likely to be exposed to environmental hazards that pose a direct risk to health (Acevedo-Garcia et al., 2004). By moving out of concentrated poverty and into higher opportunity neighborhoods, families may gain access to safer streets (Ludwig et al., 2011) and better quality schools (Schwartz, 2010). Changes in social context that result from residential mobility may alter the personal networks of individuals and families, reducing the strain of draining relationships (Curley, 2009) and offering the opportunity to establish new relationships with better off neighbors (Joseph, Chaskin, and Webber, 2007). Because social networks not only shape the flow of social resources to individuals but also give rise to perceptions and behaviors, local networks may act as a primary mechanism by which broader neighborhood factors influence individual outcomes (Kleit, 2001; Wilson, 1987).

Although sustained attention has focused on former public housing residents' social networks and the changes that result from moving to mixed-income housing, little is known about the social lives of affordable-housing residents. A small number of studies include interviews with residents

of affordable housing in mixed-income developments. Chaskin and Joseph (2011) reported that renters of affordable housing units are similar in life circumstances to former public housing residents, whereas owners of affordable units are similar to market-rate owners and renters. Tach (2009) focused on the differences between "newcomers" and "long-term" residents; although most long-term residents were in the lowest income stratum, both groups included some households with incomes that would qualify them for affordable housing. These studies suggest that former public housing residents and affordable-housing renters may face similar challenges to forming meaningful relationships with more affluent neighbors, but existing data are too limited to understand fully the particular opportunities or constraints that affordable-housing residents face. To understand the potential effect of these programs on the well-being of recipients and their potential utility as higher income neighbors in mixed-income settings, it is essential to develop a better understanding of their personal networks—their composition and range, the prevalence of ties to neighbors near and far, and the use value of these relationships for both getting by and getting ahead.

Network Structure

Access to social resources is determined in part by the composition of one's social network and the properties of the network as a whole, including the range of the network, strength of ties, level of reciprocity, and density of the network (Lin, 2000). The structure of networks facilitates some opportunities and behaviors and constrains others. Dense networks (wherein most of the individuals know one another and few others outside the group) are generally composed of similar individuals and characterized by high levels of trust and mutual obligation that foster the sharing of available resources and effective social control (Briggs, 1998; Coleman, 1988). The kind of interdependence that is typical of dense, bonding networks, however, can produce negative consequences for its members. Individuals can be overburdened by the demands of their obligations to others even when favors are likely to be returned, particularly in a setting where individuals are frequently in need of support because of precarious finances or personal instability. Curley (2009) reported that relocated public housing residents are less likely to form relationships with new neighbors to preserve precious resources and avoid potentially "draining" ties. Solidarity among group members who bond over shared adversity may face a downward leveling of norms, whereby individual successes are viewed as unlikely or impossible (Portes, 1998). Perhaps most importantly, dense networks are likely to convey redundant information and lack bridges to outside resources (Burt, 1992) such that advice and assistance lead to the reproduction, rather than the improvement, of life circumstances (Granovetter, 1995).

By contrast, wide-ranging networks comprising weak ties are more likely to serve individuals by broadening knowledge and access to information, facilitating connections to other resources through brokered ties, and generally increasing one's competitive edge (Burt, 2001; Granovetter, 1973). Strong and weak ties serve individuals and families in different ways, but it has been suggested that the presence of these bridging ties is particularly critical for low-income residents' upward mobility (Briggs, 1998). Although weak ties have been identified as beneficial for securing work and job advancement (Granovetter, 1973), these types of relationships are less likely to provide sustained support to individuals, who thus may require a larger network to achieve the same levels of engagement provided by fewer strong ties. Larger networks require maintenance and may be less likely to fulfill obligations, making them costly for individuals to acquire and sustain (Burt, 1992).

Relationship Content

Whereas network structure defines the extent of available resources (opportunity) and propensity for certain relations to be engaged, relationship content focuses on activated ties and the prevalence of use for specific instrumental action (Hurlbert, Beggs, and Haines, 2001). In this article, we examine three types of support, each of which may benefit low-income residents in different ways.

Emotional, or expressive, support includes those actions related to general caring, empathy, or sharing between trusted individuals or confidants. The presence or absence of this type of support has been shown to have both direct and indirect effects on well-being (Berkman, 1995; House, 1981) and may be particularly salient for helping low-income households cope with both acute and chronic stress (Thoits, 2011). *Instrumental* support is the provision of practical assistance, either in the form of small favors of more substantial commitment of resources. This form of assistance may convey critical resources to low-income residents who lack financial resources and frequently live at the margin, enabling individuals to acquire services or goods not otherwise attainable because of limited means (Edin and Lein, 1997; Venkatesh, 2006). *Informational* support is the provision of knowledge or information that enables people to help themselves.[6] Obtaining knowledge through one's network may be less costly than acquiring it on one's own (Coleman, 1988); however, for low-income households, the value of this type of support is likely contingent on whether it provides new information not otherwise available (Hurlbert, Beggs, and Haines, 2001) and on the extent to which it affords opportunities or advantages (Granovetter, 1995; Henley, Danziger, and Offer, 2005).

Affordable Housing and Social Networks

Lower income households have been shown to have small, locally based networks that are primary sources of emotional and instrumental support (Campbell and Lee, 1992; Fischer, 1982; Stack, 1974). Residential mobility may disrupt existing neighbor networks, leading some households to make secondary moves to be closer to family and friends who provide emotional and instrumental support (Boyd, 2008). Research on relocated public housing residents' exchanges with new neighbors is mixed. Some research shows that interactions in the new location are mostly casual and limited to exchanges within income and tenure groups (Chaskin, 2013; Chaskin and Joseph, 2011). Rasinski, Lee, and Haggerty (2010), however, showed that residents engage with new neighbors in a variety of activities related to help and advice, and most of the long-term residents studied by Tach (2009) reported instrumental support exchanges with neighborhood-based networks. Kleit (2010) found substantially lower rates of neighboring after relocation off site but reported little change in access to social support among English speakers. This finding underscores Haines et al.'s (2011) point that neighborhood ties make up a minimal proportion of the typical network and therefore should not be viewed in isolation from the broader set of social relationships and resources available.

Affordable-housing residents may be less socially isolated than the lowest income households that qualify for public housing or vouchers. Because income and social network size generally have a positive association, these less poor households may have larger social networks overall. Higher rates of labor force participation may provide opportunities for a wider range of relationships,

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[6] In this article, informational support includes *appraisal* support, sometimes defined separately as the sharing of information that helps people evaluate themselves. For a discussion, see Tardy (1985).

including coworkers and employers. These same factors may also make it less likely that affordable-housing residents' networks are locally bound—many or even most of their relationships may be with individuals who live in other parts of the city or country. If so, moving to affordable housing may not alter their relationships in any significant way. On the other hand, residents who share the experience of applying for affordable housing, move to a newly constructed building (and sometimes also a new neighborhood) within a few months of one another, and live in close proximity under the same roof may share enough common experiences to form relationships with one another.

Establishing relationships with neighbors may benefit affordable-housing residents even if they do not exhibit the kind of social isolation often associated with the most disadvantaged households. Forming local ties may generally increase residents' sense of belonging and ease the transition to life in a new building and, in many cases, a new neighborhood. Ties to other low-income working neighbors who face similar challenges may facilitate the sharing of strategies and resources that help individuals and families to buffer stress and manage everyday challenges. Weak ties to neighbors, particularly with those who are better off, may augment existing relationships and thereby provide access to additional resources or new information that creates opportunities and promotes upward mobility over time.

Data and Methods

Data were gathered from 120 residents who moved to a newly constructed affordable rental housing complex developed as part of NHMP. Study participants applied to a housing lottery that allocated 241 affordable rental units[7] in two midrise buildings. Each of the 241 households that received housing through the lottery was recruited for an interview approximately 4 years after applying for housing; the data analyzed in this article are limited to those households that accepted the offer of affordable housing and continued to live in the complex through the time of interview.[8] We recruited the head of household, defined for the purpose of this study as the individual who completed the initial housing application. In some cases, the head of household was unavailable, was not English proficient, or preferred not to be interviewed. For these households (N = 7), we recruited another adult member of the household if that person was part of the original household that moved to the study site (that is, was listed on the initial housing application). The response rate was 64 percent.[9] Face-to-face interviews were conducted in the home, at the project's offices, or at another location based on the preference of the respondent. Interviews lasted approximately 50 minutes and included a series of name-generator and name-interpreter loops to create the

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[7] Additional affordable housing units in these two buildings were allocated to eligible households that did not apply through the housing lottery.

[8] In the present analysis, we exclude 18 households that no longer lived at the affordable housing complex.

[9] Of the 241 households, 18 were defined as out of scope because of language (that is, the householder was not English proficient and no other adult household members were eligible). An additional 4 households were deemed out of scope for the present analysis, including 1 that was unable to provide informed consent and 3 in which the household member who was interviewed was not on the original housing application. Another 14 households had unknown eligibility status. In these cases, the identity of the household could not be confirmed for reasons such as a language barrier, no contact established after several attempts, or the householder no longer lived in the sampled unit but could not be confirmed as living somewhere else in the complex or having moved elsewhere. The final response rate is calculated using the American Association for Public Opinion Research Standard Definitions, Response Rate 5 (AAPOR, 2011), which excludes ineligible and unknown eligible households from the denominator. Our final response rate is calculated as 120 completed interviews / (120 completed interviews + 1 incomplete interview + 66 refusals) = 64 percent.

egocentric network data analyzed in this article. All interviews were conducted in English.[10] All protocols and materials for this study were approved by the Institutional Review Board at Teachers College, Columbia University (Protocol #12-175).

Interview data were linked to additional secondary data collected before move-in, which were used to describe the population served. Baseline data were obtained via a self-administered questionnaire completed before the final determination of eligibility for housing (87 percent of the respondents analyzed in this article also participated in the baseline survey), via self-report information obtained from the housing application, and via other data collected by the housing developer as part of the screening process (administrative data were available for all 120 participating households). Exhibit 1 presents basic descriptives of the study population. Affordable units include studio, one-bedroom, and two-bedroom units, with mover households ranging from one to four people. At the time of the interview, 37 percent of the households had one or more coresident children and 29 percent were single-person households. Most respondents were female, with a median age of 40 at the time of interview. Overall, this population is educated, with 49 percent completing a 4-year college degree or beyond. At the time they were interviewed, 76 percent of respondents were working for pay; the median household income was $45,000.[11]

Exhibit 1

Study Population (1 of 2)

Study Participants	Number	Percent
Race/ethnicity[a]		
White, non-Hispanic	32	27
Black, non-Hispanic	11	9
Hispanic	60	50
Asian, non-Hispanic	6	5
Other	11	9
Female[a]	86	72
Median age[a]	40	
Education[a]		
High school diploma or less	24	22
Some college/associate's degree	35	29
4-year college degree or beyond	59	49
Household size[a]		
Single-person household	35	29
One adult with coresident child(ren)	11	9
Average household size	2.3	
Coresident child(ren)[a]		
Number of children		
None	76	63
One	21	18
Two	17	14
Three or more	6	5
Median percentage of HUD Income Limits (baseline)[b, d]	76	

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[10] As a result, 18 households were defined as out of scope because they were not English proficient.

[11] Employment status was not collected for other adult members of the household; therefore, it is likely that a greater proportion of households has at least one wage earner than reported here.

Exhibit 1

Study Population (2 of 2)

Study Participants	Number	Percent
Median household income		
At baseline[b]	$46,298	
At followup[a]	$45,000	
Currently working for pay[a]	91	76
Section 8		
At baseline[c]	21	18
At followup[a]	17	14
Neighborhood safety		
Baseline neighborhood is very safe/safe[e]	78	76
Current neighborhood is very safe/safe[a]	109	91
Housing quality[f]		
No maintenance deficiencies at baseline[e]	28	27
No maintenance deficiencies at followup[a]	90	75
Number	120	100

HUD = U.S. Department of Housing and Urban Development.

[a] Followup data come from self-report information obtained during the in-person interview.

[b] Baseline data come from administrative data confirmed by the housing developer as part of the housing eligibility screening process.

[c] Baseline data come from self-report information contained in the initial application for housing.

[d] Using fiscal year 2009 U.S. Department of Housing and Urban Development Income Limits for the New York Metro Fair Market Rent area.

[e] Baseline data come from self-report on baseline self-administered questionnaire (SAQ). Percent shown as proportion of total completing SAQ (N = 103).

[f] Housing quality measured by self-report for any of four maintenance deficiencies: (1) lack of heat for 6 hours or more during past winter, (2) lack of hot water for 3 hours or more in past year, (3) the number of cockroaches seen in the home on a typical day (none is considered no maintenance defiency here), and (4) seeing any signs of mice or rats in the building in the past 90 days.

Study Site

The affordable housing units in our study site were targeted to low-income households, as defined by HUD, with earnings at the time of initial qualification for housing ranging between 69 and 80 percent of HUD Income Limits, depending on household size and the unit type for which they qualified.[12] Of the participating households, 21 applied with a Section 8 voucher, which enabled them to meet eligibility guidelines with a lower household income than would otherwise be required.

The study site includes two midrise buildings containing affordable rental units on either side of a single block that terminates in a large public waterfront park. Each building is next to a luxury condominium tower that sits between the affordable-housing building and the park. Both affordable-housing buildings have elevators, and no stairs are required to enter the buildings or reach any of the units. Each building has a single point of entry that opens into a small lobby area where mailboxes for all residents are located. The street frontage of the buildings is a substantial portion of the block face, with the entrance doors midblock on either side of the street. People come and go at most times of the day and evening, and residents regularly pass one another at the entrance or immediately in front of the buildings.

[12] Qualifying incomes ranged from a minimum of $37,370 for a household of one (studio unit) to a maximum of $61,450 for a family of four (two-bedroom unit).

The two buildings with affordable housing units are typical in design and include no features that would specifically encourage neighborly interaction—that is, no community room or outdoor space shared by residents and no seating in the lobby areas; however, several respondents mentioned during the course of the interviews a common laundry room in the basement of each building as a place where they frequently see neighbors. The complex allows pets, which is not typical for newly constructed affordable housing in New York City. Of study participants, 21 percent reported having a dog, which increases foot traffic to and from the building and also provides an opportunity for residents to see one another on the street when they walk their dogs. Dog owners reported walking their pet an average of 2.5 times per day.

All study participants moved to the study site approximately 3 1/2 years before being interviewed, although some had moved to another unit in the complex (N = 14), including 6 who moved between the two affordable-housing buildings and 8 who moved within the same building. When they applied for housing, 42 percent of respondents lived in the community district[13] where the study site is located. For these households, the average length of residence in the community was 14.7 years at the time of the interview compared with 3.8 years for those households that moved from another neighborhood in New York City.

Residents reported improvements in both neighborhood safety and housing quality relative to where they lived when they applied for housing. The vast majority of all respondents—91 percent—rated the streets at night in the study site neighborhood as either "very safe" or "safe." At baseline, 76 percent of respondents reported their neighborhood as "very safe" or "safe" at night. At the time of the followup interview, 75 percent of residents reported no maintenance deficiencies in their affordable housing unit (no instances of heating breakdown, loss of hot water, signs of rodents in the building, or cockroaches in the home). At baseline, only 27 percent reported no maintenance deficiencies in their home.

Social Network Measures and Analytic Strategy

We captured data on three types of networks: the overall network of the respondent ("ego") regardless of geographic proximity, relationships with individuals who lived within the same neighborhood (as defined by the respondent), and ties to neighbors within the same building. Exhibit 2 shows the overall structure and flow of the interview modules.

Six name generators enabled respondents to nominate a maximum of 18 individuals. Up to 3 names were captured[14] for each of the following: (1) people with whom the respondent discussed an important personal matter in the last 6 months, (2) people the respondent asked for small favors in the last 2 months, and (3) people the respondent asked for advice or information in the last 12 months. Individuals named in these three generators are considered the respondent's *core network*

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[13] A community district is an administrative boundary used by the City of New York to allocate municipal resources and define local political representation. These boundaries roughly correspond to Public Use Microdata Areas; New York City contains 59 community districts. Affordable housing that is allocated through a lottery process, such as the units studied in this article, include a 50 percent set-aside for qualified applicants who live in the community district where the study site is located.

[14] For the first three generators (the core network), respondents were able to name as many individuals as they chose, but only the first three were captured for each generator. For the final three generators (those limited to people on the same block), the respondent was specifically asked to name up to three individuals for each generator.

Exhibit 2

Interview Flow and Definitions

Core network	Additional individuals on same block
Generator 1: Discussed important personal matters	Generator 4: Most frequent contact
Generator 2: Asked for small favors	Generator 5: Asked advice/information
Generator 3: Asked for advice/information	Generator 6: Gave advice/information

Unique individuals nominated in 1+ generator(s)
(all ties)

Basic information about each unique individual
(demographics, frequency of interaction,
relative status, presence of children)

Lives with respondent
or outside of neighborhood

Lives in neighborhood
(all local ties)

Lives in building
(within-building ties)

Does not live in building
(elsewhere-in-
neighborhood ties)

Density
(which individuals interact regularly with one another)

Support received/provided module

and were not limited to a specific geography (that is, they could name anyone regardless of where s/he lived). Because we were particularly interested in neighbor ties, we also asked the respondent to nominate up to 3 individuals who live *on the same block* for each of the following: (4) neighbors with whom the respondent interacted most frequently, (5) any other neighbors not already named from whom the respondent sought advice or information, and (6) any other neighbors not already named to whom the respondent provided advice or information. Respondents were able to nominate the same individual more than once; however, the final network comprised only unique individuals ("alters," or "ties") named in one or more of the six generators.

Basic information was collected for each unique individual who was named, including the tie's relationship to the respondent, whether the tie was the same race or ethnicity as the respondent, the gender of the tie, and whether the tie was foreign born. We also asked whether the tie had one or more children younger than 18 years old, whether the respondent thought the tie was generally "better off, worse off, or about the same" as the respondent, and the frequency of interaction between the respondent and the tie. The question about interaction included visiting face to face, talking on the phone, e-mailing, and texting. Frequency was measured using a six-item categorical variable coded to estimate the total number of interactions per year, with "every day" coded as 365.25 interactions (to account for leap years), "a few times a week" coded as 156, "once a week" coded as 52, "once a month" coded as 12, "a few times a year" coded as 5, and "less than once a year" coded as 1 interaction.

For each unique individual, we asked geographic proximity (for example, in the same household, neighborhood, or building). Any tie who lived with the respondent was treated as part of the overall social network but was excluded from calculations of building and neighborhood networks.[15] More detailed information was collected for each individual who lived in the same neighborhood as the respondent (*local tie*). The density of the local network was derived from information gathered on which of the local ties interacted regularly with other individuals in the respondent's network; all answers were treated as symmetrical and assumed to be undirected—that is, if the respondent indicated that one tie interacted regularly with another person, the data were coded so that the other person also interacted regularly with the tie. We define *density* as the proportion of ties who interact regularly with one another, ranging from 0 (none of the ties interact) to 1 (all the ties interact regularly).

Content and activation were measured using 18 true-or-false statements such as "I have loaned money to _____" and "_____ has loaned money to me." Each interaction was coded as falling into one of six categories: expressive, instrumental, or informational support and the direction of the interaction—provided or received by the respondent. Two additional measures were coded based on whether the respondent had named the local tie in one of the core generators that corresponded to the true-or-false statement for the provision of that type of support. If the local tie was named for that generator, it was coded the same way as if the respondent had indicated "true." Exhibit 3 lists each of these items and their corresponding category.

The interview data were used to generate two complementary datasets: (1) a respondent-level dataset of 120 individuals and their overall network characteristics (for example, composition, homophily,

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[15] Coresident family represents a minimal proportion of all nominated individuals. See exhibit 3.

Exhibit 3

Activation Items Asked of Local Ties

Received by Ego	Provided by Ego
Expressive/emotional support	
[NAME] has invited me into his/her home.	I have invited [NAME] into my home.
(1)	[NAME] has come to me to talk about important personal matters.
Instrumental support	
[NAME] has loaned money to me.	I have loaned money to [NAME].
[NAME] has taken care of, babysat, or hosted a playdate for my child at least once.*	I have taken care of, babysat, or hosted a playdate for [NAME]'s child at least once.**
Informational support	
(2)	[NAME] has asked me for advice or information.
[NAME] has given me advice about childcare, or finding a school or tutor for my child.*	I have given [NAME] advice about childcare, or finding a school or tutor for his/her child.**
[NAME] has given me advice about my job, work, or finding a new job.	I have given [NAME] advice about his/her job, work, or finding a new job.
I have talked to [NAME] about a neighborhood issue or improvement.	[NAME] has talked to me about a neighborhood issue or improvement.
I have talked to [NAME] about an issue or improvement in my home or housing situation.	[NAME] has talked to me about an issue or improvement in his/her home or housing situation.
[NAME] has given me advice about finding or applying to housing in New York City.	I have given [NAME] advice about finding or applying to housing in New York City.

* Asked only of respondents who had one or more children younger than age 18.
** Asked only when local tie had one or more children younger than age 18.
Note: Local tie(s) nominated in the following generator were treated as if the respondent has reported "true" for the statement: (1) Generator 1: From time to time, most people discuss important matters with other people. Looking back over the last 6 months, who are the people with whom you discussed an important personal matter? (2) Generator 3: From time to time, we seek out people for advice or information about a question or an issue. In the last 2 months, who are the people you have gone to for advice or information?

range, geographic proximity ties, and activation for specific types of support) and (2) a dataset comprising the 282 building ties named by the 120 respondents.[16] For this second dataset, we employed logistic regression models to estimate the odds ratios of the respondent receiving or providing each of the three main types of support: expressive, instrumental, and informational. These models used robust standard errors to account for multiple ties within a given respondent's network. For these analyses, frequency of interaction with the individual was group centered based on the mean frequency of interaction within the given network. Outcomes were coded based on the items listed in exhibit 3, with binary values indicating whether one or more of the items were coded as "true" for each type and direction. All data are unweighted.

The social network data analyzed here are cross-sectional. As such, the present study does not attempt to draw any conclusions about changes in social networks or the effect of moving to affordable

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[16] Of all respondents, 15 did not nominate any within-building ties, including 8 who did not name any local ties and 4 who did not nominate any ties at all. These cases are therefore included in all descriptive analyses but excluded from the tie-level dataset and corresponding statistical models.

housing on social connectedness. The nature of the affordable-housing selection process makes it very unlikely that any two residents knew each other before moving to the study site; however, we cannot assess net changes in social networks or whether these relationships may have formed even in the absence of moving to this particular housing complex. We focus on describing the social context of this low-income population, including the characteristics of individual networks and the use value of interactions for particular ends.

Findings

Social Networks of Low-Income Working Households

Exhibit 4 shows descriptive statistics for the average network composition, including all ties regardless of geographic proximity and separately for all local ties. We also parse local ties into those who live in the same building as the respondent ("same building") or in the neighborhood but not in the same building as the respondent ("elsewhere in neighborhood").

Exhibit 4

Social Network Range and Composition, by Geographic Proximity to Respondent

Residents of Affordable Housing Complex (N = 120)	Lives in Same Neighborhood			
	All Ties	All Local Ties	Same Building	Elsewhere in Neighborhood
Network size				
Average number of unique ties named[a]	5.9	3.2	2.4	0.8
Percent of all unique ties named	100	54	40	14
Average number of unique ties in core network[a]	3.8	1.2	0.6	0.6
Percent of all unique ties in core network	65	32	16	16
Frequency of contact (interactions per year)				
Average annual frequency of contact	149	97	78	155
Composition (%)				
Family within same household[b]	7	NA	NA	NA
Family outside the household	27	14	4	41
Nonkin ties outside the household	73	86	96	59
Same race or ethnicity as respondent	64	56	52	69
Same gender as respondent	66	71	70	75
Female	63	68	70	64
Foreign born	36	33	31	40
Has children younger than age 18	33	41	44	30
Status relative to respondent (%)[c]				
Better off	30	24	19	31
About the same	51	54	56	55
Worse off	13	12	12	11
Density (%)	**NA**	**31**	**34**	**10**

NA = not applicable.

[a] *Capped at 3 people for each name generator; maximum core members = 9; maximum overall members = 18.*

[b] *Coresident family members are excluded from all local ties, same building, and elsewhere in neighborhood calculations.*

[c] *May not add to 100 percent because of item nonresponse.*

Overall, respondents living in affordable housing reported an average network size of 5.9 unique people, including 3.8 people in the core network. The average annual frequency of contact with all ties was 149 interactions, equivalent to between two and three times per week. On average, one-third of unique ties are kin, comprising mainly family members from outside the respondent's household. The demographics of nominated individuals show that residents of affordable housing interact with similar individuals. On average, 64 percent of ties are identified as being the same race or ethnicity as the respondent and 66 percent are the same gender—most of whom are female. The average network comprises mostly people whom the respondent indicated as being generally "about the same"; 30 percent of the ties in the average network are "better off" and 13 percent are "worse off."

Neighbor Networks

Local ties—unique individuals who live in the same neighborhood as the respondent—represent 32 percent of the average core network and 54 percent of the average overall network. Respondents interact less frequently with local ties than with the overall network, with an average frequency of 97 interactions per year, or between one and two times per week. A lesser, but still substantial, portion of local ties are kin. The average local network shows a lesser proportion that is the same race or ethnicity and a greater proportion that is the same gender than the overall network but remains consistent with the pattern that people interact primarily with similar individuals. Most local ties are doing "about the same" as the respondent. On average, local networks show a relatively low level of density;[17] 31 percent of local ties interact regularly with one another.

As exhibit 4 shows, focusing generally on local or neighborhood ties fails to capture important differences between relationships with ties who live within the same residential building and those who live elsewhere in the neighborhood.[18] People interact less frequently with ties from within the same building—on average, 78 times a year compared with 155 times a year with ties who live elsewhere. A lesser proportion of the average building network are kin, the same race or ethnicity, the same gender, or better off, whereas a greater proportion has coresident children. Building networks have a substantially greater average density than the networks of those who live elsewhere in the neighborhood—34 compared with 10 percent.

Although the proportion of within-building ties in the average core network is similar to the proportion of ties who live elsewhere in the neighborhood (16 percent for both groups), fewer of the total within-building ties named are primary ties or those named in the core network. On average,

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[17] Using the General Social Survey social network data, Marsden (1987) reported an average density of 0.61 compared with averages of 0.44 in Fisher's (1982) study and 0.33 in Wellman and Wortley's (1989) study of Toronto residents. In these studies, density is defined as the proportion of ties who are especially close to one another, rather than our more liberal measurement of the proportion of ties who interact regularly (regardless of emotional connection).

[18] Too few respondents named no building ties in their personal network to analyze separately (N = 15); however, exploratory analysis suggests that these individuals differed in key ways from those who had at least one building relationship. Those with no building ties were more likely to have moved from within the community, to have more kin ties, and to have a lower household income at followup. Although they had, on average, smaller networks (on average they named 2.8 total ties), their networks generally included a greater share of relationships with ties who are better off, and they reported receiving expressive, instrumental, and informational support from a greater proportion of their network than those who named one or more affordable-housing residents in their network.

0.6 out of 2.4 within-building ties were named in the core network versus 0.6 ties out of 0.8 ties who live elsewhere in the neighborhood—25 versus 75 percent, respectively. When asked how many people in the building the respondent considered a close friend, the typical response was none (the average was 1.2). When asked about their reliance on neighbors in the building, most respondents did not perceive people they knew in the affordable-housing building to be essential resources; 61 percent of respondents disagreed or strongly disagreed with the statement, "I would have a hard time getting by without the help or assistance my neighbors provide," and 68 percent disagreed or strongly disagreed with the statement, "I rely on the people I know in my building a lot."[19]

At face value, these findings appear to mirror previous work on relocated public housing residents, which found limited interaction among neighbors; however, the fact that residents are less well-connected to other building residents than to those who live in the surrounding neighborhood or beyond does not necessarily mean that they do not convey resources or help to support the daily lives of residents. To the extent that building ties augment other relationships, they may represent a unique source of support, resources, or (new) information not otherwise available to low-income individuals and also help to connect residents with others.

Receipt and Provision of Support Among Neighbors

To investigate the content of these relationships, we calculated whether the respondent provided or received one or more instances of expressive, instrumental, or informational support with each local tie. Exhibit 5 presents summary statistics for the proportion of local ties who were activated for specific ends, including the subsets of ties who live in the same building and who live elsewhere in the neighborhood. Overall, we find that most relationships with neighbors include instances of one or more types of support but that the specific utility and directionality of the relationship varies according to proximity.

We see lower rates of social exchange with neighbors from the same building than with those who live elsewhere. Respondents exchanged (received and provided) support of one or more types with 81 percent of within-building ties compared with 96 percent of ties who lived elsewhere in the community. In general, affordable-housing residents provided support to a greater share of within-building ties than the share of those from whom they received support or assistance. This pattern is seen across all three types of support and shows the potential for within-building ties to tax the limited resources of residents; however, 85 percent of respondents disagreed or strongly disagreed with the statement, "Sometimes I feel overwhelmed by the help or assistance I provide to my neighbors."

Affordable-housing residents exchange instrumental support with the smallest share of local ties, which is particularly true of within-building networks. Residents exchange informational support with the greatest share of ties; on average, they exchange information with 70 percent of their within-building network and with 93 percent of their network ties who live elsewhere in the neighborhood. Although residents exchange all three types of support with a smaller share of their within-building network than with ties who live elsewhere, it is clear that residents of affordable housing do interact with one another and that these relationships convey varied types of support and sharing of resources.

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[19] Respondents were read six statements about the people they knew in their building and asked how strongly they agreed or disagreed with each using a five-point Likert scale: strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree.

Exhibit 5

Activation of Local Ties, by Type and Direction

Residents of Affordable Housing Complex (N = 120)	Lives in Same Neighborhood		
	All Local Ties	Same Building	Elsewhere in Neighborhood
Expressive/emotional (%)			
Received only	5	5	4
Provided only	12	14	7
Reciprocal exchange	61	55	86
Instrumental (%)			
Received only	7	3	17
Provided only	10	8	12
Reciprocal exchange	14	13	21
Informational (%)			
Received only	3	3	0
Provided only	11	12	5
Reciprocal exchange	74	70	93
One or more types of support (%)			
Received only	3	3	2
Provided only	7	7	3
Reciprocal exchange	83	81	96
Average number of ties	**3.2**	**2.4**	**0.8**

Note: Coresident family members are excluded from these calculations.

Neighbor Characteristics and the Likelihood of Interaction

To assess what individual characteristics are associated with certain types of support, we used a complementary dataset of each building tie[20] named by one of the 105 affordable-housing residents in the study who nominated one or more unique individuals who lived at the same address. Exhibit 6 presents a series of logistic regression models that estimate the odds of providing or receiving each type of support.

Overall, being the same gender and same race or ethnicity as the respondent is significantly associated with greater odds of expressive support (received or provided) but not of instrumental or informational support. Household composition—specifically, both the respondent and the local tie having one or more coresident children—is significantly associated with greater odds of receiving and providing all three types of support, particularly instrumental support. Frequency of interaction is significantly associated with greater odds of receiving emotional and instrumental support and of providing instrumental support, but not with the odds of receiving informational support or of providing emotional or informational support. Because sustained attention has focused on the proposed benefits of more affluent neighbors, particularly for access to information and job contacts, we include a binary variable for whether the respondent indicated the tie was generally better off. Relative status and the odds of providing or receiving any of the three types of support exhibit no statistically significant association.

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[20] Individual ties remained anonymous; therefore, more than one respondent may have nominated the same individual.

Exhibit 6

Odds of Providing or Receiving Support, by Type

Characteristics of Building Tie	Received by Respondent[a]			Provided by Respondent[b]		
	Emotional	Instrumental	Informational	Emotional	Instrumental	Informational
Same gender	1.9*	1.3	1.1	2.0*	0.8	1.2
Same race or ethnicity	2.1*	1.4	1.3	2.4**	1.3	1.3
Both have one or more children	3.0**	11.1***	2.6*	2.0^	10.6***	2.9*
Interact more frequently than with other ties	3.6**	4.2**	1.7	1.5	2.1^	2.1
Tie is better off relative to respondent	1.0	1.1	1.2	1.3	1.2	0.6
N (total building ties)	282	282	282	282	282	282

^ p < .10. * p < .05. ** p < .01. *** p < .001.

[a] Logistic regression models use robust standard errors. Data are limited to 105 respondents who named one or more within-building ties.

[b] Average proportion of building ties activiated for specific type and direction on support.

We further examined what characteristics are associated with specific forms of information received by the respondent, both because informational support was the most prevalent form of exchange between residents and because research and policy have focused heavily on the potential benefits of neighbors who may act as informational resources. Exhibit 7 presents a series of models that examine the association between the characteristics of building ties and the odds of the respondent receiving information or advice about five different topics. Both the respondent and tie having one or more children is positively associated with receiving information about school or childcare and housing, but not with receiving work and job information or discussing a neighborhood issue. Although respondents are more likely to seek information about childcare or finding a school or tutor for their children from a neighbor who is better off (odds ratio = 3.0, p < .05), they are no more likely to receive advice about their job, work, or finding a new job, nor about neighborhood issues, housing issues, or a housing search.

Exhibit 7

Odds of Receiving Information

Characteristics of Building Tie	Specific Types of Informational Support Received by Respondent				
	Work/Job Search	**Childcare/ School[a]**	**Neighborhood Issue**	**Housing Issue**	**Housing Search**
Same gender	1.4	2.9*	1.2	1.4	2.0
Same race or ethnicity	1.8^	0.8	0.7	1.4	1.2
Both have one or more children	1.3	6.4***	1.5	2.3*	3.3**
Interact more frequently than with other ties	2.0^	1.4	3.0*	1.7	3.1**
Tie is better off relative to respondent	1.6	3.0*	1.0	1.4	0.9
N (total building ties)	281	117	281	281	281

^ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Notes: Logistic regression models use robust standard errors. Data are limited to 104 respondents who named one or more within-building ties and gave valid responses to informational resources questions.

[a] Limited to 38 respondents who had one or more coresident children, named one or more within-building ties, and gave valid responses to informational resources questions.

Discussion

Affordable-housing residents in our case study are socially connected to a range of individuals who include family, friends, and neighbors. Although the average network is relatively homogenous regarding race and ethnicity and, particularly, gender, greater diversity exists in terms of relative status—on average, 30 percent of ties are better off and 13 percent are worse off. Slightly less than one-half of the average overall network consists of ties to individuals who live outside of the residents' community. Affordable-housing residents do not appear to have the kind of dense, potentially redundant, and locally bound networks that are often ascribed to lower income households.

Ties with those who live in the neighborhood but not in the same building are similar to an individual's overall network in terms of homophily, frequency of interaction, and relative status. For the average resident, 75 percent of these neighborhood ties were named in the core personal network. By contrast, ties to other affordable-housing residents in the same building differ in key ways from the characteristics of the rest of the network. Relationships in the building are somewhat more diverse, ties interact less frequently, and a smaller share of relationships are to others who are better off. Although within-building networks have a greater average density than those that comprise individuals living elsewhere in the neighborhood, the proportion that interacts regularly remains low. For the average network, only 25 percent of building ties were named in the core personal network.

Certain characteristics were associated with a greater likelihood of receipt or provision of support between affordable-housing residents. Expressive support is more likely between similar individuals; however, homophily is not associated with instrumental or informational support. Both ties

having one or more children is the factor that is mostly consistently associated with provision and receipt of support between building residents. This finding is consistent with other qualitative research that finds that children facilitate interaction across socioeconomic groups (Chaskin and Joseph, 2011) and improve access to other resources, such as childcare centers that act as brokers to other institutions and services (Small, 2009). Residents are significantly more likely to receive information about childcare or finding a school or tutor for their child from a building tie who is better off.

Although affordable-housing residents do not perceive a great degree of reliance on building ties and report few or no close friends in the building, we find meaningful interaction and exchange of multiple types of support that may help residents to both get by and get ahead. Taken together, this finding suggests that residents of affordable housing access a broad range of social resources, with relationships to neighbors in the building acting as supplemental or secondary ties. The value of these ties depends partly on the direct resources and knowledge of the individual and partly on the resources of others in the broader network. For this reason, it is less important that most building relationships are with ties who are doing about the same than it is that these ties, in turn, are connected to a range of others outside the building, many of whom are better off. Because residents exchange informational resources with a substantial proportion of their building network, it is important to consider if and how building networks facilitate access to new or different knowledge, rather than the mere exchange of information. In our case study, we see the potential for affordable-housing residents to benefit directly from exchanges with other building residents and indirectly by becoming connected to neighbors who have access to social resources. Whether these same processes would work in residential developments with a broader mix of incomes is unclear. More research is needed that examines the social lives of affordable-housing residents in different contexts. This research is particularly important if we are to understand how this population functions in complexes with a broader income mix and how policies can support greater social integration across income levels.

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Why and Where Do Homeowners Associations Form?

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Abstract

Homeowners associations (HOAs) have proliferated in recent decades as an important provider of local public services, particularly in fast-growing states such as Florida. What explains their popularity and, specifically, their formation? We argue that the location and timing of an HOA's formation are driven by demand-side, supply-side, and institutional factors. Our data come from the most comprehensive statewide database of HOAs constructed to date. We use a duration analysis framework to explore which factors predict when an HOA first enters a census tract. We find that predominantly White, higher income census tracts obtain HOAs sooner, as do tracts farther from the city center and with higher vacancy rates. When we incorporate local public finance variables into our analysis, we find that tracts in cities where residents spend more on public services are less likely to have HOAs, which suggests that public expenditures and HOA services may be regarded as substitutable.

Introduction

Homeowners associations (HOAs) have proliferated during the past two decades; they are emblematic of a broader trend in the privatization of services that are typically thought to be the purview of the public sector. HOAs are appealing to homebuyers for their supplemental services and amenities and also for exclusivity. Residents tend to opt into these associations because they value, and are willing to pay for, more targeted service provisions and, in certain cases, greater control over their local communities. Private developers and local governments view HOAs as a cost-effective way

to provide local services, evade local regulations, and produce large-scale communities. HOAs are popular among residents because they provide valued public services; in addition, houses in HOAs tend to sell at a premium relative to houses not in HOAs (Groves, 2008; Meltzer and Cheung, 2014).

An emerging literature, however, suggests that the existence of HOAs can also affect the social and financial prospects for non-HOA members and their larger host municipalities. Although HOA members do not withdraw in terms of broader civic engagement (Gordon, 2003), HOAs do tend to exacerbate citywide racial/ethnic segregation (Meltzer, 2013). HOAs drive down local government spending (Cheung, 2008b) and decrease the level of local revenues (Cheung, 2010). On the other hand, HOAs are also associated with greater stringency in land use regulation, which demonstrates members' desire for greater control over their neighborhoods (Cheung and Meltzer, 2013; Rogers, 2006).

Despite HOAs' popularity and the growing importance of their effects, little empirical research has focused on the nature and extent of their proliferation. How are they distributed across space? What are the characteristics of the cities and neighborhoods where they tend to form? Have these patterns changed over time? We know for certain that HOAs do not emerge randomly. To answer these questions, we look at the spatial and temporal variation in HOA formation across Florida, one of the states with the most HOAs. Furthermore, we test the relative importance of demand, supply, and institutional factors in explaining their formation. To do this test we rely on a unique proprietary dataset on the universe of HOAs in Florida. We have information on the location, formation date, and size of every HOA in the state, and we supplement these data with information on neighborhood demographics, geographic descriptors, and jurisdiction fiscal positions. Our econometric strategy is based on a survival analysis framework: What demographic, economic, and institutional factors encourage the location of an HOA within a neighborhood? To our knowledge, this article is the first to use a duration model to analyze this question.

Results suggest that race/ethnicity and income are important predictors of where HOAs form. Census tracts with higher Black population shares take longer to receive an HOA; conversely, higher average income speeds up HOA formation. We also find that HOAs are more likely to form in tracts that are farther away from city centers, that have higher vacancy and homeownership rates, and that have newer housing. Local public expenditures matter as well: tracts located in cities that spend relatively less on public services are likely to form HOAs, which is suggestive of the substitutability between HOAs and local public services observed in previous studies.

The article proceeds as follows. The next section, What Do We Know About HOAs?, summarizes the state of the literature on HOAs and addresses the factors driving HOA formation. The subsequent section describes the survival analysis model, the next section discusses the data, and the next presents the regression results. The final section concludes with a summary of the findings and policy implications.

What Do We Know About HOAs?

In this section we discuss in more detail the history and nature of HOAs. We also summarize the empirical research on HOAs and how they affect local communities and their host municipalities.

What Are HOAs?

HOAs (also known more broadly as Residential Community Associations, or RCAs) govern the operation of housing developments. Members of the HOAs typically pay for exclusive services, organized by the association, which are above and beyond those provided by the local public sector. HOAs are found in planned developments, condominiums, and cooperatives. Although not all HOAs apply to gated communities, all private gated residential communities operate under some kind of HOA. The developer typically establishes the HOA upon erecting the community and then allocates the shares of the HOA as he or she sells the units in the development. HOAs are ultimately incorporated as nonprofit organizations, and homeowners in the community share ownership of the common areas and facilities.[1] The HOA also establishes and enforces covenants and restrictions governing land use (Cheung and Meltzer, 2013). Each member pays an assessment (or fee) to maintain these amenities and to provide other supplemental services to the community. Services range from basic maintenance to infrastructure development, and the size of a community can be as small as 2 units and as large as 20,000 units (Foundation for Community Association Research, 2013). In Florida, for example, HOAs typically encompass single-family homes, whereas condominium and cooperative RCAs tend to apply to multifamily structures.[2]

These HOAs theoretically are formed in response to some underprovision or lack of heterogeneity in public services and regulation (Helsley and Strange, 1998). According to the standard median voter demand model for public goods provision, the local government will allocate its public goods evenly across neighborhoods based on a measure of median demand for services across the municipality (Barr and Davis, 1966; Bergstrom and Goodman, 1973; Bowen, 1943). If heterogeneity exists in service demand, however, certain neighborhoods and properties will be left underserved by the public sector. HOAs are a mechanism for these "overdemanders" to be satisfied with their package of locally provided services. Helsley and Strange (1998) have termed these types of HOAs "private governments," because they are privately run but provide services often thought to be the purview of the public sector.

Membership in HOAs has grown tremendously during the past few decades, which suggests that residents are willing, and able, to pay for additional services, amenities, and, in general, more control over their local neighborhoods. The first recorded HOA was founded in Boston, Massachusetts, in 1844 (Reichman, 1976). During the past few decades, however, they have proliferated across the country as one of the fastest growing housing options and privatization efforts (McCabe and Tao, 2006). In 1962, roughly 500 RCAs overall existed nationally, and that number increased to more than 323,000 by 2012 (Foundation for Community Association Research, 2012; Gordon, 2004).[3]

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[1] Incorporation as a nonprofit organization is required in Florida; while other states do not always require such incorporation in the legislation, most HOAs incorporate as nonprofit organizations in practice.

[2] This distinction is based on conversations with professionals working with HOAs in Florida and appears to be the case in other states as well.

[3] We would like to be able to report national numbers for HOAs only, but this information is not collected; instead we report numbers for RCAs broadly, of which HOAs are some share.

By 2012, the number of units in some kind of RCA constituted roughly 24 percent of the national housing stock and more than 60 percent of all new construction was included as part of an RCA.[4] Estimates of residents living in an HOA climbed from 2.1 million in 1970 to 63 million in 2012 (Foundation for Community Association Research, 2012).

Although HOAs have grown in popularity, they are not free from controversy. Proponents of HOAs claim that they aid cash-strapped cities by providing more locally targeted services to households that value such supplements and are willing to pay for them. Some have also suggested that HOAs may reduce the cost of housing because many municipalities permit (or even encourage) developers to build HOA projects and in turn bypass certain regulations that usually increase the cost of development (ACIR, 1989; McKenzie, 2003). These concessions could mean greater HOA access to lower and middle income households (Manzi and Smith-Bowers, 2005). Others absolve local government of any responsibility regarding HOAs, however, because they are believed to be market-driven mechanisms that merely respond to local demand for housing location and amenities (McKenzie, 2003; Strahilevitz, 2005). Indeed, the Florida legislation governing HOAs explicitly exempts these associations from layers of oversight that are believed to interfere with the efficiency of the private government operations.

Opponents, however, worry that HOAs are simply a private mechanism for residential exclusion and segregation, and that members are paying not only for extra services, but also for protection and isolation from neighbors of racially or economically different backgrounds (Blakely and Snyder, 1997; Low, 2003; McKenzie, 1994). Now residents have a mechanism to sort not only across jurisdictions, but also within them; this mechanism could lead to significant service disparities. HOAs typically provide exclusive services and amenities to their members. The concern that HOA members will withdraw from their broader municipal civic duties, such as voting or more informal political involvement, also arises.

Most, if not all, of these concerns are empirical questions at this point; the research on HOAs is thin because of severe data limitations. Because of the private nature of HOAs, few, if any, reporting requirements exist. Therefore, little is known about the mere number of HOAs, let alone their size, yearly budgets, and assessments. In this article we discuss the modest, but compelling, collection of research to date and motivate the research question for this analysis.

Fiscal and Regulatory Effects of HOAs

Here, we summarize the empirical findings on how HOAs interact with local fiscal and regulatory regimes.

Property Values

The largest body of literature pertaining to HOAs (or RCAs more broadly) addresses their fiscal and regulatory implications. Because membership in an HOA comes with a binding fee (on top of any monthly mortgage payments), one of the first and most persistent questions relates to their effect on home values. The most recent documentation of this topic also boasts the most comprehensive

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[4] This statistic is based on industry data from the Community Association Institute (available at http://www.caionline.org/info/research/Pages/default.aspx), data from the American Community Survey, and authors' calculations.

mapping of HOAs to date. Meltzer and Cheung (2014) constructed a dataset with the HOA boundaries and parcel-level tax rolls (including property sales information) for cities in 49 of the 67 counties in Florida, which is second to California for the number of RCAs. They employed hedonic regression analysis to estimate the effect of HOA membership on property values. They found a consistently positive premium, hovering around 7 percent; in addition, they found this premium is strongest immediately following HOA formation and declines over time, which suggests quick capitalization of HOA benefits. Properties in larger HOAs sell for less, and this disparity is particularly true for properties in the biggest HOAs. Finally, properties located immediately outside an HOA sell at a premium relative to other non-HOA properties, and this premium marginally decreases (increases) in the size (frequency) of neighboring HOAs.

Other studies with more limited samples found positive premiums as well. Groves (2008) uses a dataset of 124,878 property sales in the St. Louis area to also conduct a hedonic analysis. He found that, although homes that belong to an HOA sell for more than homes that do not belong to an HOA, this premium disappears when finer characteristics of the HOA and non-HOA homes are controlled for. Groves argues that this premium is evidence that the homogeneity of homes within HOAs hides any positive gain from living in an HOA. Focusing on one type of HOA in particular, LaCour-Little and Malpezzi (2009) and Bible and Hsieh (2001) both look at the effect of a gated community on its property values. The results from both studies show that homes located inside gated communities have significantly higher values than comparable homes outside the gated communities. Neither of these studies, however, uses longitudinal data that can control for price differentials before the establishment of the HOA or gated community.

Housing Distress

More recently, HOAs have come into focus as a mediating factor in the foreclosure crisis: smaller, more localized governments, like HOAs, may have more success at addressing potential negative externalities. To date, two studies empirically tested the role of HOAs in either mitigating or exacerbating the negative spillovers from neighboring distressed properties—the role of HOAs is ambiguous. They can potentially use their collective efforts to mitigate the effect of physically and financially distressed neighbors; on the other hand, their cooperative nature can exacerbate the localized externalities from neighboring distress. Cheung, Cunningham, and Meltzer (2014) examined how property prices respond to homeowner distress and foreclosure within HOA communities in Florida (one of the hardest hit states during the foreclosure crisis). They created a rich dataset of HOAs, sales, and aggregate loan delinquencies and foreclosures from 2000 through 2008. Cheung, Cunningham, and Meltzer (2014) found that properties in HOAs are relatively less affected by more distressed neighbor homes compared with non-HOA properties, but only when considering less severe delinquency rates. They also found that negative price effects from higher delinquency exposure rates are ameliorated for properties in larger and newer HOAs.

A second, closely related study by Fisher, Lambie-Hanson, and Willen (2013) examined price effects of foreclosures within condominium developments in Boston (versus the predominantly single-family HOA developments included in the previous study). They used a very detailed dataset of condominium sales transactions for the years 1987 through 2011 to test whether nearby foreclosures depress sales prices via the "supply effect" or an investment externality. They not only compared

prices for properties in distinct condominium associations, but they also compared prices within associations (but at different locations). This empirical strategy enabled them to identify different mechanisms behind any negative foreclosure price effects. They found that condo units sell at a 2.4-percent average discount when a foreclosure shares the same address (and this effect is much stronger in smaller, often single-address, associations); no price differential exists when a foreclosure is in the same condo association, but at a different address, or in a different association entirely. Together, they argue that these findings support investment externalities as the driving force behind foreclosure-related price effects.

Strategic Interaction

Apart from the capitalization (and subsequent revenue) effect, HOAs can also influence the local public fisc through a mechanism known as *strategic interaction*. A growing body of literature examines the strategic interaction of overlapping or neighboring governments in their fiscal behavior and provision of public goods (for example, Brueckner 2003, 1998; Cheung 2008b; Helsley and Strange 1998, 2000a, 2000b). According to this framework, decisions about the service levels and investments of private government entities, such as HOAs, are made on strategically based decisions about the levels of publicly provided services. For example, the local public sector may decide to withdraw from particular services (such as street cleaning) if it knows that the HOA will provide it within its boundaries—they do so to avoid redundancies.

Cheung (2008b) has examined the effect of private government service provision on public service expenditures in the context of planned unit developments (PUDs). He used a panel of cities in California and estimated the effect of PUDs on public service expenditures across three decades. He found evidence of service downloading, such that for a 10-percent increase in per capita PUD units in a city, local expenditures fall by 1.5 percent. The extent of service downloading depends on the substitutability of the service and the size of the city (smaller cities have less opportunity to download, or "strategically substitute"). He also found that strategic substitution is less likely to occur in smaller cities, where targeting service provision, as opposed to exploiting economies of scale, is not necessarily efficiency enhancing.

In another paper, Cheung (2008a) argued that property tax limitations, which restrict the ability of cities to obtain sufficient property tax revenue, may have prompted some jurisdictions to encourage the expansion of HOAs. He looked at the period surrounding the imposition of Proposition (Prop) 13 in California in 1978 and found that more HOAs are likely to form in cities that are more constrained by the limitation. Constraint is measured in revenue terms (through the decline in revenue likely to result from an implementation of the revenue-sharing provisions of Prop 13) and in expenditure terms (through the pre-Prop 13 level of police spending). Cheung's paper demonstrates the importance of public institutions' role in the formation and spread of HOAs.

As HOAs and local governments preside over land use regulations, Cheung and Meltzer (2013) extended the previous notions of strategic interaction to apply in this context as well. By combining two novel datasets on Florida HOAs and municipal regulations, they examined how HOAs affect public land use regimes for 232 cities. They found that the prevalence of HOAs is positively associated with a propensity for regulation, as are newer and bigger HOAs. Also, HOAs are positively associated with land use techniques that direct development through incentives, rather than

mandates. These findings suggest that decisions and actions on the part of private entities, like HOAs, can generate meaningful outcomes for their host municipalities at large. Opportunities for coordination between these private and public service providers could result in citywide gain.

Social Effects of HOAs

Much of the controversy over HOAs relates to issues of exclusion or fragmentation (socially, racially, and economically). These topics have received much less attention than the fiscal ones. Meltzer (2013) offers most comprehensive analysis of how HOAs can affect racial/ethnic and income segregation. Unlike previous studies, she observed jurisdictions over multiple decades in an attempt to better identify whether the growth in HOAs is driving changes in segregation. Results from ordinary least squares and instrumental variable regressions indicate that an increase in HOA presence exacerbates Black-White and Hispanic-White residential segregation. Any segregation, however, is tempered by the concentration of HOA units in larger communities. On the other hand, no significant effect of HOAs affecting income segregation exists, which suggests that HOAs do not intensify existing tendencies toward income sorting.

Gordon (2004) made one of the first empirical contributions by examining the residential composition of PUDs in California in 1990 and their association with overall metropolitan segregation. Gordon used the entropy index of segregation to measure diversity among several races and income groups at the block group and metropolitan level. She found that PUD block groups are less racially diverse than other block groups in central city and suburban areas. She also found that PUD block groups are more diverse with respect to income, but this heterogeneity is largely because PUDs include more households in relatively higher income brackets. At the metropolitan level, the difference between PUDs and other block groups explains a very small share of total segregation. Gordon suggests that the lack of an effect at the metropolitan level is not surprising, given the small proportion of the population that lived in PUDs as of 1990, but she cautions that residential segregation will become more pronounced as HOA membership increases over time (which it certainly has).

Also studying California, Le Goix (2005) executed a neighborhood-level analysis of gated communities and segregation in Los Angeles. He measured segregation by comparing the level of socioeconomic differentiation between gated communities and their neighboring areas and the differentiation between any other two adjacent neighborhoods; if the former differentiation is higher, then he concludes that gated communities are associated with increased segregation. Similar to Gordon, Le Goix did not find evidence to support an association between gated communities and segregation at the level of the municipality. He also observed that gated communities tend to exist in ethnically homogeneous neighborhoods (which are observed at the census block group) and are themselves homogeneous in terms of age and socioeconomic status.

Vesselinov (2008) was the first to test segregation and gated communities for multiple cities in the United States. Using data from AHS on membership in gated communities, as of 2001, Vesselinov found that segregation and the number of gated communities are associated with higher proportions of recent immigrants. She also found that although gated communities are prevalent in the southern and western regions of the country, segregation is less prevalent in these regions. Because the analysis is contemporaneous (she uses 2000 Census data), the implications of her findings

are ambiguous—it is not clear whether gated communities are simply tempering segregation or whether they have simply emerged within less segregated metro areas. Vesselinov also noted that a number of characteristics often associated with segregation, such as proportion of the population that is Black or college-educated, are not associated with gated communities.

Because of their exclusivity, RCAs can fragment communities not only demographically, but also civically (or politically). Gordon (2003) empirically tested the validity of such claims by operationalizing social capital by residents' voting behavior. She specifically analyzed the effects of PUDs in California on voting behavior in statewide general elections during the 1990s. Results indicate that areas with PUDs do not exhibit significantly different voter turnout, registration, and party affiliation after potential selection bias is taken into account. These findings call into question the popular view that private governments crowd out participation in traditional public government.

In sum, HOAs do create value for their owners, as evinced by their properties' sales price premiums relative to non-HOA properties. HOAs can also affect the quality of life, however, for nonmembers in a municipality. The nature and degree of public services are influenced by HOA presence, as are segregated living conditions.

Predicting HOA Formation

Developers are intentional and strategic in building HOA-governed housing; in other words, the emergence of HOAs is not a random phenomenon. The nonrandom nature of their growth has both policy and methodological implications. If it turns out that HOAs and other private governments are beneficial for their members, then any disparities in access to these associations (and the services they provide) raise questions of equity. Is it appropriate for the public sector to support and facilitate the formation of these private institutions? On the other hand, the efficiency gains from their localized service provision could bestow benefits for members and nonmembers alike, and this outcome may be more politically (and socially) appealing. As demonstrated previously, sophisticated empirical efforts have started to answer many of these questions. Ignorance of the nonrandom nature of HOA formation could bias the estimates of their financial and social effects, however. For example, if we do not account for the fact that HOAs tend to locate in the outskirts of municipalities, where not only is more land available, but also more money is required to build because of new infrastructure requirements, we could be observing inflated price premiums. This error falsely informs not only policy decisions but also consumer decisions.

In this analysis, we propose a three-pronged framework for considering HOA formation, which we will implement in the estimation strategy that follows. The likelihood of HOA formation should depend on (1) demand-side factors, (2) supply-side factors, and (3) institutional factors. We focus on within-municipality formation and consider the likelihood of any neighborhood receiving an HOA. This scale of analysis is compelling, because HOAs are in fact experienced at the community level, and the prevalence of HOAs among submunicipal neighborhoods has implications for the residential and service composition of the host municipality overall.

Demand-Side Factors

The likelihood of HOA formation will depend on the preferences of existing (and potential) residents. The preferences of potential HOA homeowners matter because they are the ones purchasing

the housing; the preferences of existing residents matter in so much as they can influence the successful completion of any particular HOA development. A long line of research on housing segregation also suggests that households typically choose to (or are encouraged to) locate near other households of similar socioeconomic positions (Bayer, McMillan, and Ruben, 2004; Ellen, 2006; Yinger, 1995). Therefore, we would expect to see the socioeconomic characteristics of existing residents positively correlate with those of new HOA homeowners simply because residents prefer familiar neighbors. On the other hand, if the HOA serves as a mechanism to retain homogeneity within an otherwise diverse community, the two may be negatively correlated. We rely on this correlation (whatever direction it may be) to model HOA formation.

We specifically hypothesize that the preferences of potential HOA owners should be correlated with the economic and demographic characteristics of current residents. Most obviously, we would expect to see an increase in the likelihood of HOA formation among more affluent residents, because they have the means to pay for the housing and the additional association fees. In addition, preferences for HOA membership (and more specifically, the services they provide) could be correlated with demographics, such as race/ethnicity and age.[5] For example, communities with golf courses are more likely to attract more affluent households comprising older, White individuals, who are statistically more likely to play golf (Strahilevitz, 2005). HOAs also presumably offer a more controlled or exclusive residential community, and preferences for this type of living environment may also fall along demographic lines.

Supply-Side Factors

Because HOAs typically accompany new housing developments, the likelihood of their formation should be correlated with factors that facilitate the physical production of the homes they govern. The availability of land is paramount, and, specifically, enough consolidated land to build often large or sprawling developments. All else being equal, HOAs should be more likely to form where it is easier to build new, sizable housing developments. Thus, distance to the central city should be negatively correlated with the location of HOAs. In addition, the vacancy rates, homeownership rates, and age of the local housing stock capture the composition and tightness of the existing housing market.

Institutional Factors

Finally, we consider broader, what we term *institutional*, factors that can affect the likelihood of HOAs at the neighborhood level, across municipalities. Existing empirical evidence suggests that HOAs do interact with the public sector in their service provision (Cheung, 2008b; Cheung and Meltzer, 2013). Therefore, the likelihood of HOA formation could also be a function of municipalitywide fiscal and regulatory conditions. For example, HOAs could be more likely to form in municipalities with lower per capita spending on services (especially services that tend to overlap with HOAs' responsibilities); in this case, the HOA is forming in response to some underprovision by the public sector.

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[5] This correlation is in addition to any correlation between income and race, ethnicity, and age.

Model

Because we are interested in the conditions that correspond with HOA formation in a particular census tract over time, we take a duration analysis approach. This analytical approach enables us to include a set of temporally changing covariates, and we can eliminate from the "eligible" tracts the ones that already have an HOA. Therefore, we are really getting, at any point in time, the likelihood of the first HOA adoption. We follow Florida census tracts from 1970 to 2008 and relate the time that passes before an event ("failure") to time-varying demand-side, supply-side, and public finance (institutional) covariates. A tract experiences failure when the first HOA incorporates within its boundaries. This observation represents an uncensored observation. If a tract never has an HOA form, it is a censored observation.

We fit a Cox proportional hazards model with time-varying covariates. The hazard function, which describes the instantaneous risk of an HOA forming at a point in time, is assumed to take on the following form—

$$\lambda(t|X) = \lambda_0(t) \exp(\beta_1 X_1 + \ldots + \beta_n X_n), \tag{1}$$

where $\lambda_0(t)$ is the baseline hazard function and X is the covariate vector. By assuming proportional hazards (that is, that the covariates are multiplicatively related to the hazard), it is possible to estimate the β (the coefficients on the covariates) with the baseline hazard unspecified. The exponentiated coefficients can be interpreted as multiplicative effects on the hazard.

It is also possible to stratify the baseline hazard functions across a particular set of categories. We stratify the hazards by counties, because counties in Florida can differ substantially in demographics, economic makeup, and government (all of which could be correlated with the likelihood of HOA formation at the neighborhood level). The stratified Cox model thus fits the following model—

$$\lambda(t|X, Z = j) = \lambda_0^{\,j}(t) \exp(\beta_1 X_1 + \ldots + \beta_n X_n), \, j = \text{counties}. \tag{2}$$

Although the coefficients β are the same for each county, the baseline hazard functions are allowed to be different for each county. We first present unstratified and then stratified estimation results in the exhibits that follow.

Data

In this section we describe the data sources for our analysis and present an overview of the data in our sample.

HOA Data

Our duration variable is identified off of the time until a particular census tract obtains its first HOA. Therefore, we need to know the precise location of each HOA in the state. Florida has obvious advantages for such an analysis: it has one of the highest numbers of HOAs in the United States (more than 16,000 as of 2010), and its municipalities are relatively diverse in terms of density and demographic and economic composition. Information on Florida HOAs was obtained

from Sunshine List, a private, Florida-based corporation that has compiled the most comprehensive and up-to-date list of HOAs in the state. This dataset includes information on the location and creation date of every active HOA in Florida as of 2008 (the first HOA was incorporated in 1959).[6] This company compiles a list of all the HOA officers in the state for the purposes of marketing to service providers (lawyers, accountants, landscapers, and so on). Each entry includes information about an officer who sits on the board of the HOA, a unique HOA identification number, the officer's address, and the incorporation date of the HOA.

Using Geographic Information System (GIS) software, we geocode the reported addresses of the officers onto an electronic parcel map of the state obtained from the Florida Department of Revenue. Because HOA officers generally live in the HOA they serve, we overlay a census tract map on the parcels, and we assign to each census tract the *year of incorporation* for the first HOA in that tract. If a census tract does not have an HOA throughout the entire sample period (1970 to 2008), this observation is equivalent to a "censored observation" (never observed to have failed) in the duration analysis terminology.[7]

We note a caveat to our approach. The address of an officer in our dataset is self-reported, and two potential reasons may point to why the address may not be the actual residence of the officer. First, the officer may have put the HOA's management office as his or her address. Second, the officer uses the HOA unit as a second or vacation home or rents it out. We have devised an algorithm to identify these suspect HOAs, and we are forced to drop them from our sample.[8] We are confident that our assumptions are reasonable and, if anything, err on being conservative in terms of determining the scope of HOAs in the state.[9]

Census Data

For the time-varying covariates, we supplement our HOA map with data on census tract economic and demographic characteristics from the Geolytics Neighborhood Change Database. This database contains census data and normalizes the census tract boundaries to 2000 geographic definitions so that the tracts can be analyzed as a panel across 1970, 1980, 1990, and 2000 census years. Tracts enter the analysis with census covariate values from 1970, and, as long as they remain without an HOA, their census covariates change with the decennial census. In other words, if a tract receives an HOA in 1993, then we assume that it had 10 years of influence from covariates from the 1970 census, 10 years of influence from covariates from the 1980 census, and 3 years of influence from covariates from the 1990 census before failure. Using the most recent past census in this way protects us against bias from reverse causality.

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[6] HOAs are rarely, if ever, dissolved.

[7] Few census tracts exist in which the first HOA was formed before 1970, the start of our sample period. For this analysis, we assume these tracts to have had the first tract formed in 1971 (that is, "failure" almost immediately).

[8] We will not elaborate on the algorithm here, but a nonexhaustive list follows of reasons that would cause us to reject an address as being the actual location of an HOA: (1) the address reported is zoned commercial, (2) identical addresses are reported for more than one HOA (which is likely an office building), and (3) the address belongs to a different city from the other officers in the same HOA.

[9] We test and verify the robustness of the HOA boundary assignment in a separate paper (Meltzer and Cheung, 2014).

On the demand side, we include in our main specification the following tract-level variables as covariates: percent Black; percent Hispanic; percent under 5 years old; percent 65 years old and older; percent with a bachelor's degree or higher; average family income[10]; percent foreign born; percent taking public transit to work; and percent living in the same house 5 years ago. On the supply side, we include as covariates in our main specification the following tract-level variables: (1) distance to the central business district,[11] (2) vacancy rate, (3) owner-occupancy rate; and (4) percentage of houses that are 30 years old or older.[12]

Finally, to explore the importance of the institutional context, we include public finance variables on government revenues and expenditures from the U.S. Census of Governments. We rely on data from 1972, 1982, 1992, and 2002, the years closest to the decennial years for which a census of governments for all municipalities is conducted. Each tract is assigned the revenue or expenditures of its host municipality. Because some census tracts are not located in incorporated cities, the sample size is significantly smaller for the models with public finance variables. All variables are real, per capita values. On the revenue side, we include total own-source revenue.[13] On the expenditure side, we include total general expenditures, as well as spending on four major categories that are presumed substitutable with HOA expenditures: (1) roads, (2) police, (3) solid waste collection, and (4) parks and recreation.

Description of the Sample

Our data cover census tracts in 26 of the 67 counties in Florida. We dropped counties from the analysis because of incomplete data. First, areas designated as census tracts in 2000 and 2008 were not necessarily designated as tracts in 1970 and 1980, and we need to be able to follow the census tracts through the entire study period to estimate the hazard ratio. Note that areas that were not designated as tracts in 1970 tend to be rural and nonmetropolitan; these areas, even today, do not tend to have HOAs. We also drop counties if they were missing subdivision and GIS parcel files or because of lack of variation in HOA membership. Exhibit 1a shows that our data ultimately cover most urban areas in the state. By retaining the most populous counties that together account for 85 percent of the population of the state, our sampling method does not cause us much concern for the validity of our results.

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[10] All dollar values throughout this article have been expressed in 2000 dollars, based on the Consumer Price Index.

[11] We used GIS to measure the straight-line distance between the centroid of a census tract and its central business district (CBD). The CBD is the point in the city designated by the Census Bureau as the center of the metropolitan statistical area.

[12] In other specifications, we explore more covariates, such as percentage with a high school diploma or higher, unemployment rate, and poverty rate. Because these covariates do not add much to the main results, they are not included in the reported specifications.

[13] We also run models with revenue from three major categories (property taxes, sales taxes, and charges/fees), but the results do not add anything substantively to the model with aggregate revenues. Therefore, it is omitted from the presented analysis.

Our entire working dataset consists of 2,176 census tracts, with a mean population of 3,127, in the demand- and supply-side models, and 1,270 census tracts, with a mean population of 3,493, in the public finance models. A list of all the variables in the analysis, along with their summary statistics pooling all four censuses together, is presented in exhibit 1b.

Exhibit 1a

Counties Used in Analysis

County	Population (2000)	Percent of Florida Population (2000)
Alachua	217,955	1.4
Bay	148,217	0.9
Brevard	476,230	3.0
Broward	1,623,018	10.2
Clay	140,814	0.9
Duval	778,879	4.9
Escambia	294,410	1.8
Hillsborough	998,948	6.3
Lee	440,888	2.8
Leon	239,452	1.5
Manatee	264,002	1.7
Marion	258,916	1.6
Miami-Dade	2,253,362	14.1
Nassau	57,663	0.4
Okaloosa	170,498	1.1
Orange	896,344	5.6
Osceola	172,493	1.1
Palm Beach	1,131,184	7.1
Pasco	344,765	2.2
Pinellas	921,482	5.8
Polk	483,924	3.0
St. Johns	123,135	0.8
Santa Rosa	117,743	0.7
Sarasota	325,957	2.0
Seminole	365,196	2.3
Volusia	443,343	2.8
TOTAL	**13,688,818**	**85.6**
Florida	*15,982,378*	

Exhibit 1b

Summary Statistics of Key Variables

Variable	Tracts	Mean	Std. Dev.	Min.	Max.
Demand-side variables					
Black share	2,176	0.16	0.27	0.00	1.00
Hispanic share	2,176	0.09	0.18	0.00	0.96
Children under 5 share	2,176	0.07	0.03	0.00	0.23
Adults over 65 share	2,176	0.16	0.12	0.00	0.94
College degree or higher share	2,176	0.13	0.10	0.00	0.79
Average annual family income*	2,176	26.375	10.130	2.706	188.646
Foreign-born share	2,176	0.10	0.15	0.00	0.87
Travels by transit to work share	2,176	0.03	0.06	0.00	0.49
Lived in same house 5 years ago share	2,176	0.44	0.14	0.00	0.88
Supply-side variables					
Vacancy rate	2,176	0.10	0.08	0.00	0.84
Owner-occupancy rate	2,176	0.62	0.21	0.00	1.00
Distance to central city	2,176	10.73	7.87	0.02	46.97
Percent houses over 30 years old	2,176	0.20	0.23	0.00	0.96
Public-finance variables per capita					
Own-source revenue	1,270	0.46	0.24	0.03	2.57
General expenditures	1,270	0.55	0.32	0.00	2.53
Roads expenditures	1,270	0.04	0.03	0.00	0.42
Parks and recreation expenditures	1,270	0.05	0.05	0.00	0.44
Police expenditures	1,270	0.09	0.05	0.00	0.45
Solid waste expenditures	1,270	0.04	0.03	0.00	0.39

Max. = maximum. Min. = minimum. Std. Dev. = standard deviation.
** In thousands of 2000 dollars.*

HOAs in Florida

Like trends in the rest of the United States, HOAs in Florida have proliferated during the past 30 years and during the past decade in particular. Exhibit 2 provides evidence of this proliferation. The first recorded HOA was established in 1959 and, since 1990, the number of HOAs in Florida has increased by nearly 140 percent. To put this growth in context, the number of new housing units in Florida has increased by 14 percent during the same period, and the number of units in HOAs nationwide has increased by about 50 percent (Community Associations Institute, 2008).

The maps in exhibit 3 also illustrate that the growth of HOAs has been unevenly distributed throughout the state. They have primarily emerged along the coasts and increasingly in the central peninsula and pockets of the northern panhandle. As expected, they are most prevalent in the central and suburban parts of the state, where developable land is abundant. The number of jurisdictions with HOAs has grown dramatically as well. In 1970, only 39 cities (out of 397) in our sample had an HOA. This number grew to 113 by 1980, 158 by 1990, and 178 by 2008. Within a jurisdiction, the number of HOAs varies considerably; as of 2008, some places had only one HOA while others had 300 or more.
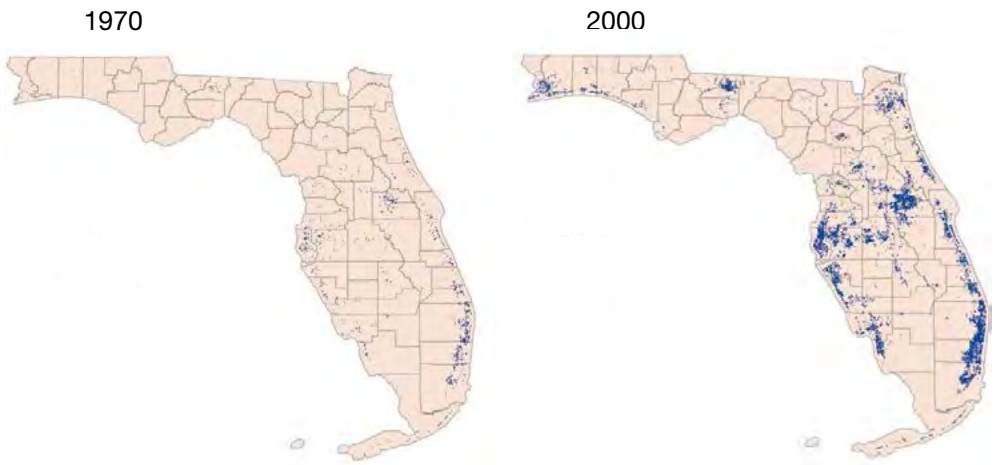
Exhibit 2

Number of Homeowners Associations in Florida Over Time

Cumulative Number of Homeowners Associations in Florida
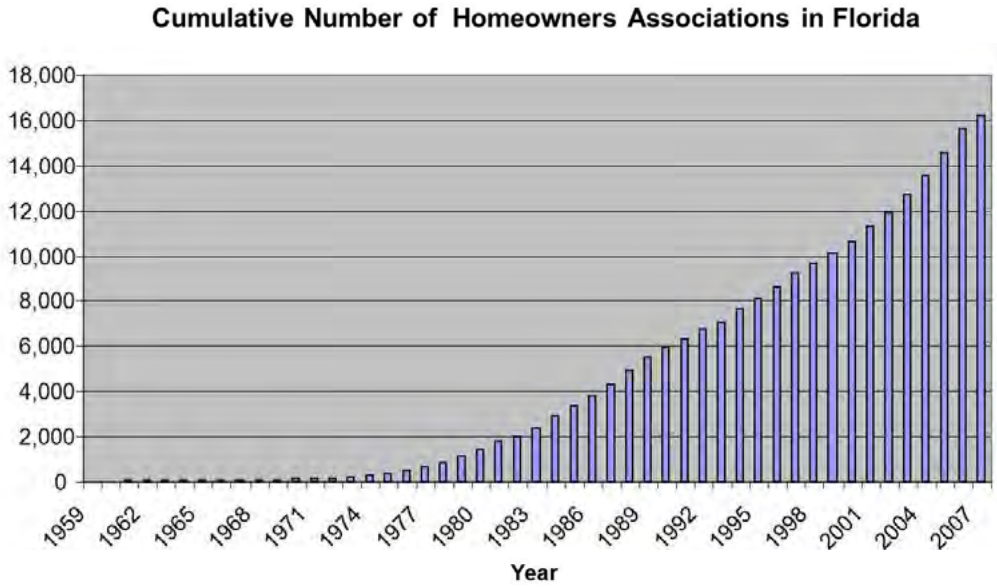
Source: Meltzer, Rachel. 2013. *"Do Homeowners Associations Affect Citywide Segregation? Evidence From Florida Municipalities,"* Housing Policy Debate *23 (4): 688–714*

Exhibit 3

Spread of Homeowners Associations Across Florida

1970	2000

Regression Results

We fit a Cox proportional hazards model with time-varying covariates to predict the likelihood of HOA formation in a census tract. All standard errors are clustered by census tract.

Demand-Side Predictors

We first describe the results for the models including demand-side predictors only (see exhibit 4). Column (a) reports the coefficient estimates, while column (b) reports the hazard ratios (exponentiated coefficients). We see that race/ethnicity and income are more significant predictors than age or education.[14] Neighborhoods with higher shares of Black and foreign-born residents are less likely to form HOAs. The likelihoods of forming HOAs specifically are reduced by 37 and 59 percent, respectively, when the share of Black or foreign-born residents in a tract goes up by 1 unit (that is, the share rises from 0 to 100 percent).[15] Although the coefficient on the share Hispanic is not significant, it is also negative. Tracts with higher average family incomes are more likely to form HOAs— 14 percent more likely for a $10,000 increase. Because we know that HOA properties tend to sell at

Exhibit 4

Demand-Side Covariates

Variable	(a) Coefficients	(b) Hazard Ratios
Black	− 0.458***	0.63
	(0.158)	
Hispanic	− 0.309	0.73
	(0.410)	
Children under 5	1.148	3.15
	(1.177)	
Adults over 65	0.230	1.26
	(0.286)	
College degree or higher	0.457	1.58
	(0.322)	
Average family income	0.149***	1.16
	(0.003)	
Foreign born	− 0.889*	0.41
	(0.507)	
Travels by transit to work	− 3.736***	0.02
	(0.858)	
Lived in same house 5 years ago	− 1.242***	0.29
	(0.181)	
Number of tracts (observations)	2,176	

* significant at the 10-percent level. *** significant at the 1-percent level.
Note: Robust standard errors (in parentheses) clustered at the census tract.

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[14] Note that more parsimonious models without education produce essentially the same coefficient for income (it is slightly larger); therefore, multicollinearity is not a concern.

[15] Hazard ratios are obtained by taking e to the power of the coefficient.

higher prices than other comparable houses (in addition to the required membership fee), new HOA residents are likely similar (in terms of affluence) to those already living in the area. That is, this finding is not consistent with the prediction that the HOA is creating an enclave for relatively affluent households in the context of less affluent neighborhoods. Along similar lines, the findings suggest that HOAs are more likely to emerge in predominantly nonminority neighborhoods—this coefficient could be picking up some income-related mechanism, but it may also reflect a different proclivity for exclusionary communities. We also find the neighborhoods with higher shares of newcomers and commuters using public transportation are *less* likely to form HOAs. These results suggest that HOAs tend to form in younger (or more transient) communities that are not transit oriented (that latter finding could, again, be picking up some differences in income as well).

Supply-Side Predictors

Next we run models with only supply-side predictors; these results are displayed in exhibit 5. All the variables are significant. HOAs are more likely to form in neighborhoods that have higher vacancy and homeownership rates and, on average, newer housing. Therefore, HOAs are formed in the context of new housing developments (as predicted), they tend to govern homeowners (versus renters), and they tend to emerge in less constrained markets (as indicated by the reverse relationship with vacancy rates). Neighborhoods located farther from the central business district (CBD) (that is, closer to the municipal outskirts) are also more likely to form HOAs. A 1-mile increase in distance to the CBD increases the hazard ratio by 0.7 percent. This finding is consistent with the expectation that HOAs need larger swaths of land, which tend to be situated toward the city's fringe.

We proceed by combining demand- and supply-side variables into a single model. These results are displayed in exhibit 6, columns (a) and (b). The general pattern of the coefficients is consistent; however, the coefficients do tend to decrease in magnitude (this pattern is consistent with the fact that the demand- and supply-side variables inevitably pick up overlapping mechanisms). We note two important changes in the coefficients: (1) education is now significant (still positive) and (2) distance to the CBD assumes a slightly larger coefficient (it is still positive and significant).

Exhibit 5

Supply-Side Covariates

Variable	(a) Coefficients	(b) Hazard Ratios
Vacancy rate	1.941***	6.96
	(0.294)	
Owner-occupancy rate	0.956***	2.60
	(0.137)	
Distance to central city	0.00746***	1.01
	(0.00286)	
Percent houses over 30 years old	– 1.344***	0.26
	(0.133)	
Number of tracts (observations)	2,176	

*** *significant at the 1-percent level.*
Note: Robust standard errors (in parentheses) clustered at the census tract.

Exhibit 6

Full Model and County Strata

Variable	(a) Full Model, Not Stratified by County	(b)	(c) Full Model, Baseline Strata by County	(d)
	Coefficients	Hazard Ratios	Coefficients	Hazard Ratios
Black	− 0.304*	0.74	− 0.721***	0.49
	(0.159)		(0.172)	
Hispanic	− 0.0919	0.91	0.0815	1.08
	(0.413)		(0.453)	
Children under 5	0.670	1.95	1.217	3.38
	(1.170)		(1.244)	
Adults over 65	− 0.0624	0.94	− 0.216	0.81
	(0.304)		(0.329)	
College degree or higher	1.046***	2.85	0.971**	2.64
	(0.325)		(0.380)	
Average family income	0.010***	1.01	0.009***	1.01
	(0.003)		(0.003)	
Foreign born	− 0.884*	0.41	− 1.462**	0.23
	(0.515)		(0.637)	
Travels by transit to work	− 1.366	0.26	0.267	1.31
	(0.841)		(0.825)	
Lived in same house 5 years ago	− 1.197***	0.30	− 0.983***	0.37
	(0.200)		(0.230)	
Vacancy rate	1.024***	2.78	1.278***	3.59
	(0.342)		(0.348)	
Owner-occupancy rate	0.728***	2.07	0.933***	2.54
	(0.163)		(0.171)	
Distance to central city	0.0103***	1.01	0.00272	1.003
	(0.00291)		(0.00344)	
Percent houses over 30 years old	− 0.698***	0.50	− 0.757***	0.47
	(0.133)		(0.147)	
Number of tracts (observations)	2,176		2,176	

* significant at the 10-percent level. ** significant at the 5-percent level. *** significant at the 1-percent level.
*Note: Robust standard errors (in parentheses) clustered at the census tract.*

Exhibit 7 presents a plot of the survival curve calculated at the mean values. The horizontal axis begins at 1970 (year 0). The survival falls steeply for roughly the first 15 years, representing the rapid adoption of HOAs in the 1970s and 1980s. It hits 0.5 around 1976. The survival curve flattens in the 1990s and 2000s. This slower rate of adoption suggests that HOAs have become more clustered, because fewer tracts are receiving their first HOA in later years.[16]

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[16] We also stratify the data by running separate hazards for different sizes of the first HOA to see if it explains their proliferation across different neighborhoods; we see no evidence to suggest that the overall formation patterns of HOAs are differentiated by the actual size of the HOA.

Exhibit 7

Survival Curve From Full Model
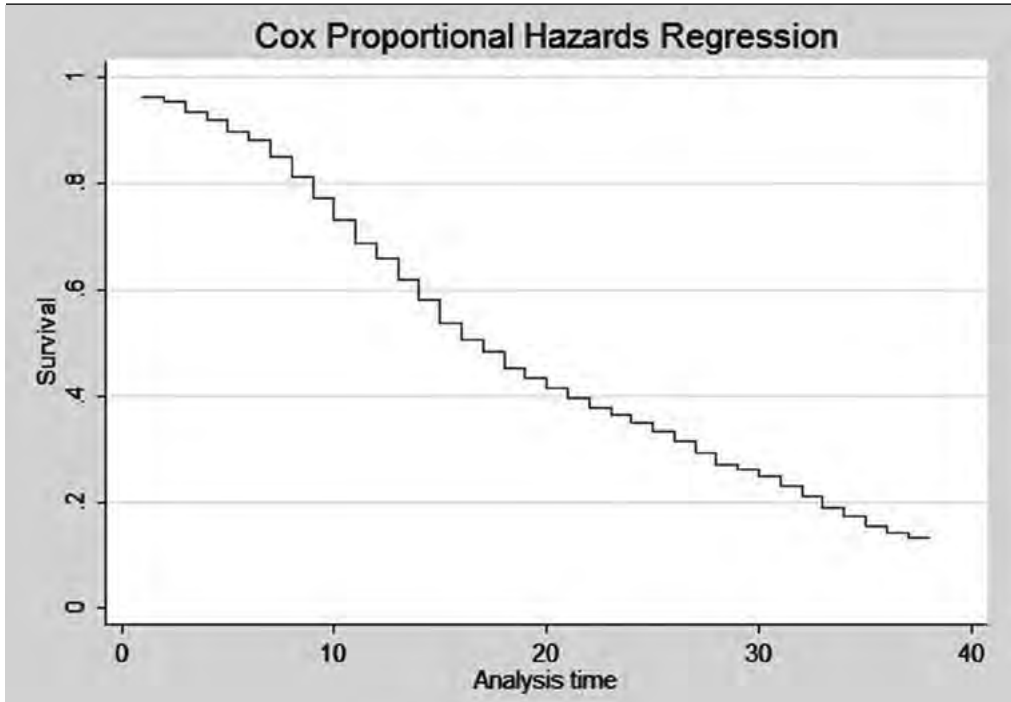
Note: The estimated survival curve (at mean values) is plotted with 1970 as the beginning of the analysis time.

Finally, we also augment the model by stratifying by county. In this specification, we allow for the hazard baseline to vary by county to control for any unobserved heterogeneity in the broader geography that could be correlated with the likelihood of HOA formation. As the coefficients in the second vertical panel of exhibit 6 indicate, the results are substantively the same, except now distance to the CBD is insignificant (but still positive).

Municipal Institutional Predictors

We add to the combined demand- and supply-side covariates measures of citywide fiscal conditions in exhibit 8. In all specifications, we stratify by county.[17] Because of space constraints, we report only the coefficient estimates rather than the hazard ratios. Column (a) adds the total per capita general expenditures of the city, and the coefficient is significantly negative and large: a one-unit change in city expenditures (an increase of $1,000 per capita) will decrease the hazard ratio by 20 percent. This finding suggests that census tracts located in cities that have high public spending are less likely to form an HOA, all else being equal. This result provides additional evidence to Cheung (2008a, 2008b) that homeowners may regard public and private government spending

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[17] The public finance results tend to be less stable with respect to the mix of covariates and whether we stratify by county. Therefore, we view this section's findings as being more illustrative than definitive.

Exhibit 8

Public Finance Covariates

Variable	(a) Expenditures	(b) Revenues	(c) Roads Only	(d) Parks Only	(e) Police Only	(f) Trash Only
Black	− 0.949***	− 0.954***	− 0.961***	− 0.968***	− 0.957***	− 0.961***
	(0.216)	(0.216)	(0.216)	(0.217)	(0.216)	(0.216)
Hispanic	− 1.509***	− 1.530***	− 1.552***	− 1.614***	− 1.566***	− 1.558***
	(0.574)	(0.573)	(0.571)	(0.573)	(0.571)	(0.569)
Children under 5	− 0.228	− 0.228	− 0.0623	− 0.289	− 0.141	− 0.0896
	(1.622)	(1.621)	(1.630)	(1.628)	(1.627)	(1.624)
Adults over 65	− 0.705	− 0.695	− 0.664	− 0.658	− 0.622	− 0.622
	(0.434)	(0.433)	(0.431)	(0.431)	(0.433)	(0.431)
College degree or higher	0.474	0.476	0.436	0.514	0.429	0.421
	(0.482)	(0.481)	(0.482)	(0.486)	(0.482)	(0.483)
Average family income	0.011***	0.011***	0.011***	0.011***	0.010***	0.010***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Travels by transit to work	0.0356	0.0479	0.0599	0.202	0.0693	0.0877
	(0.985)	(0.985)	(0.983)	(0.985)	(0.984)	(0.984)
Foreign born	0.361	0.384	0.420	0.525	0.460	0.452
	(0.794)	(0.794)	(0.792)	(0.795)	(0.794)	(0.791)
Lived in same house 5 years ago	− 1.038***	− 1.027***	− 1.003***	− 0.989***	− 1.033***	− 1.046***
	(0.325)	(0.325)	(0.327)	(0.327)	(0.326)	(0.329)
Vacancy rate	0.830*	0.826*	0.687	0.624	0.628	0.647
	(0.454)	(0.462)	(0.446)	(0.448)	(0.464)	(0.445)
Owner-occupancy rate	0.470**	0.479**	0.479**	0.480**	0.529**	0.544**
	(0.228)	(0.228)	(0.228)	(0.230)	(0.229)	(0.229)
Distance to central city	0.00639	0.00678	0.00700	0.00699	0.00781	0.00770
	(0.00516)	(0.00516)	(0.00509)	(0.00510)	(0.00520)	(0.00511)
Percent houses over 30 years old	− 0.647***	− 0.649***	− 0.663***	− 0.641***	− 0.670***	− 0.677***
	(0.185)	(0.184)	(0.184)	(0.185)	(0.184)	(0.185)
General expenditures per capita	− 0.218*					
	(0.116)					
Own-source revenue per capita		− 0.231				
		(0.145)				
Roads expenditures per capita			− 2.641*			
			(1.478)			
Parks and recreation expenditures per capita				− 1.484		
				(1.165)		
Police expenditures per capita					0.0589	
					(0.925)	
Solid waste expenditures per capita						0.682
						(1.722)
Number of tracts (observations)	1,270	1,270	1,270	1,270	1,270	1,270

* significant at the 10-percent level. ** significant at the 5-percent level. *** significant at the 1-percent level.

Notes: All models are stratified by county. Only the coefficients, not the hazard ratios, are reported. Robust standard errors (in parentheses) are clustered at the census tract.

as substitutes. Column (b), however, shows that no such interaction exists between local revenues and HOA formation. Perhaps with expenditures, a more obvious and visible substitutability exists between local governments and HOAs that is not present with revenues.

We then explore finer categories of local expenditures to see if any particular type of service provision affects the likelihood of HOA formation. We choose categories of public spending that can be viewed as most redundant with HOA services: roads, parks and recreation, police, and trash collection. Columns (c) through (f) report these results. We put each category separately into a specification to avoid problems of collinearity between categories. The results show that only road spending affects the likelihood of HOA formation, and its effect is negative. We posit that this result indicates that HOAs (or specifically the developers that build them) often pick up the tab for the road infrastructure (and even road maintenance), and so it makes sense that they would form in places that tend to spend less on these investments.

Conclusion

The proliferation of homeowners associations can bring promising and challenging circumstances for municipalities. Empirical evidence shows that the presence of HOAs can provide fiscal relief for municipalities in the form of services and infrastructure and potentially localized oversight in times of housing distress. HOAs can also threaten a city's prospects for integration, however. In this article, we take a step back and investigate the determinants of HOA formation in an attempt to better understand the uneven nature of their emergence. We think that this investigation has implications for analyzing HOA effects and implementing HOA-related policies.

Our findings suggest that race/ethnicity and income are important predictors of where HOAs form. HOAs are more likely to form in predominantly White and relatively more affluent tracts. If HOAs tend to be homogeneous (racially/ethnically and economically) *and* they tend to locate in already homogeneous neighborhoods, the outcome is less likely to be more integrated residential communities.[18]

We also find that HOAs are more likely to form in tracts that are farther away from city centers and with lower shares of residents who use public transit. These findings suggest that HOAs are not conducive to smart growth or transit-oriented development. This proposition is also supported by higher probabilities of HOA formation being associated with lower public road infrastructure spending. Indeed, the local government often requires the developer to fill in road networks to access the new housing. We ask: Are local governments intentionally withdrawing from certain services to encourage the formation of HOAs? We also find that tracts located in cities that spend relatively less on public services overall are more likely to form HOAs, which is also suggestive of the substitutability between HOAs and local public services.

Although HOAs have largely been unencumbered by public oversight, their proliferation can affect the quality of life for members and nonmembers alike. They can also prove to be a useful partner for local municipalities in neighborhood maintenance and development. Perhaps in this postrecession adjustment of slower housing growth, we can take time to consider more fully the implications of HOAs and other similar private governments.

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[18] This outcome is consistent with Meltzer (2013), who found that HOAs exacerbate racial/ethnic segregation.

Authors

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Race, Segregation, and Choice: Race and Ethnicity in Choice Neighborhoods Initiative Applicant Neighborhoods, 2010–2012

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Abstract

During the past two decades, concern about spatial concentrations of poverty and disadvantage has become an ascendant scholarly and policy issue, and research on the effect of neighborhoods on individual and family life chances has grown substantially. The Choice Neighborhoods Initiative (hereafter, Choice), introduced in 2009, is a new federal program designed to address concentrated poverty. Choice, which is functionally the successor to the Housing Opportunities for People Everywhere, or HOPE VI, Program, provides competitive grants to fund redevelopment and revitalization in neighborhoods that have concentrations of poverty and publicly subsidized housing, with the goal of transforming them into neighborhoods of choice, thereby improving neighborhood outcomes. For the types of neighborhoods being targeted, little information beyond their having high rates of poverty is so far available. Drawing from the results of U.S. Department of Housing and Urban Development-funded research on the characteristics of Choice Planning Grant applicants, this article presents findings related to race and ethnicity in these targeted neighborhoods. The findings show that Choice Planning Grant applicant neighborhoods are highly segregated by race and ethnicity and that this segregation is linked to differences in educational attainment, labor force participation, unemployment rates, and income levels. These demographics suggest that Choice, like its predecessor, is likely to have a disproportionate effect on minority racial and ethnic groups.

Introduction

In 2009, the Obama Administration proposed a new program aimed at revitalizing neighborhoods marked by high poverty and severely distressed housing. Named the Choice Neighborhoods Initiative (hereafter, Choice), this program would act as a successor to the long-running Housing Opportunities for People Everywhere (HOPE VI) Program. Choice is part of the Obama Administration's Neighborhood Revitalization Initiative (NRI), a series of coordinated, place-based neighborhood revitalization programs extending across multiple federal agencies, including the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Education, and the U.S. Department of Justice. Choice is administered by HUD and addresses the housing and built environment component of the NRI. Although the U.S. Congress has yet to authorize Choice, it has appropriated funds for the program each year since fiscal year (FY) 2010.

Like funding for HOPE VI, Choice funds are distributed through competitive grants. This investment is intended to leverage additional public and private resources and investment to plan for and subsequently reshape these areas into sustainable, mixed-income neighborhoods in which individuals and families will choose to live. Employing an approach used during the first 3 years of HOPE VI, Choice provides two types of grants: Planning Grants and Implementation Grants.[1] Planning Grants provide comparatively modest funds for developing Transformation Plans to guide neighborhood revitalization, and Implementation Grants provide larger sums to facilitate implementation of a Transformation Plan. This article focuses on neighborhoods for which Planning Grant applications have been made. Drawing from a more comprehensive report on the demographic, economic, and housing characteristics of the first three Planning Grant applicant cohorts (FYs 2010, 2011, and 2012), this article highlights one vital characteristic of applicant neighborhoods: their racial and ethnic composition.

Choice, again like HOPE VI, has the core mission to deconcentrate poverty. Exceeding a minimum rate for poverty or extremely low-income households, along with the presence of distressed, subsidized housing, is the key threshold neighborhoods must pass to apply for a Planning Grant. The racial and ethnic composition of these neighborhoods is not an essential consideration in applying for or receiving a grant. Yet recent federal low-income housing policies, whether intended or not, have had significant and disproportionate effects on racial and ethnic minorities (Goetz, 2013; Popkin et al., 2004). Examining the racial and ethnic characteristics of Choice applicant neighborhoods illuminates the potential of Choice to affect low-income minority groups, and, given the results presented in the following sections, recommends caution in creating and implementing revitalization plans.

Choice also offers a fascinating window onto high-poverty urban neighborhoods across the United States. Unlike the characteristics of HOPE VI, the demographics of Choice neighborhoods are not constrained by the groups served by the public housing program. Rather than focusing on individual public housing properties, Choice allows for local groups to identify entire neighborhoods that

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[1] This approach has also been used in other recent initiatives, including the U.S. Department of Education Promise Neighborhoods initiative and Sustainable Communities Initiative.

they deem to be in need of revitalization. Thus, Choice applicant neighborhoods represent a sample of high-poverty, distressed neighborhoods in U.S. cities. They offer an opportunity to explore the other characteristics of these neighborhoods and possibly identify similarities and trends.

One clear trend that emerged throughout the broader research from which this article is drawn is that the neighborhoods identified in applications for Choice Planning Grants are highly racially and ethnically segregated. With the exception of a small number of mixed neighborhoods, most neighborhoods have majority minority populations with concentrations far exceeding national averages. Although some neighborhoods have followed national trends of increasing diversity, most neighborhoods with high concentrations of minority groups have had these high concentrations for at least the past 20 years. These neighborhoods of persistent segregation and isolation both reinforce the need for a coherent strategy for addressing residential segregation and potentially complicate the implementation of Choice.

U.S. Housing Policy and Poverty Deconcentration

During the past two decades, federal urban and public housing policy in the United States has been increasingly focused on poverty deconcentration. Considerable scholarly attention has been directed toward understanding the causes, extent, and effects of concentrated poverty and the benefits, challenges, and mechanisms of mixed-income neighborhoods. Federal housing policy and expenditures also have reflected the interest in concentrated poverty and mixed-income neighborhoods, and substantial resources have been dedicated toward combating the former and creating the latter.

Beginning in the late 1980s, researchers began to highlight a significant and growing trend of spatial concentrations of high-poverty households in cities (for example, Danziger and Gottschalk, 1992; Jargowsky, 1997; Jargowsky and Bane, 1991; Wilson, 1987). Concentrated poverty was highly correlated with concentrations of minority populations, and some scholars argued that concentrated poverty was a direct result of racial segregation (Massey and Denton, 1993). When translated from scholarship into policy, however, the explicit focus was on poverty rather than race. A number of reasons contribute to this focal point, including that concentrated poverty was growing while racial segregation had peaked in the 1960s (Logan, 2013; Logan and Stults, 2011) and that poverty provided a more acceptable basis for federal policy than race (Goering and Feins, 2003; Goetz, 2010). New programs that were introduced aimed at deconcentrating poverty by dispersing public housing residents to lower poverty neighborhoods or by redeveloping public housing complexes into mixed-income neighborhoods that would combine dispersal with a dilution of concentrated poverty through an influx of high-income households. The former is exemplified by the Moving to Opportunity for Fair Housing (MTO) demonstration program (hereafter, the MTO program) and the increased use of vouchers through the Housing Choice Voucher Program, and the latter is exemplified by HOPE VI.

The MTO program, begun in 1994, was intended to identify the benefits for low-income families from moving from high- to low-poverty neighborhoods by selecting a random sample of willing public housing families to receive rent vouchers that could be used only in neighborhoods that had poverty rates of less than 10 percent. Residents were tracked to assess the potential benefits of these moves. HOPE VI, which started in 1992 as the Urban Revitalization Demonstration program, employed a different but largely complementary approach to deconcentrating poverty. In concept,

HOPE VI facilitated poverty deconcentration by dispersing low-income households displaced by demolition and by attracting higher income residents into new mixed-income neighborhoods via redevelopment.

Although public housing and neighborhood revitalization policies during the past 20 years have been conceived of as tools of poverty deconcentration, they have not been race or ethnicity neutral. Racial and ethnic segregation and separation by income levels are inextricably linked (Jargowsky, 1997; Massey and Denton, 1993), and programs to deconcentrate poverty have had racially and ethnically uneven effects. The demographics of public housing made some effect on minority households inevitable, although Goetz (2011) has shown that the effect was disproportionately large, even given the demographics. He found that demolition and displacement used in HOPE VI disparately affected Black households, forcing more to move out of their existing neighborhoods. The overall effect of this is ambiguous because some families moved to better neighborhoods and did well, while others experienced the opposite. Scholarship tracking resident relocation found that relocation often did little to change residential segregation and also found uneven outcomes for relocating families (Buron et al., 2002; Holin et al., 2003). Race and ethnicity were identified as a potential barrier for public housing residents to relocate to predominantly White neighborhoods through direct housing discrimination or limitations this discrimination placed on the housing search (Popkin and Cunningham, 2002). Racial deconcentration was accomplished through the introduction of higher income individuals into a neighborhood during the creation of mixed-income communities has produced more ambiguous effects on racial segregation with some neighborhoods that remain racially homogenous despite an influx of wealthier households (for example, Patillo, 2007), and these racially homogenous, mixed-income neighborhoods may struggle to attract the level of private investment necessary for sustained success (Turner, Popkin, and Rawlings, 2008).

Choice Neighborhoods Initiative

The Choice Neighborhoods Initiative was conceived as both a replacement for and an evolution of HOPE VI. Like its predecessor, Choice is a competitive grant program that has as a core focus the elimination of concentrations of poverty and creation of mixed-income communities through locally derived and implemented plans. The ultimate goal is to create neighborhoods where families of all incomes will choose to live (Pendall et al., 2013).[2]

Choice is not simply an extension of HOPE VI, however, but is intended to build from the successes and lessons learned from that program. As a result, Choice has several key differences from its predecessor. First, Choice expands redevelopment and revitalization activities beyond the footprint of a single public housing property. This change came from a growing recognition that deterioration and abandonment do not terminate at property lines. Although a small number of studies have shown positive spillover effects from HOPE VI redevelopment projects and many HOPE VI projects were conceived as catalysts for neighborhood revitalization, transformation of surrounding

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[2] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2010. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_9823.pdf.

neighborhoods is necessary for sustained success (Turbov and Piper, 2005; Zielenbach and Voith, 2010). Choice requires program applicants to self-define neighborhoods that will be the target for revitalization through the program. These neighborhoods must encompass more than a subsidized housing property.

Second, Choice expands the range of groups that can apply for the grants beyond public housing authorities. To draw in other capable local actors and to encourage coalition and capacity building, the pool of eligible applicants under Choice has been expanded to include actors such as cities and nonprofit organizations.

Third, the pool of eligible properties expands from only public housing properties to include other severely distressed, HUD-assisted housing. This property pool refers to publicly or privately owned properties subsidized through programs that include Section 8, Section 221(d)(3), and Section 236. Many of these properties are facing similar levels of distress as are the public housing properties that were the focus of HOPE VI. The effect of this change is a substantial increase in the number and range of properties that could be targeted and the number and range of neighborhoods that are eligible for the program. Low-Income Housing Tax Credit, or LIHTC, properties, because they are funded through a program administered by the Internal Revenue Service rather than a HUD program, are not eligible for Choice grants.

Although legislation authorizing the Choice Neighborhoods Initiative has been proposed in the Congress, the legislature has yet to pass the law that would fully authorize and fund the initiative. Instead, Choice was allowed to function as a $65 million demonstration through the U.S. Department of Housing and Urban Development Appropriations Act, 2010. Choice has continued using yearly congressional appropriations for HUD. Each year, HUD distributes funds through a competitive grant process guided by a notice of funding availability (NOFA).

As explained previously, Choice funds are distributed as two different grants—the Planning Grant and the Implementation Grant. Planning Grants, which are comparatively small amounts of money (up to $500,000), fund the creation of local Transformation Plans for locally identified neighborhoods that have high poverty rates and severely distressed subsidized housing. These Transformation Plans outline strategies that will be used to revitalize the target neighborhood in accordance with the goals of Choice and local priorities.

Implementation Grants are available to neighborhoods that meet the minimum criteria for Choice and that have an acceptable Transformation Plan in place. These Transformation Plans need not have been completed as part of a Planning Grant. Implementation Grants provide partial funding that can be used to leverage other public and private funding for activities to revitalize the target neighborhood. Successfully securing a Planning Grant does not automatically qualify an applicant or neighborhood for an Implementation Grant.

To apply for either a Planning or an Implementation Grant, applicants must identify an eligible neighborhood. Neighborhoods are eligible if (1) a minimum of 20 percent of neighborhood residents are either below the poverty line or have extremely low incomes, (2) an eligible severely distressed public or HUD-subsidized property lies within the neighborhood, and (3) the neighborhood

demonstrates one additional indicator of distress (that is, [a] violent crime rates during the past 3 years of at least 1.5 times the city rate, [b] long-term vacancy rates of at least 1.5 times the city rate, or [c] a low-performing school).[3]

Applicants are awarded points for (1) capacity of the applicant and relevant organizational staff, (2) need/extent of the problem, (3) soundness of approach, (4) leveraging resources, and (5) achieving results and program evaluation. Neighborhoods with higher levels of distress are awarded more points through the applicant rating process. Although the threshold criteria have remained consistent throughout each round of funding, the weight given to specific indicators of distress has changed. Regarding the need and extent of the problem, the weights for poverty or extremely low income levels and vacancy rates have stayed the same, but the weight given to high crime rates has increased and points awarded for low-performing schools have been removed entirely.[4, 5, 6]

Not included as a criterion for either applying for or receiving a Choice Planning Grant is racial or ethnic concentration. This exclusion is not the result of a lack of recognition of the problem of racial segregation or discrimination or of the possibility that neighborhoods applying for grants may have concentrated minority populations. These topics, as they apply to Choice, are addressed in several locations. The SuperNOFA, which are general guidelines that apply to all HUD grant programs, includes affirmatively furthering fair housing (AFFH) as one of the policy priorities. AFFH, or taking "steps proactively to overcome historic patterns of segregation, promote fair housing choice, and foster inclusive communities for all,"[7] is a standard to which HUD has been committed to upholding; new rules proposed in 2013 strengthen that committment. As described in the SuperNOFA, however, racial segregation and concentrated poverty can be addressed separately.[8] In addition, a wide range of potential proactive steps may be required of applicants. As translated from the Choice Planning Grant NOFA, applicants are required to affirmatively further fair housing through the marketing and outreach efforts to be used in each of the neighborhoods to attract residents.[9]

Choice is structured to promote fair housing primarily by addressing concentrated poverty rather than race. The likelihood that applicant neighborhoods will have concentrated minority populations is acknowledged in a statement added to the Planning Grant NOFAs beginning in 2012, however, which recognizes that many applicant neighborhoods may have high minority

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[3] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2010. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_9823.pdf.

[4] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2010. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_9823.pdf.

[5] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2011. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=cn_planning_nofa.pdf.

[6] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2012. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=fy12cn-planninggrants.pdf.

[7] "Affirmatively Furthering Fair Housing." Published in the *Federal Register* as a final rule on July 19, 2013. 78 Fed. Reg. 43710.

[8] Policy Requirements and General Section to HUD's FY 2013 NOFAs for Discretionary Programs. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=2013nofagensec.pdf.

[9] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2010. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_9823.pdf.

concentrations but that these neighborhoods are still eligible for the program because the intent is to make them neighborhoods of choice, presumably attracting a diverse, high-income population.[10] This statement was added to resolve any potential confusion caused by two other statements contained in the NOFAs regarding race. The first is a general statement regarding HUD's strategic plan to increase the percentage of assisted families in low-poverty, low-minority concentration neighborhoods. Consistent with this plan, a second statement indicates that replacement housing outside the Choice neighborhood must not be in areas of concentrated minority population, defined as more than 20 percent higher than the total percentage of the metropolitan statistical area (MSA) or more than 50 percent total[11] or of concentrated poverty, defined as more than 40 percent of residents living below the poverty line. If either of these two statements applied to the applicant neighborhoods, most residents would not be eligible to receive funds.

Implementation Grant NOFAs contain considerably more specific language regarding concentrated minority populations, including awarding points for applicants that recognize and address these concentrations in their Transformation Plans. These plans must not only fully describe conditions of segregation in targeted neighborhoods, but also include specific steps to "avoid or reduce concentrations of minority populations."[12]

None of the previously mentioned publications provides specific guidance for Planning Grant applicants regarding how they should consider or address concentrated minority populations within neighborhood boundaries. This lack of guidance is problematic. Although the demographics of poor, urban neighborhoods suggest that Choice will affect more minority households than White households, the extent is not as clear. Unlike the physical boundaries of HOPE VI, the boundaries of the urban areas affected by Choice are not set. It is possible that with larger neighborhoods and broader project eligibility, the demographics of Choice neighborhoods may, over time, be different from those of HOPE VI. Yet many of the underlying fundamentals are the same. Like its predecessor program, Choice is conceived as a tool to deconcentrate poverty, but its effects will not be race neutral. This fact needs to be explicitly recognized and addressed.

Methodology

Applicants for Choice select their own neighborhood boundaries using an online mapping tool, which then returns information about the proposed neighborhood, including the number of housing units, the poverty rate, and the rate of extremely low-income households. For this research, the neighborhood boundaries identified by Planning Grant applicants for the first 3 years of Choice were provided by HUD in the form of grid coordinates and Geographic Information System, or GIS, shapefiles. All Choice Planning Grant applicants and recipients for the first 3 years of the program were represented in the dataset. No sampling was involved; the dataset represents a 100-percent sample.

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[10] Choice Neighborhoods Initiative—Planning Grants. Notice of Funding Availability, FY 2012. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=fy12cn-planninggrants.pdf.

[11] This latter threshold was removed in the second Choice NOFA.

[12] Choice Neighborhoods Initiative—Implementation Grants. Notice of Funding Availability, FY 2012. U.S. Department of Housing and Urban Development. http://portal.hud.gov/hudportal/documents/huddoc?id=fy12-implem-nofa.pdf.

The neighborhood boundaries were merged with data from the 1990, 2000, and 2010 U.S. decennial censuses and 2006–2010 American Community Survey (ACS) 5-year estimates. Data from 1990 and 2000 were derived from Summary File 1 (SF1) and Summary File 3 (SF3). Data from 2010 include SF1 and ACS data.[13] Demographic data used in this research were at the smallest possible geographic unit for which data were available, the census tract or block group. Output tables were created for applicant neighborhoods, adjacent areas within 0.5 mile of the applicant neighborhoods, their adjacent areas, their cities, and their MSAs.

Many neighborhood boundaries did not directly align with census tract or block group boundaries. This overlap created the possibility that the output tables would either overestimate or underestimate. Where boundaries did not directly align, block groups were used when data were available at that level. Where neighborhood boundaries cut across block groups or where the data were not available at the block group level, the output tables included estimates of the part of the block group or census tract within the neighborhood. These estimates were calculated using the proportion of land area within the neighborhood. For example, if data were available only at the census tract level and 30 percent of that tract's land area was within a neighborhood, 30 percent of that census tract's data would be allocated to the neighborhood. This method for estimating still leaves the possibility of overestimation or underestimation if, for instance, the portion of the census tract within the neighborhood has a higher density than the portion without. Therefore, as a final step, outputs were cross-checked against data provided by HUD and against information obtained from a sample of applicants (via applicants' project summaries) to ensure that estimates in the output tables were accurate. The maximum variance between output table values and HUD or applicant-provided values was 2 percent, with 91 percent of cases having a variance of less than 1 percent.

The output tables were then used to produce descriptive statistics for the applicant neighborhoods, their adjacent areas, their cities, and their MSAs. Where relevant, comparisons with overall U.S. statistics were considered. Applicant neighborhoods were also categorized based on criteria that included year, region, and success for additional analysis. The full results are contained in a report published by HUD (Gebhardt 2014). Key results related to neighborhood race and ethnicity are reported in the following section.

Information on race and ethnicity is reported in six categories: (1) American Indian, (2) Asian and Pacific Islander, (3) Black, (4) Hispanic, (5) Other, and (6) White. These terms are used in place of non-Hispanic American Indian, non-Hispanic Asian and Pacific Islander, non-Hispanic Black, and non-Hispanic White. Hispanic is used for individuals of any race identifying as Hispanic.

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[13] The data in SF1 are drawn from the short-form questionnaire, which contained questions that were asked of every person in every housing unit. SF1 is a 100-percent sample that contains information on general population and housing characteristics such as age, gender, race, and tenure and vacancy status. SF3 contains data from the long-form questionnaire, which was administered to one out of every six households. The sample data in SF3 include more detailed population and housing characteristics, including education, income and employment, and age of housing. Beginning in 2003, the long-form questionnaire was replaced with the ACS, which is an ongoing monthly sampling of the U.S. population. ACS data are presented in 1-, 3-, and 5-year estimates. Only 5-year estimates are available at the census tract and block group level. The 5-year estimates are an average of the monthly data collected during a 5-year period and represent a survey of approximately one out of every eight households.

Choice Planning Grant Applicant Neighborhoods

During the first 3 years of Choice, 176 completed applications were submitted to HUD for Planning Grants: 76 in 2010 and 50 each in 2011 and 2012. HUD awarded 19 grants in 2010, 13 in 2011, and 17 in 2012. Applicants were not evenly distributed across the United States. Most applications (73 percent) were for neighborhoods in municipalities east of the Mississippi River. Most successful applications (84 percent) also were for neighborhoods in the eastern one-third of the United States. This distribution is similar to the distribution of HOPE VI applicants (79 percent from east of the Mississippi) and recipients (78 percent from east of the Mississippi). Applicant neighborhoods varied considerably in physical size, total population, and number of housing units, from as small as 0.02 square miles housing as few as 27 people in 4 housing units to as large as 22.22 square miles housing as many as 60,131 people in 22,017 housing units.

Of the applicant neighborhoods, 66 percent have lost population since 1990. On average, declining neighborhoods saw a 22-percent decrease in population. The population in growing neighborhoods increased an average of 37 percent. Neighborhoods receiving grants were more likely to be declining (71 percent declining) than neighborhoods not receiving grants (64 percent declining). Although the population change in some neighborhoods can be explained by a significant change in the housing stock (for example, the demolition of all or a portion of a public housing complex), overall the range of growth and decline is a reflection of different market conditions.[14] An interim report on the first set of Implementation Grant recipients also showed a range of market conditions. Different markets necessitated different redevelopment strategies, with plans for stronger market neighborhoods focused on increasing densities and infill development to respond to demand and plans for weaker market neighborhoods focused on improving services and amenities to generate demand (Pendall and Hendey, 2013; Pendall et al., 2013). These different approaches are potentially complicated by race, with strong market strategies increasing the possibility of gentrification and disproportionate displacement of racial minorities and weak market strategies facing the challenge of overcoming racial biases in addition to disinvestment and poor public services.

Neighborhood Race and Ethnicity

Taken as a whole, the neighborhoods identified by applicants during the first 3 years of Choice contain a racially and ethnically diverse population. The largest percentage of the population is Black (48 percent), but with substantial percentages of White (23 percent) and Hispanic (22 percent). The remainder of the overall population of applicant neighborhoods is Asian and Pacific Islander (4 percent), American Indian (2 percent), and other (2 percent). The overrepresentation of the Black population in Choice applicant neighborhoods relative to the national population is consistent with the historic concentration of Black residents in subsidized housing (see Goetz, 2013: 112–114). Any project that targets subsidized housing will necessarily have a higher effect on the Black population.

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[14] Changes in neighborhood population are correlated with differences in citywide economic conditions. For example, for declining neighborhoods citywide, median household incomes fell by an average of 6.3 percent between 1990 and 2010 but, for growing neighborhoods citywide, they increased by an average of 3.1 percent. Median household incomes in both declining and growing neighborhoods increased 1 percent during this same period.

Categorizing the proposed neighborhoods based on which racial or ethnic group represented a majority of the neighborhood's population reveals that, while the aggregate population for all neighborhoods is of mixed races and ethnicities, most neighborhoods are anything but mixed. Of the 176 neighborhoods, 13 (7 percent) have majority White populations and 163 (93 percent) have predominantly minority populations. A portion of the predominantly minority neighborhoods (49 neighborhoods, 30 percent of predominantly minority neighborhoods) have a mix of racial and ethnic groups with no single group constituting the majority of the population in that neighborhood. The exact mix within these neighborhoods varies, with some having as much as 49 percent of the population being Black, White, or Hispanic. In the rest of the predominantly minority neighborhoods (114 neighborhoods, 65 percent), a single racial or ethnic group comprises most of the neighborhood's population. Within this subset, 79 applicant neighborhoods (69 percent) are majority Black, 29 neighborhoods (25 percent) are majority Hispanic, and 3 neighborhoods (2.6 percent) each are majority Asian and Pacific Islander and American Indian. Exhibit 1 shows the average percentage of race or ethnicity in applicant neighborhoods overall, categorized by majority racial or ethnic group.

When the Choice applicant neighborhoods are grouped based on the neighborhood's majority racial or ethnic population, quite a different picture emerges than that of the aggregate. Although the mixed neighborhoods are relatively diverse, most neighborhoods have high concentrations of

Exhibit 1

Choice Applicant Neighborhood, by Race and Ethnicity
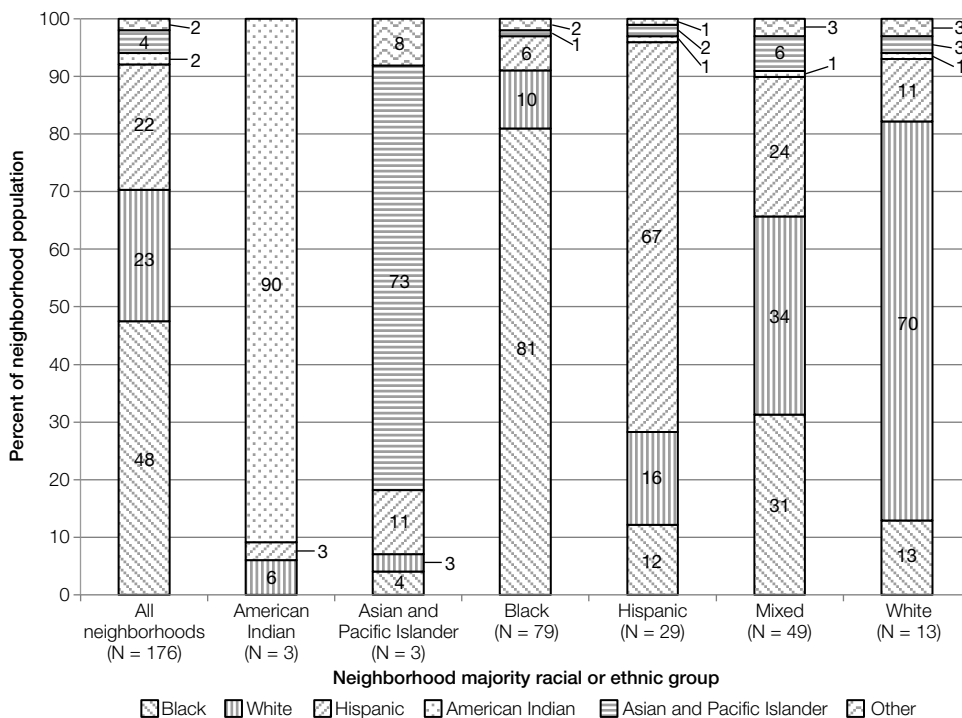
Sources: Applicant files; 2010 census

a single racial or ethnic group. Residents of these neighborhoods that hold the majority racial or ethnic group are highly isolated and have very low exposure to individuals of other racial or ethnic backgrounds.

The highest concentrations of isolated racial or ethnic groups are found in American Indian neighborhoods, where 90 percent of the population on average is American Indian. This statistic is based on a small sample size (3) of neighborhoods that have small, rural populations associated with American Indian reservations. Majority Black neighborhoods are also very highly concentrated. In these neighborhoods, on average, 81 percent of the population is Black. In one-third (27) of majority Black neighborhoods, 90 percent or more of the population is Black. In more than two-thirds (55), 80 percent or more of the population is Black. Other racial and ethnic groups are slightly less concentrated. Asian and Pacific Islander populations comprise 73 percent of the population in majority Asian and Pacific Islander neighborhoods. As with majority American Indian neighborhoods, the sample size is small (3). In majority Hispanic neighborhoods, on average, 67 percent of the population is Hispanic. Four (13 percent) of these neighborhoods are more than 80 percent Hispanic. In majority White neighborhoods, on average, 76 percent of the population is White. One-half of these neighborhoods (6) are more than 80 percent White.

With the exception of the mixed neighborhoods, racial or ethnic minorities living in Choice applicant neighborhoods are considerably more isolated than individuals of the same racial or ethnic group living in an average U.S. neighborhood. Logan and Stults's (2011) review of 2010 U.S. census data showed that the average Black individual lives in a neighborhood that is 45 percent Black, the average Hispanic individual lives in a neighborhood that is 46 percent Hispanic, and the average Asian individual lives in a neighborhood that is only 22 percent Asian. These numbers stand in stark contrast to those described previously. Only majority White applicant neighborhoods are more diverse than their national counterparts, which are 75 percent White on average.

Over time, the population composition of applicant neighborhoods has changed, altering the racial and ethnic makeup of some applicant neighborhoods. Exhibit 2 depicts the change in neighborhood composition over time. The number of majority Black and majority White neighborhoods has declined during this period, but the number of majority Hispanic and mixed neighborhoods has increased. These numbers mask some underlying shifts as the growth of majority Hispanic neighborhoods was the result of transitions from mixed to Hispanic, with the growth in mixed neighborhoods coming from the transition from majority White or majority Black neighborhoods

Exhibit 2

Choice Applicant Neighborhood Racial or Ethnic Majority, 1990–2010

Neighborhood Racial or Ethnic Majority	Number of Neighborhoods		
	1990	2000	2010
American Indian	3	3	3
Asian and Pacific Islander	2	3	3
Black	96	91	79
Hispanic	13	19	29
Mixed	37	44	49
White	25	16	13

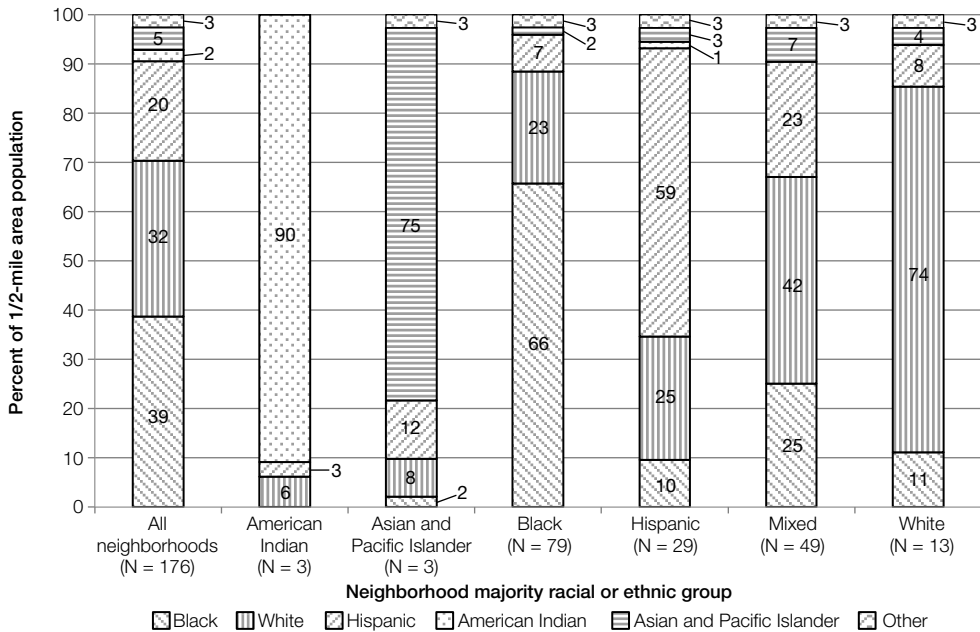*Sources: Applicant files; 1990 census; 2000 census; 2010 census*

becoming mixed. The changes in neighborhood composition demonstrate trends that are similar to the national trends described by Logan (2013) and Logan and Stults (2011). Hispanic and Asian and Pacific Islander neighborhoods are becoming more concentrated while Black, White, and mixed neighborhoods are becoming less concentrated. Despite some changes, however, most applicant neighborhoods have had one consistent majority racial or ethnic population for at least the past 20 years.

For many of the Choice Planning Grant applicant neighborhoods, this isolation extends beyond their immediate borders. In addition to being internally homogenous, a substantial majority of neighborhoods are also highly isolated in terms of their proximity to other areas with greater racial or ethnic diversity. A comparison of the racial and ethnic constitution of targeted neighborhoods with that of census tracts within 0.5 mile of the neighborhoods shows that nearly three-fourths (74 percent) of the neighborhoods are surrounded by census tracts with the same racial or ethnic majority, including every American Indian and Asian and Pacific Islander majority neighborhood. Majority Black neighborhoods are surrounded by majority Black census tracts in 78 percent (62 neighborhoods) of the applicant neighborhoods. Of majority Black neighborhoods, 20 percent (16 neighborhoods) are adjacent to mixed census tracts and only 1 neighborhood is adjacent to majority White census tracts. Two-thirds (66 percent, 19 neighborhoods) of majority Hispanic neighborhoods are surrounded by majority Hispanic census tracts; 24 percent (7 neighborhoods) are adjacent to mixed census tracts and 2 neighborhoods are adjacent to majority White census tracts. Mixed neighborhoods are adjacent to other mixed census tracts in 63 percent of applicant neighborhoods and adjacent to majority White census tracts in 33 percent of applicant neighborhoods. Two mixed neighborhoods are adjacent to majority Hispanic census tracts. All majority White neighborhoods, except 1, were adjacent to majority White census tracts. The single exception was adjacent to mixed census tracts.

Not only were the targeted neighborhoods largely adjacent to other, similar census tracts, but also those adjacent census tracts were also isolated. The average composition of adjacent census tracts for each neighborhood type is shown in exhibit 3. As this bar chart shows, the census tracts within 0.5 mile of the applicant neighborhoods have, on average, populations very similar to the applicant neighborhoods. Overall, the applicant neighborhoods had a higher percentage White population and a lower percentage Black and Hispanic population. For two types of neighborhoods, Asian and Pacific Islander and White, the respective majority populations are more concentrated in adjacent census tracts than in the applicant neighborhoods. Tracts adjacent to Black, Hispanic, and mixed neighborhoods all have higher White populations than the applicant neighborhoods. In every neighborhood type, however, except majority White and mixed, the average percentage of the majority population exceeds Logan and Stult's (2011) nationwide averages. The average resident in census tracts within 0.5 mile of Choice applicant neighborhoods are more isolated than the average individual nationally.

Exhibit 3

Choice Applicant Neighborhood 1/2-Mile Area, by Race and Ethnicity

Sources: Applicant files; 2010 census

Race and Ethnicity and Neighborhood Economic and Housing Characteristics

The racial and ethnic differences between the neighborhoods are also correlated with differences in educational attainment, household income level, unemployment rate, and poverty rate.[15] These differences can be partially attributed to differences between different racial and ethnic groups in general. In other words, much of the difference in economic characteristics between majority Black and majority White neighborhoods can be explained by the lower educational attainment, by labor force participation rate, and by median income levels and higher poverty and unemployment rates of Black individuals compared with White individuals nationwide. Not all neighborhood differences, however, can be explained by these differences. In particular, non-Black individuals and households in majority Black neighborhoods fare worse across all of the characteristics included here than their counterparts in other Choice applicant neighborhoods and than the national average for these groups.

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[15] In reviewing these tables, readers should be aware that they contain some uncertainty. As noted previously, data drawn from SF3 are based on a sample of one out of six households; they are not exact figures. Likewise, ACS 5-year estimates are based on a sample of approximately one out of eight households collected during a 5-year period and averaged. The result is that both sets of data contain a margin of error. In addition, income levels and poverty rates are not always reported or are not reported accurately by respondents.

Geographic differences also contribute to the differences between neighborhood types, especially for those with small sample sizes. The three Asian and Pacific Islander neighborhoods are all in two cities (Honolulu, Hawaii, and San Francisco, California) with comparatively high wages, but American Indian neighborhoods are all located in small towns in rural locations with comparatively low wages. Majority Black, Hispanic, and mixed neighborhoods are all distributed across a range of cities. Summaries of four economic indicators for Choice applicant neighborhoods by majority race or ethnicity are presented in the following section. City values have been included for reference.

Educational Attainment

Exhibit 4 shows educational attainment for individuals more than 25 years of age by neighborhood racial or ethnic majority. Nearly one-third of the population in the average applicant neighborhood lacks a high school diploma or equivalent. Nationwide, in 2010, approximately 15 percent of the population lacked a high school diploma or equivalent.

Black, Hispanic, and American Indian neighborhoods have the lowest educational attainments while White, mixed, and Asian and Pacific Islander neighborhoods have the highest. The highest overall educational attainment is in White neighborhoods, with 24 percent of the population having a college degree or higher. The lowest overall educational attainment is in Hispanic neighborhoods, where an average of 42 percent of the population has less than a high school diploma.

Exhibit 4

Choice Applicant Neighborhood Educational Attainment, by Racial or Ethnic Majority

Neighborhood Racial or Ethnic Majority	Educational Attainment (%)				
	< High School	High School or Equivalent	Some College	Bachelor's Degree	Graduate Degree
All neighborhoods	31	32	24	9	4
American Indian	31	38	25	6	1
Asian and Pacific Islander	29	36	22	11	2
Black	31	35	24	7	3
Hispanic	42	28	20	6	3
Mixed	27	30	25	12	6
White	21	31	24	15	9

Sources: Applicant files; American Community Survey 2006–2010 5-year estimates

Median Household Income

Exhibit 5 depicts median household incomes in constant dollars by neighborhood racial or ethnic majority between 1990 and 2006–2010. The median household income in the average applicant neighborhood is $31,880. This income level is less than the national median household income for 2010, which was $50,046. Median household incomes in applicant neighborhoods remained largely unchanged between 1990 and 2006–2010.

Black neighborhoods have the lowest median household income ($25,534). This is lower than all other neighborhoods, including American Indian neighborhoods (by more than $3,000), which have the next lowest median incomes. Median household incomes in Black neighborhoods are nearly one-half of the nationwide median household income and no majority Black neighborhood has a median household income greater than the national median household income.

Exhibit 5

Choice Applicant Neighborhood Median Household Incomes, by Racial or Ethnic Majority, 1990 to 2006–2010

Neighborhood Racial or Ethnic Majority	Median Household Income ($)			
	1990	2000	2006–2010	2006–2010 (city)
All neighborhoods	32,400	33,695	31,880	42,375
American Indian	22,611	27,387	28,697	29,199
Asian and Pacific Islander	53,823	56,443	55,896	61,069
Black	27,626	28,460	25,534	38,064
Hispanic	37,047	36,170	32,964	46,643
Mixed	36,831	39,274	37,285	45,920
White	34,207	38,958	42,844	44,416

Sources: Applicant files; 1990 census; 2000 census; American Community Survey 2006–2010 5-year estimates

Median household incomes in majority Hispanic neighborhoods show a clear downward trajectory. This decline is due, in part, to many of these neighborhoods being mixed rather than Hispanic during earlier decades. These neighborhoods have become predominantly Hispanic since 1990, and the Hispanic population that has moved into these neighborhoods has had lower median incomes than the previous residents.

Majority White neighborhoods show a clear upward trajectory and have the second highest median household income ($42,844). Median household incomes in Asian and Pacific Islander neighborhoods are the highest and also demonstrate an upward trajectory. This income measurement is likely skewed by the small sample size (3), however, and the locations of these three neighborhoods in cities with a high cost of living and higher wages as the higher city median household incomes indicate.

Poverty Rate

Although a high poverty rate is a qualification for applying for a Choice Planning Grant, the average poverty rates in applicant neighborhoods are striking, as can be seen in exhibit 6. The average across all neighborhoods for 2006–2010 is 41.4 percent. This poverty rate is nearly four times the national average of 11.3 percent for that period and nearly double the poverty rates of cities with

Exhibit 6

Choice Applicant Neighborhood Poverty Rates, by Racial or Ethnic Majority, 1990 to 2006–2010

Neighborhood Racial or Ethnic Majority	Poverty Rate (%)			
	1990	2000	2006–2010	2006–2010 (city)
All neighborhoods	38	37	41	22
American Indian	51	43	40	28
Asian and Pacific Islander	23	26	27	24
Black	43	41	45	23
Hispanic	34	37	42	24
Mixed	34	33	39	20
White	26	26	29	21

Sources: Applicant files; 1990 census; 2000 census; American Community Survey 2006–2010 5-year estimates

Choice applicants. In more than one-fourth of all applicant neighborhoods, more than one-half of all families live below the poverty line. Also striking is that the average poverty rate has been extremely durable. Applicant neighborhoods have consistently had very high poverty rates during multiple decades.

The clear differences between these neighborhoods depend on which majority racial or ethnic group lives in the neighborhood. The poverty rates are, unsurprisingly, mirror images of median household incomes. Black neighborhoods had the highest average poverty rate, at 45.2 percent, which is four times the national average. Nearly 40 percent of all Black neighborhoods had more than one-half of all families living below the poverty line, and one neighborhood in Cleveland, Ohio, had a poverty rate of 74 percent. Hispanic neighborhoods also had a very high poverty rate overall, at 42.1 percent. Three Hispanic neighborhoods had poverty rates of more than 70 percent. Poverty rates in Hispanic neighborhoods have steadily increased since 1990. Like median household incomes, this increase is a result of the change from mixed to predominantly Hispanic neighborhoods. White and Asian and Pacific Islander neighborhoods had the lowest poverty rates overall. These rates are still more than twice the national average, however. American Indian neighborhoods are the only neighborhoods for which poverty rates declined between 2000 and 2006–2010, although they remain at slightly more than 40 percent.

Labor Force Participation Rate

Closely linked with poverty rates are labor force participation rates and unemployment rates (see the following section). Labor force participation rates for applicant neighborhoods are shown in exhibit 7. Overall, applicant neighborhoods had a labor force participation rate of 56 percent in 2006–2010, which is much less than the national rate of 65 percent for this period. Labor force participation has increased slightly on average across Choice applicant neighborhoods between 1990 and 2006–2010 and in most neighborhood types. Choice applicant neighborhoods' labor force participation rates lag behind citywide rates on average; rates in applicant neighborhoods exceeded citywide rates in only about 9 percent of applicant neighborhoods.

Labor force participation rates are lower than citywide rates across most neighborhood types. The two exceptions are White neighborhoods, which have rates matching citywide rates, and American Indian neighborhoods, which have rates exceeding citywide rates. Cities housing American Indian

Exhibit 7

Choice Applicant Neighborhood Labor Force Participation Rates, by Racial or Ethnic Majority, 1990 to 2006–2010

Neighborhood Racial or Ethnic Majority	Labor Force Participation Rate (%)			
	1990	2000	2006–2010	2006–2010 (city)
All neighborhoods	54	54	56	63
American Indian	52	56	57	51
Asian and Pacific Islander	62	57	58	66
Black	52	51	52	63
Hispanic	55	53	60	64
Mixed	56	57	59	65
White	57	59	62	62

Sources: Applicant files; 1990 census; 2000 census; American Community Survey 2006–2010 5-year estimates

neighborhoods have very low labor force participation rates compared with the national average or with other applicant cities. Black neighborhoods have labor force participation rates that are farthest behind citywide rates, a full 11 percent less. More than 40 percent of all Black neighborhoods have labor force participation rates that are 10 percent or more less than citywide rates, including 13 neighborhoods that are more than 20 percent less.

Labor force participation rates across most neighborhood types have been increasing over time. The largest increases have been in American Indian, Hispanic, and White neighborhoods. Hispanic neighborhoods, in particular, have seen substantial increases between 2000 and 2006–2010, including eight neighborhoods that had increases of more than 20 percent. These data are for the same period during which Hispanic populations in these neighborhoods increased substantially; this new population had higher labor force participation rates than the population that it replaced. Asian and Pacific Islander neighborhoods have seen decreases in labor force participation. Some of this decline may be attributable to aging populations in these neighborhoods.

Black neighborhoods have had stagnant levels of labor force participation during the past two decades overall. This statistic masks that 57 percent of Black neighborhoods have experienced declining participation rates during this period, including seven neighborhoods with declines of more than 20 percent. Nearly 40 percent of predominantly Black neighborhoods have labor force participation rates of less than 50 percent. In one Baltimore, Maryland neighborhood, less than one-fourth (23 percent) of the population older than 16 years of age was participating in the labor force and another two neighborhoods had labor force participation rates of less than one-third (29 percent and 30 percent).

Unemployment Rate

Applicant neighborhoods also had high rates of unemployment among those individuals older than 16 years of age participating in the labor force. Unemployment rates for applicant neighborhoods by racial and ethnic majority are shown in exhibit 8. Applicant neighborhoods had an average unemployment rate of 17 percent, nearly double the national unemployment rate of 9.2 percent for this same period. Unemployment has been increasing in applicant neighborhoods since 1990, with much of this increase attributable to an increase in unemployment in Black neighborhoods.

Exhibit 8

Choice Applicant Neighborhood Unemployment Rates, by Racial or Ethnic Majority, 1990 to 2006–2010

Neighborhood Racial or Ethnic Majority	Unemployment Rate (%)			
	1990	**2000**	**2006–2010**	**2006–2010 (city)**
All neighborhoods	15	16	17	11
American Indian	11	18	8	20
Asian and Pacific Islander	7	10	7	5
Black	18	19	21	11
Hispanic	14	16	15	10
Mixed	15	15	14	10
White	11	8	11	8

Sources: Applicant files; 1990 census; 2000 census; American Community Survey 2006–2010 5-year estimates

Both the American Indian (8 percent) and Asian and Pacific Islander (7 percent) neighborhoods have unemployment rates that are less than the national rate in the most recent period. Asian and Pacific Islander neighborhoods have unemployment rates consistent with the cities within which they are located. American Indian neighborhoods have unemployment rates substantially lower than those in their cities, likely due to the efforts of tribal governments to increase employment within these neighborhoods. White neighborhoods (11 percent) had a rate that was slightly more than the national average.

Unemployment rates in Black neighborhoods were the highest, at 21 percent, and eight Black neighborhoods had unemployment rates that were more than 30 percent. Three-fourths of Black neighborhoods experienced increased unemployment between 1990 and 2006–2010. Hispanic and mixed neighborhoods also had high rates of unemployment. Three Hispanic neighborhoods had unemployment rates of more than 30 percent.

Housing Vacancy

Housing vacancy rates in Choice applicant neighborhoods are high, and they increased during the past decade, as shown in exhibit 9. This increase corresponds with the large number of housing foreclosures during this period. Vacancy rates in applicant neighborhoods are higher than in surrounding areas and than in the cities in which they are located.

Housing vacancy rates are highest in Black neighborhoods and have been the highest since at least 1990. Black neighborhoods also experienced the largest increase in vacancy rates during the most recent period. Mixed neighborhoods experienced the second largest increase during this same period.

Exhibit 9

Choice Applicant Neighborhood Housing Vacancy Rates, by Racial or Ethnic Majority, 1990 to 2006–2010

Neighborhood Racial or Ethnic Majority	Housing Vacancy Rate (%)			
	1990	2000	2006–2010	2006–2010 (city)
All neighborhoods	12	12	14	11
American Indian	10	9	8	12
Asian and Pacific Islander	3	6	5	9
Black	14	14	18	13
Hispanic	9	10	11	9
Mixed	11	9	12	11
White	9	11	13	11

Sources: Applicant files; 1990 census; 2000 census; American Community Survey 2006–2010 5-year estimates

Conclusions and Implications

The Choice Neighborhoods Initiative integrates some potentially positive changes to the HOPE VI Program. It opens up a wider range of housing and neighborhoods for revitalization and encourages engagement with more partners to pursue revitalization. It has the potential to have a wider, although perhaps not deeper, effect than HOPE VI. Like the program it replaces, Choice is meant to address concentrated poverty, but the program is likely to have uneven racial effects simply due

to the demographics of high-poverty neighborhoods. Beyond a sizable population that lives below the poverty line and the presence of distressed subsidized housing, however, little was clear about the constitution of the neighborhoods.

As presented in this article, most Choice applicant neighborhoods have majority minority populations and are highly segregated and isolated, and most have been so for at least the past 20 years. Most are also surrounded by neighborhoods that are nearly as segregated. The level of isolation in applicant neighborhoods far exceeds that found in typical neighborhoods, and residents of these applicant neighborhoods have far less exposure to individuals of other races than a typical American of the same race. Applicant neighborhoods also exhibit high levels of characteristics associated with neighborhood distress, including low educational attainment; low median incomes; and high poverty, unemployment, and vacancy rates. The presence of these characteristics is not distributed evenly across all applicant neighborhoods. Rather, they are more pronounced in majority Black and majority Hispanic neighborhoods. Majority Black neighborhoods, in particular, have significantly lower median incomes and significantly higher poverty, unemployment, and vacancy rates.

These results confirm that Choice, like previous poverty deconcentration programs, is likely to have uneven racial and ethnic effects. Depending on location, assets, and market strength, strategies to transform applicant neighborhoods to neighborhoods of choice may involve deconcentration by relocating low-income residents to other parts of the city or MSA and by attracting high-income residents to the transformed neighborhood. Concentration of minority population and opportunities for reducing segregation should be key considerations in either scenario.

In strong market neighborhoods, where the potential for gentrification and neighborhood change is high, applicants must be cognizant of and particularly sensitive to the potential implications and complications that could arise from targeting a racially homogenous area for revitalization and redevelopment activities. Issues of displacement, racial or ethnic turnover, and relocation counseling should be explicitly addressed as part of planning for neighborhood transformation. Measures to protect or expand the supply of affordable housing in these neighborhoods are crucial to ensure that neighborhood residents have the choice to remain. Aggressive, proactive enforcement of fair housing should also be pursued to protect neighborhood residents choosing to relocate with this, ideally, involving a coordinated metropolitanwide effort. In addition, as neighborhoods with higher minority concentrations are correlated with other issues, including low educational attainment and low labor force participation, these underlying disparities must be directly addressed through activities, such as coordination with other programs such as the Promise Neighborhoods initiative, or through partnerships with local service providers.

In weak markets (as well as in some strong markets), the high degree of racial and ethnic homogeneity adds a complicating factor to attempts to create more diverse, mixed, and integrated communities. Racial and ethnic differences, unlike class differences, are nearly always visible. These visible differences may complicate efforts to attract higher income households with different backgrounds. As various studies have shown, neighborhoods with high minority populations, in particular high Black populations, are perceived as having higher rates of crime, lower quality schools, and lower property values, even when this is not the case, and that promoting integration of racially or ethnically segregated neighborhoods and of maintaining diversity after integration has been achieved requires sustained effort (Briggs, 2005; Charles, 2005; Clark, 1986; Ellen, 2000; Ellen, Horn, and O'Regan,

2012; Lewis, Emerson, and Klineberg, 2011; Massey and Denton, 1993). Although improving amenities and leveraging anchor institutions may be sufficient to overcome these perceptions in strong market neighborhoods, more aggressive or extensive measures may be necessary in neighborhoods with weak markets.

The data do not clarify why Choice applicants selected the neighborhoods they did and whether targeting segregated neighborhoods was an intentional strategy or the unintended consequence of selecting neighborhoods based on high levels of distress that also happened to be segregated. Regardless of the reason, more specific guidance needs to be provided to Choice Planning Grant applicants regarding concentrated minority populations. Although applicants for Implementation Grants are required throughout the evaluation criteria to document that their Transformation Plans contain steps to understand and address concentrated minority populations, no similar criteria apply to the Planning Grant applicants.

More explicit consideration by Planning Grant applicants of racial and ethnic segregation in applicant neighborhoods should be required. At a minimum, Choice Planning Grant applicants should be required to demonstrate that the planning process they intend to undertake meets the affirmatively furthering fair housing, or AFFH, mandate, which explicitly identifies racial segregation as a problem to be addressed and does not decouple race and poverty in the way the Planning Grant does. Choice applicants should be required to articulate how, through the planning process, they intend to identify and understand racial or ethnic segregation within the targeted neighborhood, ascertain the scope and causes of this segregation, and incorporate strategies for addressing these concentrations. Transformation Plans produced by Planning Grant recipients should be monitored and evaluated to ensure compliance.

Beyond AFFH, national policymakers and local officials have practical reasons for a more explicit consideration of race and ethnicity. First, although it is unnecessary to have received a Planning Grant to apply for an Implementation Grant and receipt of a Planning Grant is no guarantee of receiving an Implementation Grant, the structure of Choice is to facilitate this path. Better linking the two grants by encouraging proactive approaches to addressing racial and ethnic segregation and concentrated minority populations in the Planning Grant NOFA and technical guidance may help produce better plans that are more likely to satisfy the requirements of the Implementation Grant NOFA as well as the Choice program as a whole.

Second, the process of developing a Transformation Plan is an opportunity for making explicit issues of segregation and discrimination and for crafting strategies to address these. The planning process is a venue for including participants, creating buy-in, and building momentum. Leaving race and ethnicity largely unaddressed in the Planning Grant seems to indemnify applicants for actions that may adversely affect minority populations through efforts to address concentrated poverty rather than encouraging applicants to actively pursue strategies to reduce segregation. Attempts to address significant issues that are as contentious as segregation, discrimination, and integration after a plan is complete create an unnecessary level of difficulty and reduce the likelihood of success.

Finally, Choice was conceived as a program that would not repeat the mistakes of the HOPE VI Program. That race and ethnicity should have been more explicitly and appropriately addressed is one lesson that has been made very clear through newspaper accounts, scholarly reports, and

academic research, as well as from protests and lawsuits. To not address race and ethnicity in Choice, particularly the Choice Planning Grant program, which is likely to affect the largest number of neighborhoods and cities, is to not learn from the lessons of the past.

In targeting high-poverty neighborhoods across the United States, Choice provides an intriguing window onto these neighborhoods. The results of this research highlight the uneven racial and ethnic effects of concentrated poverty. They also show that, despite improvements in neighborhood diversity during the past 50 years, substantial numbers of highly segregated neighborhoods continue to persist. More needs to be done to tackle this issue. With more direct consideration of racial and ethnic segregation in high-poverty neighborhoods, Choice offers a promising program for doing this.

Acknowledgments

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Departments

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Data Shop

Data Shop, a department of Cityscape, *presents short articles or notes on the uses of data in housing and urban research. Through this department, the Office of Policy Development and Research introduces readers to new and overlooked data sources and to improved techniques in using well-known data. The emphasis is on sources and methods that analysts can use in their own work. Researchers often run into knotty data problems involving data interpretation or manipulation that must be solved before a project can proceed, but they seldom get to focus in detail on the solutions to such problems. If you have an idea for an applied, data-centric note of no more than 3,000 words, please send a one-paragraph abstract to david.a.vandenbroucke@hud.gov for consideration.*

Developing a Proxy for Identifying Family Developments in HUD's LIHTC Data: Using Information on the Distribution of Units by Size

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Abstract

The only existing national database on projects in the Low-Income Housing Tax Credit (LIHTC) Program has limited data on which developments serve families, a population of considerable interest to policymakers and researchers. To fill this gap, we use existing data on the size distribution of units in LIHTC projects to develop a proxy for family developments. We supplement this work with data on occupants of LIHTC developments in six states to test how well this proxy works. We estimate that this proxy would capture 92 to 96 percent of units in family developments.

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[1] This article was written before the author became the Assistant Secretary for Policy Development and Research at the U.S. Department of Housing and Urban Development.

Introduction

Assessments of housing programs frequently distinguish how well such programs serve families (Khadurri, Buron, and Claminco, 2006; Khadurri, Buron, and Lam, 2004; Newman and Schnare, 1997). Although not always stated explicitly, a focus on families and their environments might arise out of heightened concern for the children they may contain or out of recognition that issues related to working-age adults may be of particular interest in housing programs. (Housing programs generally apply a loose definition of *family*, encompassing any household composition that operates as a unit, further distinguishing families from elderly families or populations requiring special services. For our purposes, we take *family* to mean a multiple-person household operating as one unit, which may or may not contain children and which would not be classified as an elderly household.) Assessing the largest federal supply-side program (the Low-Income Housing Tax Credit [LIHTC] Program) is hampered by our limited ability to identify which LIHTC developments serve (or house) families. No national data currently exist on tenants of LIHTC housing.[2] The one existing national database on LIHTC projects includes some information on whether states report that a development "targets" specific populations, including families, but those data are fairly incomplete, even among newer projects.[3] In addition, states vary on whether family is a "targeted population" in their allocation process, or if families are generally served in developments that do not target other specific groups, such as the elderly[4] or those with special needs.

In the absence of good national data on which developments serve families (whether targeted or as a remainder category), researchers have either collected the data needed for a particular state (Kawitzky et al., 2013;[5] Pfeiffer, 2009) or used proxies, such as units with at least two bedrooms (Ellen and Horn, 2012; Khadurri, Buron, and Claminco, 2006). This second method focuses on units rather than family developments as a whole, which may be more appropriate for some policy questions than others. This article develops and tests a method for identifying family developments within the national LIHTC stock, using publicly available data. We first develop this categorization scheme using the U.S. Department of Housing and Urban Development's (HUD's) LIHTC data. We then assess its performance through a combination of HUD's LIHTC data on projects and data we have collected on LIHTC tenants in six states.

HUD LIHTC Data and Methodology

This section first describes the data and relevant variables used for identifying family developments in the data. We then outline our methodological approach, which relies on observable differences in the size distribution of units in family versus nonfamily developments. The section concludes with both brief and detailed descriptions of the algorithm itself.

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[2] Since 2009, states have been required to submit data on tenant characteristics to HUD, but such data are not yet available publicly.

[3] State allocation plans and the HUD LIHTC database use the term *target population* for categories declared during the allocation process. Throughout this article, we use the term *target* to indicate explicit categorization by the states, and we use the term *serve* as a broader category of developments likely to house families.

[4] The LIHTC database uses the term *elderly,* so we use that term throughout, although many state HFAs use the term *senior.*

[5] Kawitzky et al. were able to gather such data for only about one-half of their sample.

Data

We rely on two sources of data. The first is HUD's LIHTC database, which contains project-level data about developments placed in service through 2010. The HUD data contain two types of variables on populations targeted by the development: (1) whether a project targets at all (a binary variable) and (2) a series of (binary) variables for specific groups targeted, including families and the elderly.[6] Of the 36,364 developments contained in the HUD database, most (60 percent) provide either no information on targeting or indicate the development does not target, a category that may disproportionately contain developments that do serve families.[7] Even among projects placed in service in 2003 or later, when data on target population were collected more systematically, 30 percent of developments lack information on population targeted. We are interested in developing a methodology for identifying family developments within this group, those for which insufficient information is available to determine the population actually served in national data.

We supplement these project-level data with tenant-level data collected from six state housing finance agencies.[8] These data include information about the age of tenants.[9] We use these data as an alternative source of information for distinguishing family developments. This process enables us to assess the accuracy of the target population variable in the HUD database on populations actually served and to assess the performance of our methodology for identifying family developments.

Methodology

Our basic approach is to exploit differences between the distribution of unit sizes (where size is the number of bedrooms in a unit) in family versus nonfamily developments among those developments for which we have very good information on the population served, namely those developments with good data on a targeted population. We use those observed differences to develop an algorithm for identifying family developments within the remaining developments, those for which the target population is not known. For our approach to work, observable differences need to exist in the unit sizes found in family and nonfamily developments, which is testable in the national data. These differences also need to hold for family developments that have *not* been identified as such in the HUD data, which cannot be tested with publicly available data. Using our tenant-level data for six states, however, we can assess whether our algorithm does a good job at capturing family developments among developments for which the target population is incomplete in the HUD data, at least in those six states. This method provides an "out-of-sample" assessment of the algorithm and also a method for assessing the validity of the HUD variables on the target population.

Those developments for which we have the best evidence that they are or are not serving families are those identified in the HUD data either as explicitly targeting families (family) or those

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[6] LIHTC target population categories include family, elderly, homeless, disabled, and other. These categories need not be mutually exclusive, although some states indicate only one.

[7] Officials from several state housing finance agencies (the allocating agencies for the LIHTC Program) reported that developments serving families are coded as "nontargeted" in their state.

[8] We also supplement the HUD LIHTC data with project data from one state.

[9] These data are part of a larger LIHTC project, using data from more than 30 states. Here we focus on the 6 states that provide individual-level (rather than household-level) data, including age, potentially permitting us to identify the presence of children.

identified as targeting the elderly (nonfamily).[10] Nationally, 35 percent of developments can be identified as targeting either families or the elderly (12,848).[11] Within this group, 84 percent (10,772) have complete information on units by number of bedrooms. These developments include 691,331 units, and this sample is used to determine the algorithm.

The table in exhibit 1 provides information on the units by number of bedrooms within these two types of developments. As expected, a much larger share of units in family developments are multibedroom. More than 75 percent of units in family developments have at least two bedrooms, while the opposite is true for nonfamily (elderly) developments—where more than 75 percent of units have fewer than two bedrooms. Indeed, other researchers have used this difference to classify large units (two bedrooms or more) as family units. Although 77 percent of the units in family developments were correctly captured, this proxy misses 23 percent of the units actually in family developments (type I error).[12] Of units ultimately labeled as being in family developments, 13 percent would in fact be in elderly developments (type II error). This seems a fairly good proxy, particularly given its ease of application. The question at this point is whether we can improve on this proxy by using information on the full distribution of units by number of bedrooms or whether we can provide an alternative proxy for researchers interested in focusing on family developments rather than units, one that performs at least as well in accuracy.

Exhibit 1

Unit-Size Distribution of Developments by Target Population

Unit Size	Total Units		Share of Units of Each Size (%)	
	Nonfamily/Elderly Developments	Family Developments	Nonfamily/Elderly Developments	Family Developments
0 bedrooms	10,972	14,050	5	3
1 bedroom	152,415	95,376	71	20
2 bedrooms	47,643	213,522	22	45
3 bedrooms	4,520	129,884	2	27
4 bedrooms	381	22,568	0	5
Total	215,931	475,400	100	100

Algorithm: In Brief

Exhibit 1 reveals some noticeable differences in the unit-size distributions: very large units (three or four bedrooms) are nearly exclusively in family developments, while large concentrations of one-bedroom units and small shares of two-bedroom units are primarily in nonfamily, elderly developments. These differences are the type we exploit to define developments as either family or nonfamily. In addition, we develop our algorithm through a series of sequential classification steps. After each step, we reexamine the unit-size distributions of the remaining family and nonfamily developments,

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[10] Families may also served in the remainder of developments, which we return to in our out-of-sample test of algorithm.

[11] The HUD database identifies 12,375 developments as targeting families or the elderly. We supplemented with project data from one state poorly covered in the HUD data to reach 12,848 developments.

[12] We assume this method is meant as a proxy for units in family developments; later we discuss this method as a proxy for units housing children.

those that have not yet been categorized, to tailor additional categorization criteria so as to capture the greatest share of units in family developments while minimizing the number of units in nonfamily developments misclassified. We have gone through numerous iterations and assessments of type 1 and type 2 errors. Our preferred algorithm has four steps.

Algorithm: The Details

Exhibit 2 displays a flowchart that illustrates how developments are classified as either family or nonfamily during each iteration within the algorithm. The algorithm uses the 691,331 units in 10,772 developments placed in service through 2010 that target either families or the elderly and for which complete information is available on the size of units in the development. Examining the distribution of units within developments by target population (exhibit 1) revealed that very large units are primarily located in family developments. This observation produced step 1 of the algorithm.

Exhibit 2

How Developments Are Classified As Either Family or Nonfamily During Each Iteration Within the Algorithm
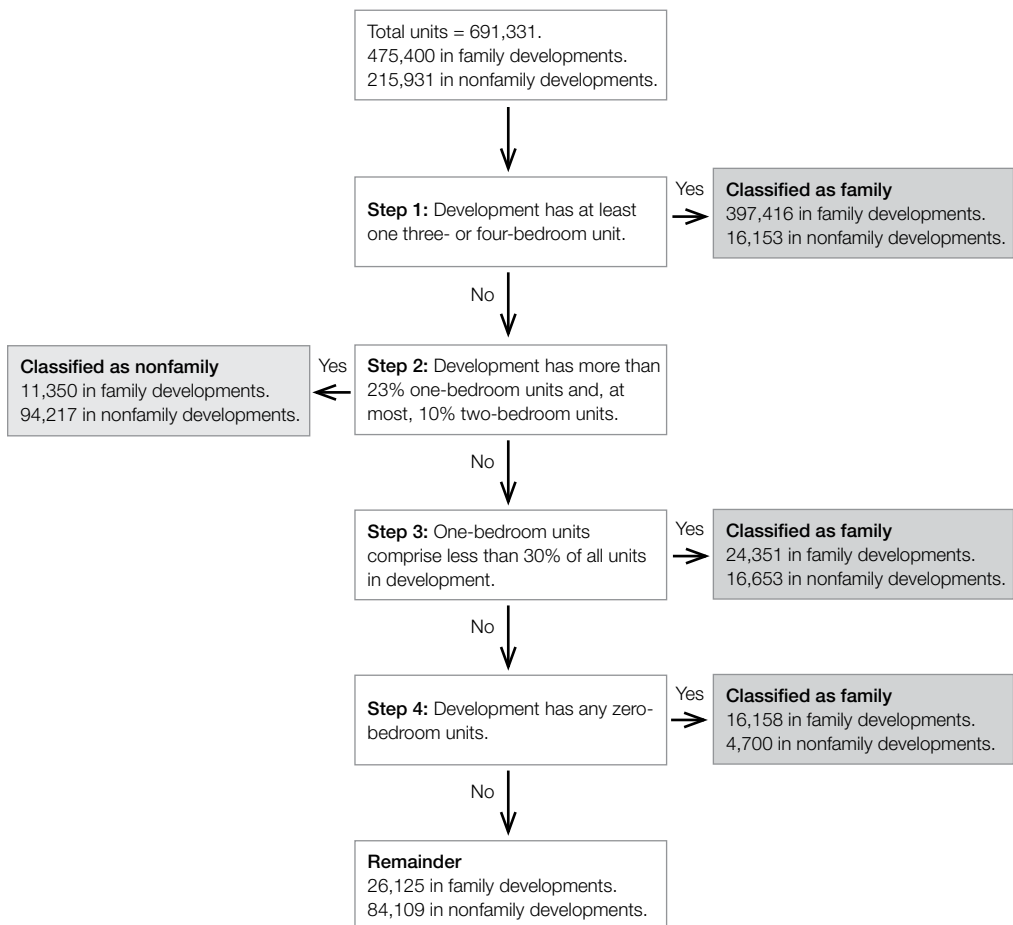
Step 1. Developments that have at least one three- or four-bedroom unit are classified as family developments.

This first step correctly identifies 84 percent of units in family developments while misclassifying 8 percent of units in elderly developments. (See the table in appendix exhibit A-1 for details.) We then examined the distribution of units within the remainder group and identified that large shares of small units combined with low shares of large units primarily occur in nonfamily, elderly developments. Specifically,

Step 2. Developments with more than 23 percent one-bedroom units and, at most, 10 percent two-bedroom units are assigned to the nonfamily category.

This step correctly identifies 44 percent of all elderly units and misclassifies 2 percent of all family units. Although our focus is on identifying family developments, the removal of developments that are recognizable as nonfamily (elderly) decreases type 2 errors in later steps. Again examining the unit-size distribution for remainder developments, we find that family developments don't contain large shares of one-bedroom units. Specifically,

Step 3. Developments where one-bedroom units comprise less than 30 percent of all units are assigned to the family development category.

This step correctly identifies 5 percent of the family units and misclassifies 8 percent of the elderly units. In examining the unit-size distribution for the remaining 131,000 units separately by target category, we discovered something counterintuitive; among the remaining developments, *family* projects are more likely to contain a studio apartment than are elderly developments (exhibit 3). Indeed, while 94 percent of the remaining elderly developments contain no studios, more than 38 percent of the remaining family units contain at least one studio.[13]

This surprising result is driven by step 2, which removes well over 40 percent of elderly developments from the sample based on large concentrations of small units. Those senior developments

Exhibit 3

Share of Units With Zero Bedrooms

Percentiles	Nonfamily/Elderly Developments	Family Developments
1	0.00	0.00
60	0.00	0.00
70	0.00	0.10
75	0.00	0.14
90	0.00	0.32
95	0.01	0.38
99	0.26	0.42
N	88,908	42,283

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[13] Of course, we cannot rule out that some of these family developments with large shares of studios are in fact misclassified in the HUD data, but our assessment using age of heads of household suggests that the number of such misclassifications is quite small.

that have any studios also have large concentrations of one-bedroom units, so they have already been classified as nonfamily. This scenario highlights the benefit of reassessing the size distribution of developments between each step.

Step 4. Developments with any zero-bedroom units are assigned to the family development category.

This step correctly identifies another 3 percent of the family units and misclassifies 2 percent of elderly units.

The table in exhibit 4 provides a summary of how units are classified in the HUD data versus the algorithm. (A more detailed table is provided in appendix exhibit A-1.)

Exhibit 4

Summary of Family Classification Outcomes

	Family Developments	Nonfamily/Elderly Developments	Total
Units according to HUD data	475,400	215,931	691,331
Units classified as family through algorithm	437,925	**37,605**	475,530
Units not classified as family through algorithm[a]	**37,475**	178,326	215,801

HUD = U.S. Department of Housing and Urban Development.
[a] At the completion of the algorithm, not all units will be classified. Units not classified as family include those classified as nonfamily (step 2) or not classified as family at any point in the algorithm.
Note: Bold indicates incorrect family classification.

Discussion

This algorithm correctly classified 92 percent (437,925) of units in family developments. Alternatively, 8 percent (37,475) of the family units are not classified correctly (type I error) and only 8 percent (37,605) of the units classified as being in family developments are actually in nonfamily developments. In terms of developments, 90 percent of the family developments are correctly classified and 9.6 percent of developments classified as family are incorrectly classified.

This algorithm appears to perform quite well within a sample of developments that are identified as either family or nonfamily (elderly). Although the algorithm is promising, we would also like some sense of how well it would work outside this sample; that is, on the group of developments without clear information on the population served—the population to which it would actually be applied.

To help assess this classification scheme, we rely on tenant-level data from six states, which provide information on the age of members of the household, helping to identify children and the elderly. While data for the head of household are nearly always complete, coverage for additional members unfortunately is not, which limits our ability to capture the presence of children to two states. Given that the primary form of nonfamily developments is for the elderly, however, we have an alternative option of identifying developments in which disproportionate share of households are headed by a senior.

Presence of the Elderly

Our first step is to assess whether data on the presence of the elderly can adequately distinguish family from nonfamily developments. For family and nonfamily developments separately, we calculate the share of households in a development in which the head of the household is 55 years old or older.[14] Exhibit 5 presents the distribution.

The two distributions in exhibit 5 are quite different. Although more than 95 percent of elderly developments have at least 50 percent of their households headed by a senior citizen, only 5 percent of family developments do. This difference suggests two things. First, the LIHTC variables on whether developments target the elderly and families appear quite good. Second, for the six states for which we have data on the age of the head of the household, using that data should provide a good alternative means of determining the populations housed by developments. We use these data specifically to informally assess the accuracy of the bedroom algorithm to categorize developments that are not identified in HUD data as targeting families or the elderly.

Exhibit 5

Distribution of the Share of Units With Household Heads Age 55 or Older (six-state sample)

Percentiles	Family Developments	Nonfamily/Elderly Developments
1	0.00	0.20
5	0.04	0.63
10	0.06	0.79
25	0.11	0.92
50	0.18	0.99
75	0.28	1.00
90	0.43	1.00
95	0.53	1.00
99	0.98	1.00
N	67,626	37,320

Out-of-Sample Test

In the six states, we applied our classification algorithm to those developments not previously identified as either family or the elderly. This group contains three types of developments: those that target some other group (that is, homeless), those that are labeled as "not targeting," and those for which simply no information exists on targeting. We then examined the distribution of the share of households headed by the elderly in these developments, now classified as either family or nonfamily (the elderly), presented in exhibit 6.

The distribution for family developments in exhibit 6 looks very similar to the distribution in exhibit 5. Slightly less than 95 percent (94 percent, number not in exhibit) of developments now classified as family have less than 50 percent of units with household heads who are 55 years old

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[14] We also looked at the presence of any elderly in the household and defined elderly as 62 years old or older. Results are similar, but focusing on heads of household and 55 years old or older provides the largest differences between family and elderly developments.

Exhibit 6

Share of Units With Household Heads Age 55 or Older, by Classification

Percentiles	Classified Family	Classified Nonfamily
1	0.00	0.00
5	0.03	0.09
10	0.05	0.14
25	0.08	0.48
50	0.12	0.71
75	0.19	0.95
90	0.32	0.99
95	0.50	1.00
99	1.00	1.00
N	20,531	3,209

or older. The nonfamily distribution varies more from that in exhibit 5, but the absolute number of nonfamily developments is quite small, which indicates that to the extent that this variation reflects misclassification, this error should be small in magnitude.

To more systematically assess the performance of the algorithm, we use the "50 percent headed by the elderly" as a firm cutoff, which indicates that we assume developments below that threshold are actually family developments, and those above it are actually elderly developments. Given this assumption, we can then assess how well the algorithm performs. Exhibit 7 provides a summary of the results, first for all units in the sample (column 1), then broken out for subgroups based on how the developments are categorized in the HUD data.

Overall, the algorithm is estimated to have correctly classified 96 percent of units in family developments (4 percent type I error), with a 6-percent error rate among units so classified (type II error). As an additional check, in the two states for which we have complete data on children in the household, we find that 98 percent of children in LIHTC housing are located in developments identified as family by this method.

Exhibit 7

Applying the Algorithm Out of Sample (six states) by Development Classification

	All	No Information	Not Targeted	Other Target
Total units	23,740	10,824	6,599	6,317
Percent of units classified as in family developments when using:				
Share of household heads who are elderly as the cutoff	85	77	88	94
Bedroom algorithm	86	77	95	95
Algorithm performance (assuming household heads who are elderly is correct):				
Percent type I errors	4	7	1	4
Percent type II errors	6	7	8	5

Exhibit 7 also reveals that most developments not classified as targeting family or the elderly in the HUD data are indeed family developments, according to the distribution of number of bedrooms, the age of the head of the household, and the presence of children (where we can assess this). To analyze only those developments with complete data on targeted populations disproportionately misses family developments.

Caveats and Conclusion

For researchers interested in identifying family developments, employ a classification scheme based on information on the full distribution of bedrooms in such developments (in contrast to nonfamily developments), which permits a much more comprehensive assessment of the LIHTC stock. This method, of course, will include errors. Our best assessment of the error rate suggests that our algorithm does a very good job of correctly classifying actual units in family developments when applied to developments for which we have incomplete information on their target population. In the six states, we estimate this approach captures approximately 96 percent of the units in family developments (90 percent of family developments), with single-digit type II error rates, very similar to the error rates within the sample of developments clearly identified as family or nonfamily in the HUD data nationally. Whether those estimated error rates are acceptable will depend on the goal of the work, but it does provide a much more complete coverage of LIHTC developments and one at a national scale.

For researchers focused on smaller regions or states, we suggest that a similar approach be taken, but that it be tailored to the geography. We found some variation across the states in the distribution of number of bedrooms for family and elderly developments in the HUD data. Researchers can exploit that variation by devising their own algorithm—one that performs best for the particular state or region.

Finally, for researchers specifically interested in identifying units most likely to house children (rather than developments of families more broadly), we did some additional assessment of where *current* children live, by unit size, in the two states for which we have complete data on children. Approximately 98 percent of children live in units that have two bedrooms or more. This unit-size proxy does a remarkably good job at identifying units likely to house children (very low type I error). The proxy does not avoid units that do not house children (type II error), however. In those two states, approximately 40 percent of large units do not currently contain children. Of course, those units may house children at another point in time. Large units that are in elderly developments will not house children at any point, however. Exhibit 1 suggests that the large-unit proxy has a type II error rate at least in the double digits. Researchers interested in a unit-based proxy that focuses on children rather than families would benefit from combining the two approaches; that is, they would use the development algorithm to remove the elderly developments and thereby all large units in the elderly developments, which likely are the greatest source of error for the unit-based approach.

Appendix

Exhibit A-1

Algorithm Classifications by HUD Target Population

| | | Units | | | | Developments | | | |
| | | Family | | Nonfamily (Elderly) | | Family | | Nonfamily (Elderly) | |
	Classification	Total	Share of Total (%)	Total	Share of Total (%)	Total	Share of Total (%)	Total	Share of Total (%)
To start		475,400	100	215,931	100	7,306	100	3,466	100
Step 1	Family	397,416	84	16,153	8	5,684	78	278	8
Step 2	Nonfamily	11,350	2	94,217	44	210	3	1,555	45
Step 3	Family	24,351	5	16,653	8	774	11	356	10
Step 4	Family	16,158	3	4,799	2	110	2	62	2
	Remainder (not classified)	26,125	6	84,109	39	528	7	1,215	35
Final results	Total classified as family	437,925	92	37,605	17	6,568	90	696	20

HUD = U.S. Department of Housing and Urban Development.

Acknowledgments

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Data Sources for U.S. Housing Research, Part 1: Public Sector Data Sources

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This article is the first of a two-part article about data sources for U.S. housing research. The second part, which will appear in the next issue of Cityscape *(Volume 17, Issue 1), will address private sources, administrative records, and future directions.*

Abstract

For practitioners and policymakers to make a serious attempt to affect housing policy, they must cite evidence-based research. Part 1 of this article summarizes many of the government sources of housing data for researchers that can provide such evidence, such as the American Community Survey and the American Housing Survey.

Introduction

The basis for good housing policy is evidence-based research, and the only way to do good research on housing is to base that research on appropriate data. The principal research office of the U.S. Department of Housing and Urban Development (HUD)—the Office of Policy Development and Research (PD&R)—emphasizes such an approach. Its mission is—

> To inform policy development and implementation to improve life in American communities through conducting, supporting, and sharing research, surveys, demonstrations, program evaluations, and best practices. [To carry out this mission,] PD&R compiles, analyzes, and disseminates data to support program operations, enable performance management, and inform program policy. PD&R sponsors major surveys to provide crucial intelligence about the operation of housing markets. (HUD PD&R, 2013a: 1)

Cityscape: A Journal of Policy Development and Research • *Volume 16, Number 3* • *2014*
U.S. Department of Housing and Urban Development • Office of Policy Development and Research
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One recent example of evidence-based research, conducted by the Joint Center for Housing Studies at Harvard University (JCHS, 2013), used more than 25 data sources for its report on rental housing. This article identifies those U.S. housing statistics data sources—and many more—and describes the suitability of those sources for research.[1]

The Decennial Census of Population and Housing

The decennial census of population and housing, as its name implies, is conducted every 10 years and attempts, through extensive operations and thorough attention to detail, to gather information from every housing unit and group quarters in the United States.[2] Each census is based on the U.S. Census Bureau's Master Address File (MAF), a list of every residential address in the United States, including those sites for which building permits have been issued. The MAF is updated semiannually using the U.S. Postal Service Delivery Sequence File, a list of addresses to which mail is delivered. It is also updated before every census using two main additional techniques—nationwide address canvassing and the Local Update of Census Addresses Program. Although the multiplicity of operations ensures that the census reaches nearly every unit, some units are missed, and the Census Bureau conducts a Census Coverage Measurement program after each census to estimate the percentage of units that were missed. This operation estimated that the 2000 and the 2010 censuses both underestimated the number of housing units by 0.6 percent.[3]

The housing characteristics collected by the 2010 census were limited to only vacancy status and tenure. Vacancy was classified into seven categories and tenure into four.[4] Units that are vacant do not have residents to return the census form, thus an enumerator visited those units to determine their status. Units that appeared vacant were verified by consultation with neighbors, landlords, or other knowledgeable individuals (such as mail carriers), but vacancy status could not be confirmed

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[1] I discuss neither international housing statistics nor data on homelessness in this article. International statistics are published by the United Nations Statistics Division in *Compendium of Human Settlements Statistics/Compendium of Housing Statistics*; the latest such report is for 2011. HUD publishes an *Annual Homeless Assessment Report*. Website addresses for all data sources are in the Data References Appendix. Thrall and Thrall (2011) presented a recent annotated bibliography of data relevant to real estate analysis.

[2] Group quarters are living quarters that are not housing units, such as prisons and nursing homes.

[3] The housing unit undercounts for the 1990, 2000, and 2010 censuses were 0.96, 0.61, and 0.60 percent, with standard errors of 0.24, 0.16, and 0.20 percent, respectively (Mule and Konicki, 2012). The estimated net undercount rate for occupied units in 2010 was 0.03 percent (0.14 percent standard error), whereas vacant units had a net undercount rate of 4.80 percent (1.06 percent standard error). Neither undercount rate was different from its corresponding 2000 rate, but the latter was significantly greater than zero.

[4] The vacancy categories were (1) for rent; (2) for sale; (3) rented but not occupied; (4) sold but not occupied; (5) for seasonal, recreational, or occasional use; (6) for migrant workers; and (7) other vacant. The tenure categories were whether the unit is (1) rented for cash rent, (2) occupied without the payment of cash rent, (3) owned with a mortgage, or (4) owned without a mortgage.

and was imputed for some units.[5] According to the 2010 census, 131.7 million housing units were in the United States on April 1, 2010. Of those housing units, 116.7 million (88.6 percent) had people living in them. The remaining 15.0 million units (11.4 percent) were vacant.[6]

The Minnesota Population Center's website, https://www.ipums.org/, provides access to a set of data files—the Integrated Public Use Microdata Sample (IPUMS) files—that include "harmonized [micro]data on people in the U.S. census and American Community Survey, from 1850 to the present."[7] Housing characteristics are included on the microdata files only from the 1960 through 2000 censuses, and geography on the IPUMS files (and on the PUMS files provided by the Census Bureau) is limited to geographic areas constructed to have a population of 100,000 or more; internal files have the full geography. The Census Bureau has tabulated key housing characteristics for every census from 1940 through 2000 (see the Data References Appendix).

Basing their analysis on the census results, the Population Division of the Census Bureau issues annual population and housing unit estimates for states and counties. Housing unit estimates are used as "controls for several Census Bureau surveys, including the American Community Survey (ACS), the American Housing Survey (AHS), and the Current Population Survey (CPS). In addition to state and county housing unit estimates, [the Census Bureau] also produce[s] subcounty housing unit estimates [which] are central to the production of population estimates for cities and towns across the nation" (U.S. Census Bureau, 2014: 1).

The American Community Survey

To simplify the 2010 census, the Census Bureau began the American Community Survey to replace the census long form, last fielded in 2000 to a one-in-six sample of households.[8] After undergoing a decade of testing, the ACS began in 2005 and was sent to a sample of about 2.9 million housing units each year, which increased to 3.3 million in 2011. From 2005 to 2010, interviews were completed in the United States and Puerto Rico at about 1.9 million housing units each year, which increased to 2.1 million housing units in 2011. The ACS accumulates 5 years of data (approximately an 11 percent sample) to provide detailed information for small geographic areas (for example, census tracts or small towns) and for small population groups (for example, those younger than 18 years old with a disability in a particular metropolitan area).[9]

By contrast with the two housing variables (vacancy status and tenure) collected on the 2010 decennial census short form, the ongoing ACS collects 35 housing variables (exhibit 1). Tabulations of these variables individually and cross-classified with other demographic, economic, and social

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[5] In the 2010 census, 2.1 and 3.6 percent of occupied and vacant units, respectively, had their status imputed (for an overall status imputation rate of 2.3 percent of all housing units). See Summary File 1, Tables H3, H20, and H21; these tables are available at http://factfinder2.census.gov.

[6] See Mazur and Wilson (2011) for more information about these housing characteristics.

[7] Quoted from https://www.ipums.org/ homepage.

[8] The first administration of questions to only a sample of people was in 1940.

[9] The Census Bureau oversamples small geographic areas.

Exhibit 1

Housing Variables on the American Community Survey, 2005–2013

Acreage	Meals included in rent	Second or junior mortgage payments or home equity loan
Agricultural sales	Mobile home costs	Selected monthly owner costs
Bedrooms	Monthly housing costs	Telephone service available
Business on property	Monthly housing costs as a percentage of household income	Tenure*
Condominium status and fee	Mortgage payment	Units in structure
Contract rent	Mortgage status	Utilities
Gross rent	Occupants per room	Vacancy status*
Gross rent as a percentage of household income	Plumbing facilities	Value
Homeowner vacancy rate	Real estate taxes	Vehicles available
House heating fuel	Rent asked	Year householder moved into unit
Insurance for fire, hazard, and flood	Rental vacancy rate	Year structure built
Kitchen facilities	Rooms	

* Also on the 2010 decennial census.

characteristics are published annually.[10] The ACS provides 1-year estimates for geographic areas and population groups of 65,000 or more, 3-year estimates for areas and groups of 20,000 or more, and 5-year estimates for all areas and groups.[11]

HUD now uses ACS data to create a custom dataset with information on housing needs (particularly the housing needs of low- and moderate-income households). HUD provides that dataset to state and local governments to help them create their Comprehensive Housing Affordability Strategy and Community Development Plans (required for governments participating in several large HUD grant programs). These data help grantees to "assess their affordable housing and community development needs and market conditions, and to make data-driven, place-based investment decisions" (HUD PD&R, 2013b: 5).[12]

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[10] See http://www.census.gov/acs/www/Downloads/data_documentation/SubjectDefinitions/2011_ACSSubjectDefinitions. pdf. The variables used for tabulations include several calculated (derived) from these basic variables (and others), such as "Selected Conditions"—defined for owner- and renter-occupied housing units as having at least one of the following conditions: (1) a lack of complete plumbing facilities, (2) a lack of complete kitchen facilities, (3) 1.01 or more occupants per room, (4) selected monthly owner costs as a percentage of household income greater than 30 percent, and (5) gross rent as a percentage of household income greater than 30 percent.

[11] For a limited number of variables, 5-year estimates are available for block groups and larger areas; others are available only for census tracts and small jurisdictions and for larger areas. Recent housing analyses using ACS by Census Bureau staff include Flanagan and Schwartz (2013) on rental housing market conditions, Mazur (2013) on the physical characteristics of housing, and Trevelyan, Acosta, and De La Cruz (2013) on homeownership by foreign-born residents.

[12] The 2005–2009 ACS 5-year estimates were the first ACS estimates that HUD used as a replacement for the long form estimates from the 2000 census to determine Community Development Block Grants.

The American Housing Survey

The American Housing Survey, sponsored by HUD and carried out by the Census Bureau since 1973, is the centerpiece for detailed housing analysis in the United States.[13] According to its website, the intention of the AHS is to provide "current information on a wide range of housing subjects, including size and composition of the nation's housing inventory, vacancies, fuel usage, physical condition of housing units, characteristics of occupants, equipment breakdowns, home improvements, mortgages and other housing costs, persons eligible for and beneficiaries of assisted housing, home values, and characteristics of recent movers" (U.S. Census Bureau, n.d.: 1).

The 2011 AHS had a sample size sufficient to provide detailed housing analyses for the nation as a whole (excluding Puerto Rico), for regions, and for 29 of the nation's 388 metropolitan areas. A broad overview of housing conditions using data from all the AHS national surveys from 1973 to 2005 can be found in Eggers and Thackeray (2007).

The *Codebook for the American Housing Survey, Public Use File: 1997–2011* (Eggers and Wheelock, 2013) indicates that the 2011 AHS PUMS contains 186,448 cases compared with the 73,222 cases in the 2009 PUMS.[14] The 2013 sample started, as usual, with the 2011 national sample supplemented by a sample of new construction. This sample was enhanced by a different supplementary sample for 25 metropolitan areas (versus 29 in 2011). The total interviewed sample size was 167,911. Data from the 2013 AHS became available in 2014. Many researchers, including those at HUD, have used these data extensively for analyses of housing markets. To perform analyses that require that the exact location of the unit be known, researchers with approved projects can access the internal versions of the AHS through the Census Bureau Research Data Centers.

Two special features of the AHS have been relatively underused—its longitudinal nature and the clustering of neighborhood samples. First, the AHS has had the same national sample from 1985 to 2013, with periodic additions because of new construction (and subtractions because of demolition and conversion). Such a design is critical to the analysis of the Components of Inventory Change, or CINCH, and of housing filtering, but it has been used for relatively few research studies.[15] An entirely new sample will be drawn for the 2015 AHS.

Second, the AHS national surveys in 1985, 1989, and 1993 included a "Neighbor Sample"—the 10 housing units nearest a fraction of the national survey sample. This sample has been used to examine neighborhood effects on housing prices (Ioannides and Zabel, 2003). The 1985, 1989, and 1993 AHS national samples consisted of approximately 61,000, 56,500, and 59,000 addresses, respectively. According to Ioannides and Zabel (2003), 630, 769, and 1,018 units were selected as kernel units for clusters of interviewed housing units in 1985, 1989, and 1993, respectively.

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[13] AHS was originally the Annual Housing Survey and was conducted once a year from 1973 to 1981. The name changed in 1985 after the survey became biennial in 1983.

[14] One important change was to add a sample of HUD-assisted rental housing (about 5,250 units).

[15] See Weicher, Eggers, and Moumen (2010), however, for an excellent study of the filtering of low-income affordable housing.

Data for Analysis of Housing Prices

Moench and Ng (2011) provide an excellent summary of the various sources of data on housing prices, which follows in shortened form.

> The Federal Housing Finance Administration [sic] (FHFA) provides price indices that include only homes with mortgages that conform to Freddie Mac and Fannie Mae guidelines [(excluding "jumbo" loans)]. Data are available at the national, regional and state levels, as well as for the major metropolitan areas. They are based on transactions and appraisals, and are then adjusted for appraisal bias. . . . The S&P/Case-Shiller home price indices, published by Fiserv Inc., are based on information from county assessor and recorder offices. The index started with data from 10 cities in 1987 but was extended to cover 20 cities in 2000. The Case-Shiller indices do not use data from 13 states and have incomplete coverage for 29 states. Compared to the FHFA, the Case-Shiller indices thus have a narrower geographical coverage but homes purchased with subprime and other unconventional loans are included in the indices. . . . The FHFA and the Case-Shiller indices are both based on repeat sales. In contrast, the NAR [National Association of REALTORS®] reports the median purchase prices of homes directly. The NAR surveys a fixed subset of its [2,000 local] associations. Based on reported transactions from the sample, the NAR calculates a median price for each of the four Census Bureau regions. . . .

> The Census [Bureau] publishes several house price series. A monthly national series is available since 1963, but the regional data are available only quarterly. The Census also provides an average price of new homes of constant quality from 1977 onwards on a quarterly basis, both for the United States and for the four regions. The indices are based on a monthly survey of residential construction activity for single-family homes. These indices are also subject to compositional effects that might arise from the sales sample rather than any true changes in price. The Census Bureau also publishes an index of one-family homes sold based on the hedonic approach.

> The Conventional Mortgage Home Price Index (CMHPI) is provided by Freddie Mac. It is calculated on a quarterly basis at both the national and regional level from 1975 onwards. The index is based on conventional conforming mortgages for single-unit residential houses that were purchased or securitized by Freddie Mac or Fannie Mae. (Moench and Ng, 2011: C4–C6)

The Conventional Mortgage Home Price Index (CMHPI) was replaced by the Freddie Mac House Price Index (FMHPI), recalculated using a repeat transactions methodology back to 1975. Freddie Mac publishes the monthly index values each quarter. Index values are available for the nation as a whole and for the 50 states, the District of Columbia, and 367 metropolitan statistical areas.[16] The Census Bureau house price indexes are discussed in the subsection "Residential Construction Surveys."

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[16] The two Freddie Mac national price indexes differ in two important ways. First, the national FMHPI is a weighted average of state indexes, whereas the national CMHPI was a weighted average of nine census region indexes. Second, the FMHPI uses Freddie Mac portfolio share weights to construct the national index, whereas the CMHPI used census region counts of single-family housing. The FMHPI also differs from the CMHPI in its treatment of refinance transactions. The original CMHPI included refinance transactions in the estimation but did not account for disparities between appraisals for refinance and for purchase. The FMHPI includes these transactions and uses statistical methods to account for the possibility that appraisal values might systematically differ from purchase prices. The purchase-only CMHPI excluded refinance transactions.

The Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) Housing Survey provides the data needed to measure price change for the two housing indexes that are components of the CPI: (1) owners' equivalent rent of primary residence and (2) rent of primary residence. The BLS measure of rental equivalence for homeowner costs was introduced to the CPI in 1983. That measure attempts to estimate the flow of services for an owner-occupied dwelling based on market rents for rented dwellings based on actual market rents collected from a sample of renter-occupied housing units that are identified to be representative of owner-occupied housing. This method measures the rate of change in the amount an owner would need to pay to rent on the open market (Ptacek and Rippy, 2013).

Real Capital Analytics Inc. (RCA) and Moody's Investors Service, Inc., jointly publish several monthly Commercial Property Price Indexes (CPPI). Their indexes cover several property types—office (central business district and suburban), industrial, retail, apartment, commercial (combined office, retail, and industrial), and hotel—for the United States, for "major markets" (an aggregate of Boston, Chicago, Los Angeles, New York City, San Francisco, and Washington, D.C.), and for "non-major markets" (an aggregate of everything outside major markets). As their website indicates—

> RCA records commercial properties valued at over $2.5M (in constant dollars, inflation adjusted to December 2010) that have sold at least twice from 1988 to the current period. Filters are applied to exclude 'flipped' properties (sold twice in 12 months or less), transactions that are not arm's length, properties where size or use has changed, and transactions with extreme price movements (more than 50% annual gain or loss). The Moody's/RCA CPPI™ uses advanced Repeat-Sale Regression methodology of qualified repeat sale observations to measure price change in commercial real estate. (Real Capital Analytics, 2013: 1)

Other Government Housing Surveys

Housing Vacancy Survey

The Housing Vacancy Survey (HVS), a supplement to the monthly BLS-Census Bureau Current Population Survey designed to estimate the unemployment rate, provides information on rental and homeowner vacancy rates and on characteristics of units available for occupancy. Estimates of the total housing inventory and percentage distributions of vacant for-rent and for-sale-only units are available for the United States and the four census regions. In addition, the rental vacancy rate is a principal economic indicator, as designated by the Office of Management and Budget. The HVS also provides information on homeownership rates and the composition of the housing stock. Rental and homeowner vacancy rates and homeownership rates are available for the United States, regions, states, and 75 largest metropolitan areas. Data for all geographies are available quarterly and annually. Homeownership rates are also tabulated by age of householder and by family status for the United States and regions and are tabulated by race or ethnicity of householder and by Median Family Income for the United States.

Survey of Market Absorption

The Survey of Market Absorption (SOMA), sponsored by HUD, is used to estimate the rate at which newly completed multifamily rental units (in buildings with five or more units), condominiums, and

cooperatives are absorbed (that is, rented or sold). It uses the Census Bureau's Survey of Construction (SOC) as its sampling base. The initial 3-month SOMA interview collects information on amenities, rent or sales price levels, number of units, type of building, and number of units taken off the market. Field representatives conduct subsequent interviews, if necessary, at 6, 9, and 12 months after completion. Beginning in 2002, the survey started collecting information on housing designed for the elderly.

The Rental Housing Finance Survey

Immediately after every decennial census from 1950 to 2000, the Census Bureau conducted a Residential Finance Survey (RFS) to collect, process, and produce information about the financing of all nonfarm residential properties. (HUD sponsored the 2001 RFS.) The Rental Housing Finance Survey (RHFS) was designed to replace the RFS and create a nationally representative sample of data on the financing of multiunit rental housing. The first RHFS was conducted in 2012; the next is scheduled for 2015.

The New York City Housing and Vacancy Survey

The New York City Housing and Vacancy Survey, sponsored by the New York City Department of Housing Preservation and Development, is conducted roughly every 3 years to comply with New York State and New York City (NYC) rent regulation laws. The Census Bureau has conducted the survey for NYC since 1965. Detailed data from the survey cover many characteristics of the NYC housing market, including characteristics of the population, households, housing stock, and neighborhoods.

The rental vacancy rate is the primary focus of the survey, because that value is crucial to the current rent regulation laws. Other important survey data on housing include rent regulatory and home-ownership status, structural conditions, unit maintenance, and neighborhood conditions; crowding, rents, utility costs, type of heating fuel, rent/income ratios; owner purchase price and estimated value, mortgage status, and interest rate; number of stories and units in building, cooperative/condominium status, wheelchair accessibility, and much more about housing and households in New York City. In addition to housing data, extensive information on characteristics of the population and households occupying housing units is collected, such as age, sex, race, ethnicity, education, household composition, birth region, when/why household moved, income, employment, and labor force status.[17] A New York City Housing and Vacancy Survey PUMS is available.

Residential Construction Surveys

Once every 5 years, the Census Bureau conducts a Census of Construction to collect information about employer establishments (those with a payroll and employees) in the construction industry. The census collects only basic information—including sales (revenue), payroll, and number of employees—and uses administrative records from the Internal Revenue Service to collect information about small firms instead of using interviews. More frequent and detailed information on residential construction is collected by two surveys, the Building Permits Survey (BPS) and the SOC. These

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[17] See http://www.census.gov/housing/nychvs/data/2011/overview.pdf.

surveys produce estimates that include national and regional data on the number of new housing units authorized by building permits, authorized but not started, started, under construction, and completed.

The purpose of the BPS is to provide national, state, and local statistics on the number and valuation of new privately owned housing units authorized by building permits in the United States. The statistics from the BPS are based on reports that local building permit officials submit in response to a voluntary mail survey. About one-half of the permit-issuing places—jurisdictions that issue building or zoning permits—in the United States are surveyed monthly. The remainder of the places are surveyed annually. Building permits are public records collected from individual permit offices, most of which are municipalities. From local area data, estimates are tabulated for counties, states, metropolitan areas, census divisions, census regions, and the nation. The BPS covers all permit-issuing places and collects data on zoning permits for areas that do not require building permits. Areas for which no authorization is required to construct a new privately owned housing unit are not included in the survey.

The purpose of SOC is to provide national and regional statistics on starts and completions of new single-family and multifamily housing units and statistics on sales of new single-family houses in the United States; HUD partially funds this survey. SOC also provides statistics on characteristics of new privately owned residential structures. The data included are various characteristics of new single-family houses completed, new multifamily housing completed, new single-family houses sold, and new contractor-built houses started. SOC includes two parts: (1) the Survey of Use of Permits, which estimates the amount of new construction in areas that require a building permit, and (2) the Non-Permit Survey, which estimates the amount of new construction in areas that do not require a building permit. (According to the Census Bureau, less than 2 percent of all new construction takes place in nonpermit areas.)[18]

The Manufactured Homes Survey (MHS) is conducted by the Census Bureau and sponsored by HUD. MHS produces monthly regional estimates of new manufactured home placements, average sales prices, and dealers' inventories and more detailed annual estimates, including selected characteristics of new manufactured homes. Statistics on the shipment of new manufactured homes are produced by the Institute for Building Technology and Safety and published by the Manufactured Housing Institute.

Residential Energy Consumption Survey

The Residential Energy Consumption Survey (RECS) is conducted by the Energy Information Administration (EIA). Interviewers collect energy characteristics on the housing unit, usage patterns, and household demographics. Illustrative data items include main heating fuel, use of cooling equipment, electricity use and expenditures, energy consumption by end use (air-conditioning, heating, and appliances), housing type, and year of construction. This information is combined with data from energy suppliers to these homes to estimate energy costs and usage for heating, cooling, appliances, and other end uses. First conducted in 1978, the RECS was conducted for the 13th time in 2009. The 2009 survey collected data from 12,083 households in housing units statistically selected to represent the U.S. housing units that are occupied as primary residences. Data from the

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[18] See http://www.census.gov/construction/nrs/how_the_data_are_collected/.

2009 RECS were tabulated for the 4 census regions, the 9 census divisions, and 16 states.[19] The results of each RECS include data tables, a microdata (PUMS) file, and a series of reports. RECS and EIA supplier surveys are ingredients for some of EIA's more comprehensive data products and reports, such as the *Annual Energy Outlook* and *Annual Energy Review*.

The Panel Study of Income Dynamics

The Panel Study of Income Dynamics (PSID) is conducted by the University of Michigan Institute for Social Research. It was sponsored originally by the U.S. Office of Economic Opportunity but is now largely funded by the National Science Foundation (with the occasional support of other federal agencies). The PSID began in 1968 with approximately 5,000 families containing more than 18,000 individuals. As the PSID website notes, "Information on these individuals and their descendants has been collected continuously [that is, every year or every other year], including data covering employment, income, wealth, expenditures, health, marriage, childbearing, child development, philanthropy, education, and numerous other topics."[20] Each PSID family in every year through 1995 (except 1969, in which the addresses are unavailable) has been identified if they were living in housing units subsidized by HUD, by the Farmers Home Administration, through tax credits administered by the U.S. Department of the Treasury (hereafter, Treasury), or through state housing programs. A project is currently under way (as of 2013) to update this match for every PSID family from 1995 through the most recent wave. For a fuller description of the restricted housing data, see Newman and Schnare (1997).

Discontinued Surveys

In 1995 and 1996, the Census Bureau conducted the Property Owners and Managers Survey, which was designed to learn more about rental housing and the providers of rental housing. A nationwide sample of approximately 16,300 housing units that were rented or vacant-for-rent in the 1993 AHS was selected, and a questionnaire was mailed to the property owner, manager, or other agent of the owner of each property containing a selected unit. Detailed information was collected about maintenance, management practices, tenant policy, financial aspects of rental property ownership, owner characteristics, and related topics.

From 1966 to 2007, the Census Bureau also conducted the Survey of Residential Alterations and Repairs. The survey provided quarterly data on expenditures for maintenance and repairs, alterations and additions, and major replacements.

Other Government Sources for Housing Data

HUD Low-Income Housing Tax Credit Database

HUD has updated the Low-Income Housing Tax Credit (LIHTC) Database annually since the mid-1990s to include new and rehabilitated properties placed in service that used the credit. These data

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[19] The 16 states are Arizona, California, Colorado, Florida, Georgia, Illinois, Massachusetts, Michigan, Missouri, New Jersey, New York, Pennsylvania, Tennessee, Texas, Virginia, and Wisconsin.

[20] Quoted from http://psidonline.isr.umich.edu/ homepage.

were initially collected by a contractor, who worked closely with the state allocating agencies to compile the information. After the passage of the Housing and Economic Recovery Act[21] in 2008, and in keeping with its mandate that the state housing finance agencies provide HUD with demographic and economic data on tenants in LIHTC units, HUD began collecting LIHTC property and tenant information directly. The property data are available through an interactive query system and are updated annually.

Government-Sponsored Enterprises Data

HUD publishes information on the single-family conventional mortgage purchases of Fannie Mae and Freddie Mac, the two government-sponsored enterprises (GSEs) that are involved with the housing market and that HUD oversees. Under the Federal Housing Enterprises Financial Safety and Soundness Act of 1992,[22] Fannie Mae and Freddie Mac are required to meet specified goals for purchases of mortgages that finance housing for very low-, low-, and moderate-income families and families living in areas traditionally underserved by the mortgage market. These datasets are intended to shed light on the effectiveness of GSEs and provide additional data for mortgage research. The single-family datasets include detailed data about the income, race, and gender of the borrower and about the census tract location, loan-to-value ratios, and affordability of the mortgage. The multifamily datasets include information about the number, type, and affordability of units and the size of the property, mortgage balance, and type of organization that sold the mortgage to the GSE.

The Federal Housing Finance Agency (FHFA) conducts the Monthly Interest Rate Survey to provide monthly information on interest rates, loan terms, and house prices by property type (all, new, and previously occupied), by loan type (15- or 30-year fixed rate or adjustable rate), and by lender type (savings associations, mortgage companies, commercial banks, and savings banks). In addition, the survey provides quarterly information about conventional loans by major metropolitan area and by Federal Home Loan Bank district. To conduct this survey, FHFA asks a sample of mortgage lenders to report the terms and conditions on all single-family, fully amortized, purchase-money, nonfarm loans that they close during the last 5 business days of each month. (The survey excludes Federal Housing Administration-insured and Department of Veterans Affairs-guaranteed loans, multifamily loans, mobile home loans, and loans created by refinancing another mortgage.)[23]

Freddie Mac's Primary Mortgage Market Survey® collects information from lenders each week on the rates and points for their most popular mortgage products: 30-year fixed-rate, 15-year fixed-rate, 5-1 hybrid amortizing adjustable-rate, and 1-year amortizing adjustable-rate mortgages. The survey is based on first-lien prime conventional conforming mortgages with a loan-to-value ratio of 80 percent. In addition, the adjustable-rate mortgage (ARM) products are indexed to Treasury yields and lenders are asked to provide the initial coupon rate, points, and margin on ARM products. The survey began with questions about conventional mortgages in 1971. About

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[21] Public Law 110–289.

[22] Public Law 102–550.

[23] FHFA also provides a good website for downloadable housing data sources at http://www.fhfa.gov/DataTools/Downloads.

125 lenders currently are surveyed each week, and the mix of lender types—thrifts, credit unions, commercial banks, and mortgage-lending companies—is roughly proportional to the level of mortgage business that each type commands nationwide.

Fannie Mae conducts a monthly National Housing Survey (NHS) using random-digit dialing. The NHS interviews approximately 1,000 U.S. adults who are sole or joint financial decisionmakers to assess their attitudes about homeownership, renting a home, the economy, and household finances. Fannie Mae publishes 11 attitudinal indicators monthly and occasional analyses using quarterly data. The survey, which has been conducted since June 2010, is weighted to the ACS "to account for known biases resulting from non-response" (Fannie Mae, 2013: 2).

Board of Governors of the Federal Reserve System

From its Flow of Funds accounts, the Federal Reserve issues tabulations of the net change in mortgages outstanding and of total outstanding mortgages once a quarter. The Federal Reserve also conducts the Survey of Consumer Finances (SCF), which is normally a triennial cross-sectional survey of U.S. families, but, during the 1983-to-1989 and the 2007-to-2009 periods, the survey collected panel data. The survey oversamples high-income households, and its data include information on families' balance sheets, pensions, income, and demographic characteristics. The SCF is a good source of data on home equity, first-lien and junior mortgages, refinance mortgages, and home equity lines of credit and loans. It distinguishes between primary residences and other residential and nonresidential property. In 2010, 82 percent of all debt was for residential properties and mortgage or real estate lenders held 27 percent of all debt, down from 42 percent in 2007 (Bricker et al., 2012).

U.S. Department of Agriculture, Office of Rural Development

The U.S. Department of Agriculture administers programs that provide homeownership opportunities and home renovation and repair programs to Americans living in rural areas. The programs also provide financing to residents in multiunit buildings who are elderly or disabled and to those who have low incomes to ensure that they are able to make rent payments. These rural development programs include Business Loans and Grants, Cooperative Grants and Other Programs, Single Family Housing Loans and Grants, Multi-Family Housing Loans and Grants, Community Facilities Loans and Grants, Electric Loans and Grants, Telecommunications Loans and Grants, Water Loans and Grants, and Community and Economic Development Programs.[24] Aggregate funding obligations for these programs (and others) for 2009 through 2012 by state are available on line (USDA, 2013).

More Information

Part 2 of this article, to be published in the next issue of *Cityscape*, summarizes the challenges of using administrative records (AR) and proposes to construct new and useful data sources by matching survey data with AR and by constructing synthetic databases. Part 2 concludes with a brief discussion of some data issues.

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[24] See http://www.rurdev.usda.gov/ProgramsAndOpportunities.html.

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The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. government.

Micromaps display multiple maps on the same exhibit, with different geographic units highlighted in each map. A *comparative micromap* is a type of micromap with a series of indexed maps designed to convey change in a statistic. Mast (2014) previously introduced *Cityscape* readers to comparative micromaps. A two-way comparative micromap (hereafter, referred to as a TWCM; for examples, see Carr and Pickle, 2010) conveys change in a statistic in two dimensions; one dimension is typically time.

In this article, I demonstrate how to use TWCMs to visualize White-Black and temporal differences in homeownership rates in the 50 states and Washington, D.C. The homeownership rate equals owner-occupied housing units as a percentage of total occupied housing units. I analyze American Community Survey homeownership data for 3 years (2006, 2009, and 2012), and two racial/ethnic groups: White non-Hispanic householders (hereafter, referred to as White), and Black or African-American householders of any ethnicity (hereafter, referred to as Black). My dataset consists of 306 observations, where an observation is the homeownership rate in a state in a given year for a given racial/ethnic group (hereafter, referred to as a state-year).

Exhibit 1 displays a TWCM[1] mapping White and Black homeownership rates for 2006, 2009, and 2012. States in exhibit 1 are shaded according to the three homeownership rate categories indicated by the bottom horizontal slider. Cut points for the homeownership rate categories in exhibit 1 are roughly the 33rd and 66th percentiles. Cut points are reported below the slider, and the percentages of state-years in the categories are reported above the slider. I refer to the lowest homeownership rate category as "low," the middle category as "medium," and the highest category as "high." In exhibit 1, the 103 state-years in the low category with homeownership rates less than or equal to 43.3 percent are shaded light gray; the 101 state-years with medium rates greater than 43.3 percent and less than or equal to 71.5 percent are shaded medium gray; and the 102 state-years with high rates greater than 71.5 percent are shaded black.

Exhibit 1 displays 13 micromaps in a panel layout with three rows and five columns. The top row reports White homeownership rate categories, and the bottom row reports Black homeownership rate categories. The odd-numbered columns of the top and bottom rows, from left to right, report homeownership rates for 2006, 2009, and 2012, respectively. Homeownership rates for both racial/ethnic groups tended to fall between 2006 and 2009 and between 2009 and 2012, with 2009-to-2012 changes being more dramatic.

The second and fourth columns in the top and bottom rows of exhibit 1 highlight states that experienced changes in White and Black homeownership categories between 2006 and 2009 and between 2009 and 2012, respectively; states that experienced changes in categories over time are shaded according to the category for the latest period.

Exhibit 1

White and Black State Homeownership Rates: 2006, 2009, and 2012
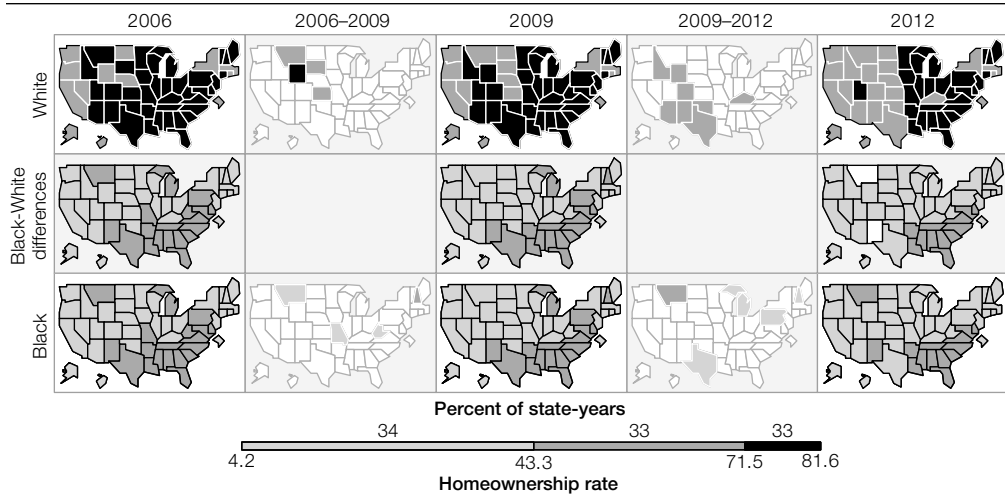
Source: 2006, 2009, and 2012 American Community Survey 1-year data

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[1] The TWCMs in the article were produced with R programs (available upon request) based on Carr's (2014) programs.

In the middle row of exhibit 1, states that experienced differences between White and Black homeownership categories are highlighted; highlighted states are shaded according to the Black homeownership category. The three maps in the middle row of exhibit 1, from left to right, highlight White-Black differences for 2006, 2009, and 2012, respectively.

Exhibit 2 displays a TWCM mapping White and Black percentage-point differences in homeownership rates between 2009 and 2006 and between 2012 and 2009. States in exhibit 2 are shaded according to the three categories of percentage-point differences in homeownership rates indicated by the bottom horizontal slider. Cut points for the percentage-point difference categories in exhibit 2 are roughly the 33rd and 66th percentiles. I refer to the lowest percentage-point difference category as "low," the middle category as "medium," and the highest category as "high." In exhibit 2, the 67 state-years in the low category with differences less than or equal to -2.0 percentage points are shaded light gray; the 68 state-years in the medium category with differences greater than -2.0 percentage points and less than or equal to -0.8 percentage points are shaded medium gray; and the 69 state-years in the high category with differences greater than -0.8 percentage points are shaded black.

Exhibit 2 displays eight micromaps in a panel layout with three rows and three columns. The top row reports differences in White homeownership rates, and the bottom row reports differences in Black homeownership rates. The first column of the top and bottom rows report differences in homeownership rates between 2009 and 2006, and the third column of the top and bottom rows

Exhibit 2

White and Black Differences in State Homeownership Rates: 2009–2006 and 2012–2009
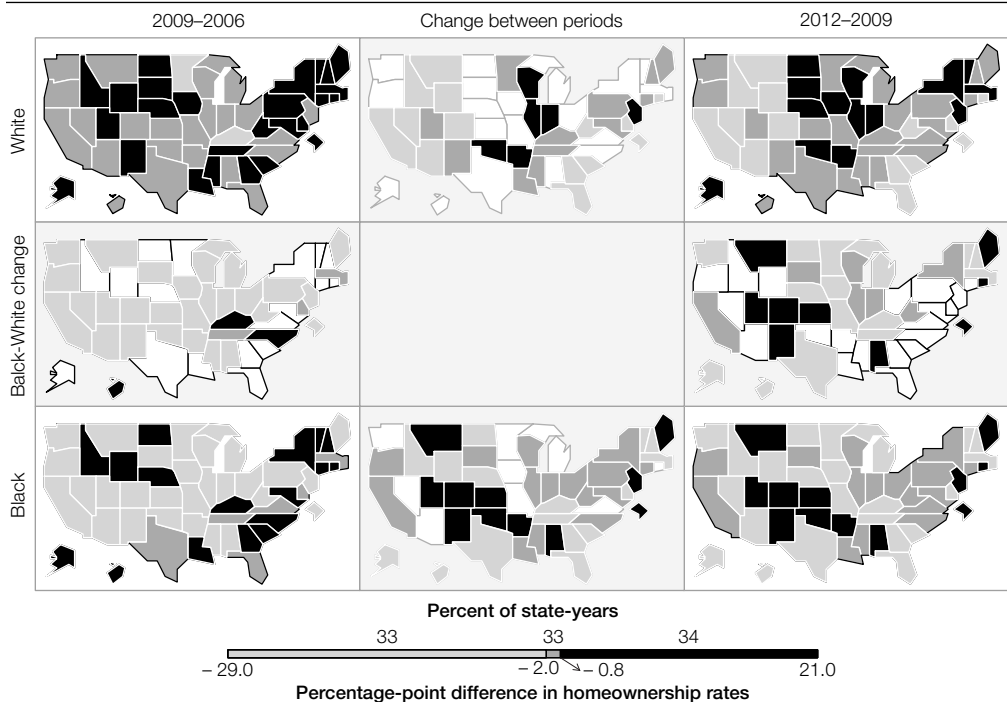
reports differences between 2012 and 2009. The middle column in the top row highlights states that experienced changes in White difference categories between 2009–2006 and 2012–2009, and corresponding changes in Black difference categories are highlighted in the middle column in the bottom row; states that experienced changes in categories over time are shaded according to their 2012–2009 categories.

In the middle row of exhibit 2, states that experienced changes between White and Black difference categories are highlighted; highlighted states are shaded according to the difference category for Black householders. White difference categories tended to be greater than Black difference categories for both 2009–2006 and 2012–2009, indicating larger decreases in absolute value for Black householders.

The TWCM is a useful tool for visualizing two-dimensional changes in geographic data. In this article, TWCMs clearly demonstrate three key points. First, a downward trend in state homeownership rates since 2006 was for both White and Black householders. Second, homeownership rates tended to be much higher for White householders than for Black householders in all time periods. Finally, decreases in homeownership rates over time tended to be greater in absolute value for Black householders.

Acknowledgments

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Brent D. Mast is a social science analyst at the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, Program Monitoring and Research Division.

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The Remodeling Conundrum: When the Order Matters

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Abstract

During the past several decades, too many homebuilders, remodelers, and homeowners tried to make positive change in their houses but ended up with unintended consequences. In fact, many of those consequences could have and should have been predicted. To move our current housing stock forward—whether to make it more energy efficient, healthier, or perhaps more durable—we need to determine how we can increase the potential for success while we reduce the potential for harm. In remodeling and renovation efforts, the changes unfortunately often are implemented out of order; we tighten the enclosure before addressing critical ventilation issues, we upgrade furnaces without ensuring the water heater will continue to operate properly, we add insulation without resolving critical moisture or air leakage problems, and we replace windows without considering potential water management or indoor air-quality effects.

Many of our contemporary new home construction programs (ENERGY STAR, Department of Energy Zero Energy Ready Homes, and many more) have successfully demonstrated a clear pathway and process to achieve high-performance homes that provide superior comfort, efficiency, durability, indoor air quality, and value. It is important to recognize, however, that it took several decades to develop, demonstrate, and deploy

Abstract (continued)

those high-performance solutions that are common in the marketplace today. This article shares a conceptual chronology of what we learned on that journey and how we might use those lessons to develop a repeatable and affordable process for existing houses—which, thus far, has proven to be far more difficult than imagined.

Introduction

Anyone who has remodeled a home knows how challenging and complicated the process can become. The process can be analogous to "boxing with your hands tied behind your back," which requires a person to be nimble, anticipatory, and responsive to remain on his or her feet. Homeowners may know what needs to be done or what they want to do, but they simply encounter too many obstacles or run out of resources. If homeowners add high performance to the list of goals and outcomes, the project takes on even more complexity. This article looks back at the evolution of new construction to analyze options that can move our existing homes forward.

Lessons From the School of Hard Knocks

If we take a trip back to the 1970s, we will encounter a series of energy crises that forced us to rethink our energy consumption in the United States. The message was clear to everyone. We needed to collectively improve the energy efficiency of our housing stock. We needed to build new homes with more efficient standards and retrofit our existing homes, when and where possible, to a higher standard.

Starting With Insulation

Increased insulation seemed like a perfectly logical place to start, but what we did not know became quickly obvious: improper insulation can lead to convective looping, thermal bridging, and air-transported heat and moisture (see exhibit 1). Typical insulation materials in the 1970s and 1980s were vulnerable to airflow within, around, or through them. This effect not only compromised the insulation value, but it could quickly transport moisture to the cooler side of the insulation and potentially lead to condensation and subsequent mold growth or wood decay (see exhibit 2).

Moving to Air Seal

The insulation problem appeared easy enough to fix: contractors should properly install the insulation and provide a continuous air seal. This approach made the building enclosure much more efficient and potentially much more durable as well. When the air sealing was done well, however, the air exchange rate of the house was significantly reduced and existing pollutants and moisture

Exhibit 1

Improper Insulation Can Lead to Convective Looping, Thermal Bridging, and Air-Transported Heat and Moisture

Good intention: Installed high levels of insulation to the attic.
Unintended consequence: Concentrated heat loss due to air leakage around the plumbing stack contributed to snow melt and future ice dams.
Solution: Air-seal all holes before installing the insulation so both transmission losses and air leaks are properly managed.

Source: Patrick H. Huelman, 2000

Exhibit 2

Air-Transported Moisture Can Lead to Condensation and Subsequent Mold Growth or Wood Decay

Good intention: Heavily insulated wall cavities and rim (band) joists.
Unintended consequence: Air-transported moisture (because of elevated interior humidity and indoor pressures) condensed on the cooler sheathing.
Solution: Install a continuous air barrier to prevent exfiltration of moisture air during winter.

Source: Patrick H. Huelman, 1995

loads began to build, resulting in indoor air-quality concerns. Subsequent research showed that poor water management resulted in many of these walls taking on exterior water over time (see exhibit 3). In addition, as these walls were no longer poorly insulated and no longer leaked air, they could not dry out with time. Not enough energy flow was available to convert the water to vapor, and not enough airflow was present to carry the vapor out of the cavity.

Exhibit 3

Over Time, With Poor Water Management, Walls Can Take on Exterior Water

Good intention: Framed wall with good insulation, air barrier, and vapor retarder.
Unintended consequence: Water leaked into a window cavity that had limited drying potential.
Solution: Provide proper exterior water management to limit water infiltration.

Source: Steve Klossner, 1998

Examining Water Management

After professionals recognized that building penetrations (vents, windows, utilities, and so on) also leaked water and put the durability of the wall system at risk, they decided to refocus on exterior water management (see exhibit 4). This decision, in general, had very little kickback. It might have further tightened the building enclosure, however, and further reduced a home's natural air exchange.

Adding Ventilation

Problems began to become evident indoors. Odors lingered, moisture accumulated, and indoor pollutant concentrations began to increase—a result of the overall reduction in air exchange and also a lack of attention to indoor pollutant sources (see exhibit 5). The resolution was pretty straightforward, however—pay attention to interior sources, remove what you can, and provide good ventilation for the remainder. By this time, the mantra "build tight, ventilate right" was widely recognized, although advocates of the "house as a system" frequently suggested that it should be "ventilate right, then build tight." That suggestion really is the inspiration for the entire conversation in this article.

Exhibit 4

Proper Exterior Water Management Can Limit Water Infiltration

Good intention: Constructed 2-x-6 frame walls with good insulation, air barrier, and vapor retarder.
Unintended consequence: Improper stucco cladding added moisture to a cavity that had low drying potential because of reduced heat and airflow.
Solution: Provide proper exterior water management to limit water infiltration and a wall design with improved drying potential.

Source: Richard Stone, 2009

Exhibit 5

When Air Exchange Is Reduced, Indoor Humidity and Window Condensation Increase

Good intention: Weatherized house (added insulation and airtightness).
Unintended consequence: Amount of indoor humidity and window condensation became elevated.
Solution: Control interior moisture sources; add source point and whole-building ventilation.

Source: Joe Nagan, 2004

Addressing Combustion Gases

As houses became tighter and the amount of exhaust increased, the negative pressure working against natural-draft chimneys grew. This condition led to increased combustion spillage, back-drafting, and flow reversal, causing combustion gases to enter homes (see exhibit 6). Because of the potential for nitrogen oxides and carbon monoxide to be added to the indoor environment, construction professionals addressed this concern with new equipment, makeup air, and safety devices.

Exhibit 6

Good Insulation and Air Sealing Can Cause Backdrafting of Combustion Byproducts Into a House

Good intention: Ensured the house was well insulated and air sealed and added exhaust devices.
Unintended consequence: Negative pressure in the combustion zone caused backdrafting of combustion byproducts into the house.
Solution: Reduce the negative pressure with makeup air or switch to sealed or power-vented appliances.

Source: Joe Nagan, 2006

Lessons Learned

Although this story of how new home construction has evolved since the 1970 energy crisis is highly conceptualized, it clearly documents a trail of mistakes and lessons learned (see exhibit 7). The overriding objective is to set the context for how to move forward to improve the energy performance of our existing house stock.

Exhibit 7

The Order Matters—This Order Has Proven To Be Risky for House and Occupants

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┌─────────────────────────────┐
│         Insulation          │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│         Air sealing         │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│     Moisture management     │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│         Ventilation         │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│      Combustion safety      │
└─────────────────────────────┘
```
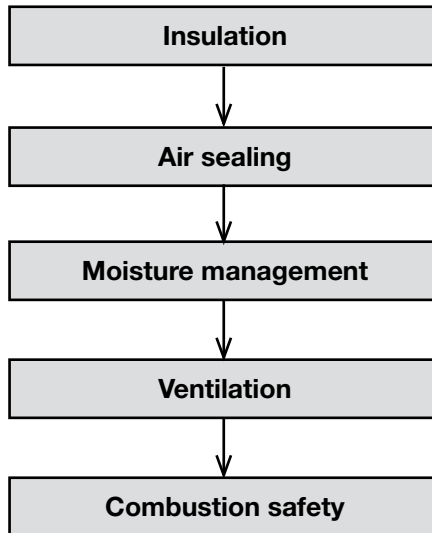
Will History Be Repeated?

Many current energy upgrade initiatives seem to focus on insulation—some with air sealing and many without. This continued approach suggests that we are setting ourselves up to repeat history. A parallel story to the one discussed previously is based on the experiences of the energy weather-ization program throughout the United States. The story unfortunately follows a very similar path with a lag time of one to two decades. Today, most weatherization programs fortunately recognize the system implications and take a much more holistic approach that includes significant testing.

To examine a contemporary approach, we will start with a question. Is it possible to upgrade a home in such a way that the renovation might push it over the cliff? The "cliff" is a metaphor for what might happen if a house is moved too close to the cliff, where it might become unstable and fall. For an energy upgrade, this failure refers to an efficiency, durability, indoor environmental quality or to a health and safety problem. We are using the cliff concept to help people think about where the house is today with respect to the cliff and how much closer or farther away it might be when they make a change.

The effect of any change is twofold. First, homeowners must consider the type of change they are making. If they are simply changing light bulbs, the change is unlikely to significantly affect how the house system is performing. On the other hand—based on the above history lesson—if home-owners add insulation or a large range hood, the change could result in significant consequences. Second, homeowners must consider the robustness of the current house. Some houses are so stable that even large blows to the system will be absorbed. Other houses are much more fragile, however, and small changes can have larger effects and move the house toward the cliff much more quickly.

The critical questions that both contractors and homeowners must address are these—

1. How close is the house to the cliff before the change?

2. What type of change are they proposing?

3. How robust or fragile is the existing house?

The answers to these questions will ultimately determine how the house performs when the changes have been completed. A previous article published in the Industrial Revolution department of *Cityscape*, titled "Reducing Appliance Backdrafting Risks With HVAC-Integrated Makeup Air Systems," provides an excellent example of this concept and approach (Turns, 2013).

Moving Forward With Our Existing Homes

How can we take these lessons and apply them to the decisionmaking process for upgrading our existing housing stock? A good example is the current U.S. Department of Energy Building America program for existing homes, which focuses on reducing energy use by 30 percent by accelerating the adoption of high-performance technologies using a systems engineering and integrated design approach. It is inclusive of a "do no harm" promise to ensure that safety, health, and durability are maintained or improved. The following three overarching strategies that could be employed are built upon the lessons of the past and should mitigate undesirable consequences.

Strategy 1: Follow the Proper Order

The first strategy simply follows the previous new construction order of events, but in reverse (see exhibit 8). Problems are rarely created when using this order. If construction professionals properly address combustion backdrafting and spillage (for example, by installing sealed combustion space and water-heating equipment), subsequent changes in ventilation or airtightness will be accommodated. If they install whole-home ventilation, homeowners will have little concern for future air sealing of the building enclosure. If they properly implement water management and air sealing, adding insulation will be of little risk. The challenge to this order is not so trivial. A significant investment may be needed to prepare the home for the final measures—air sealing and insulation—that can ultimately provide a financial payback to the homeowner.

One final and important caveat exists with this new order. For many homes, changing the furnace, water heater, and hearth products from natural-draft to sealed or direct-vented equipment can dramatically reduce the overall air exchange of the home and lower the neutral pressure plane in the home. While both of these outcomes are desirable, they can increase the indoor moisture and pollutant levels and the exfiltration of heat and moisture at the upper sections of the home. By moving to the second strategy—implementing a good ventilation strategy—homeowners can easily mitigate this concern.

Strategy 2: Test In and Test Out

What happens if this order is highly impractical or prohibitively expensive? A second strategy that is widely promoted today uses tests to determine the current condition of the house and how fragile

Exhibit 8

The Order Matters—This Order Minimizes Risk to House and Occupants

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┌─────────────────────────────┐
│     Combustion safety       │
└─────────────────────────────┘
               │
               ▼
┌─────────────────────────────┐
│        Ventilation          │
└─────────────────────────────┘
               │
               ▼
┌─────────────────────────────┐
│     Moisture management     │
└─────────────────────────────┘
               │
               ▼
┌─────────────────────────────┐
│        Air sealing          │
└─────────────────────────────┘
               │
               ▼
┌─────────────────────────────┐
│         Insulation          │
└─────────────────────────────┘
```
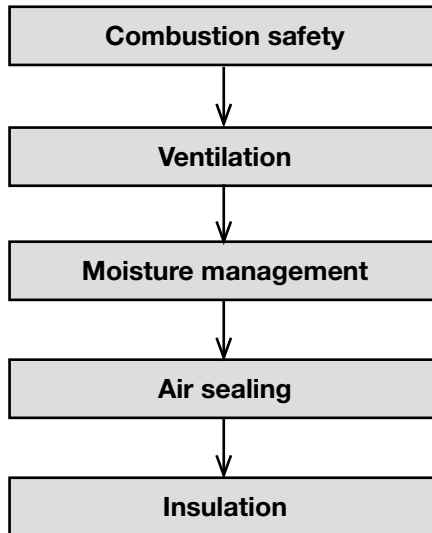
it might be. That information can be used to better inform and guide the work being contemplated. After the work is concluded, testing is repeated to ensure proper performance of the house and its systems. This approach should reduce unforeseen consequences using the initial testing and identify any remaining problems through the final testing. Many building professionals, however, argue that this testing—both before and after installation—adds significant costs that could have been used to further enhance the improvements to the home.

Strategy 3: Combined Approach

The last strategy focuses on the type of work being proposed and its probability of negatively affecting the performance of the house. In essence, it is a blend of the first two strategies. If the upgrade is unlikely to cause issues with the current house systems, it is given a green light to move forward without testing. Actions like changing to more efficient light bulbs, upgrading to a more efficient refrigerator, or using a programmable thermostat improve efficiency and can have potential system interactions, yet they are highly unlikely to push a house over the cliff. Other items such as adding insulation, installing a new furnace, or applying whole-house air sealing, however, have large system interactions and have the potential for major changes in house durability, indoor air quality, and combustion safety. These proposed changes would be given a red light to encourage homeowner and contractors to "stop, look, and listen" to see if the house could be pushed over the cliff with any of these changes. Of course, some measures may fall in between the green light and the red light, and perhaps some very robust houses are unlikely to be moved very far. These conditions would get a yellow light, requiring due caution throughout the process and perhaps a quick or abbreviated test at the completion of the work to ensure the home is left in a safe condition. For instance, based on the caveat given above, a furnace changeout might be a yellow light and could necessitate some followup testing to make sure the house has not moved closer to the cliff.

Conclusions

We can, and must, do better this time around. There is simply no reason for the remodeling, renovation, and home improvement industries to repeat the mistakes of the past. Furthermore, homeowners do not need to bear the scars of these past lessons. Although we recognize the clear challenges and limitations with remodeling, retrofitting, and installing energy upgrades, the basic principles and processes still apply. These lessons and their application, however, will need to be brought to the market by a whole new set of contractors. Those who set out to improve the performance of our existing housing stock must incorporate these lessons and solutions into their daily procedures and practices.

Acknowledgments

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Impact

A regulatory impact analysis must accompany every economically significant federal rule or regulation. The Office of Policy Development and Research performs this analysis for all U.S. Department of Housing and Urban Development rules. An impact analysis is a forecast of the annual benefits and costs accruing to all parties, including the taxpayers, from a given regulation. Modeling these benefits and costs involves use of past research findings, application of economic principles, empirical investigation, and professional judgment.

Economic Analysis of Increasing HUD's Manufactured Housing Inspection Label Fee

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The views expressed in this article are those of the authors and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. government.

Abstract

The U.S. Department of Housing and Urban Development's (HUD's) Office of Manu-factured Housing Programs enforces construction and safety standards for all trans-portable sections of manufactured homes. To fund enforcement activities, HUD collects $39 per section sold. This amount provided sufficient revenue to fully fund program operations until fiscal year 2014. This article describes HUD's proposal to increase this fee to $100 per section based on expected manufactured housing production and program costs.

Analysis

Enforcement of HUD's manufactured housing standards may be conducted directly by states, with HUD approval, or by HUD on behalf of states. HUD currently provides inspection services for 38 states. These services are prescribed in cooperative agreements between HUD and each state. The cost of these services and other program activities is $10.0 million annually. Although HUD charges a $39 fee per transportable section to fund these activities, beginning in fiscal year (FY) 2014, the revenue produced from this fee is no longer sufficient to fully fund program operations.

As directed by HUD's FY 2014 appropriation, the Department proposes to increase the fee to an amount that generates an expected $10.0 million annually. The following analysis is based on the expected production level of 100,000 transportable sections annually, but it also includes a range of expected production levels to demonstrate how the fee would need to be set if production differs slightly. Increasing the fee does not otherwise affect the cost of production or purchase of manufactured homes. As explained in the following paragraphs, if the fee increase is passed through to the consumer, which makes the purchase price higher, placements of new manufactured homes will decrease below currently forecasted levels. If manufacturers absorb the cost and no marginal producers exit the market, the effect will result only in less profit for the manufacturers while the sales will remain unchanged. The change in fee collections represents a transfer to taxpayers from manufacturers of manufactured housing and consumers who purchase new manufactured housing, because the increased fee collections will replace funds collected through federal tax collections. In addition, to the extent that the fee is passed to consumers, the increase will also create a measurable deadweight loss. Exhibit 1 shows the effect of three production scenarios in response to the fee change.

Basing its analysis on recent label usage and production, HUD expects between 95,000 and 105,000 placements of new manufactured homes during the first full year following the fee increase. This analysis, as shown in exhibit 1, uses a range of 95,000 sections to 105,000 sections to show how the fee must be set to raise the $10.0 million needed to enforce construction and safety standards. The fee must obviously be set higher for lower levels of expected production. Depending on the market response to the fee increase, which includes the extent to which manufacturers pass the fee increase through to consumers, the fee may need to be set higher than otherwise expected to collect the needed revenue.

Scenario 1: Annual Production of 95,000 Transportable Sections

Assuming the production and placement of 95,000 sections, Scenario 1 in exhibit 1, the HUD fee would need to be set at about $105.[1] The fee would raise $9.975 million in the absence of changes in demand. Increasing the fee by $66 ($39 to $105) would add on average $103.62 ($66 x 1.57)[2] to the cost of each manufactured home, which is about 0.17 percent of the 2012 average sales price of $61,900. If producers pass the entire fee increase through to consumers in the form of higher prices, sales of new manufactured homes will decrease. Meeks (1993) estimates the price elasticity of demand for manufactured homes at -2.40. His estimate implies that a 1.00-percent increase in

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[1] To collect at least $10.0 million, the fee would need to be $105.26, which would collect slightly more than $10.0 million if manufacturers absorbed the full fee increase and sales remained at 95,000 sections.

[2] According to the U.S. Census Bureau, Manufactured Homes Survey, new manufactured homes contain, on average, 1.57 sections per home, and two sections make a double-wide.

Exhibit 1

Effect of Fee Increase on Manufactured Home Placements

	Fiscal Year 2015			Fiscal Year 2014 Q4	
	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2
Transportable sections produced if no fee change	95,000	100,000	105,000	24,968	17,471
Inspection label fee	$105	$100	$95	$100	$100
Average sections per manufactured home	1.57	1.57	1.57	1.57	1.57
Manufactured home placements	60,507	63,692	66,877	15,903	11,128
Average sales price[a]	$61,900	$61,900	$61,900	$61,900	$61,900
Price elasticity of demand[b]	– 2.4	– 2.4	– 2.4	– 2.4	– 2.4
Change in price of manufactured homes	$103.62	$95.77	$87.92	$95.77	$95.77
Percent change in demand of manufactured homes	– 0.40%	– 0.37%	– 0.34%	– 0.37%	– 0.37%
Change in demand of manufactured homes	– 243	– 237	– 228	– 59	– 41
Total transportable sections	94,618	99,628	104,642	24,875	17,407
Transfer to taxpayers					
Increased annual collection (in millions)					
Fee fully passed to consumers	$6.230	$6.063	$5.846	$1.514	$1.059
Fee fully absorbed by producers	$6.270	$6.100	$5.880	$1.523	$1.066
Total collections (in millions)					
Fee fully passed to consumers	$9.935	$9.963	$9.941	$2.488	$1.741
Fee fully absorbed by producers	$9.975	$10.000	$9.975	$2.497	$1.747

Q4 = fourth quarter.

[a] U.S. Census Bureau, Manufactured Homes Survey.

[b] Meeks, Carol. 1993. Price Elasticity of Demand for Manufactured Homes: 1961 to 1989. Mimeographed reproduction, April 25.

Notes: Fiscal year (FY) 2015 estimates are based on full-year implementation. FY 2014 Q4 Scenario 1 assumes no prepurchased labels used following the effective date of the fee increase. Scenario 2 assumes prepurchased labels are used in the first month following the fee increase. The 17,471 sections in Scenario 2 are production for the last 2 months of the quarter only.

price will decrease demand by 2.40 percent. Thus, for the expected 0.17-percent increase in price, the demand for manufactured housing is expected to decrease by 0.40 percent, or 243 homes (382 sections). Annual collections would increase by $6.230 million to $9.935 million.

The elasticity of demand for manufactured housing, however, is relatively high compared with the elasticity for other dwelling types,[3] and manufacturers may choose to not pass the full amount of the fee increase to consumers to avoid decreased sales. If producers fully absorb the increase, sales and placements of new manufactured homes will remain unchanged and annual collections would increase by $6.270 million, to $9.975 million.

[3] The price elasticity for newly constructed owner-occupied housing, in general, is between -0.75 and -1.20 (see Polinsky and Ellwood, 1979).

Scenario 2: Annual Production of 100,000 Transportable Sections

Assuming the production and placement of 100,000 sections, Scenario 2 in exhibit 1, the HUD fee would need to be set at about $100. If producers fully absorbed the fee increase and sales remained at 100,000 sections, the fee would raise exactly $10.0 million, an increase of $6.1 million. If the fee increase were fully passed to the consumer, however, the sales price of manufactured homes would increase on average 0.16 percent and sales would decrease to 99,628 transportable sections. Annual collections would increase by $6.063 million, to $9.963 million.

Scenario 3: Annual Production of 105,000 Transportable Sections

Assuming the production and placement of 105,000 sections, Scenario 3 in exhibit 1, the HUD fee would need to be set at $95 per section. If producers fully absorbed the fee increase and sales remained at 105,000 sections, fee collections would increase by $5.846 million and raise exactly $9.975 million. If the fee increase were fully passed to the consumer, however, the sales price of manufactured homes would increase, on average, 0.15 percent and sales would decrease to 104,642 transportable sections. The fee would increase by $5.846 million, to $9.941 million.

Social Costs

One commonly used measure of the social cost of price distortions imposed by taxes or government-imposed fees is deadweight loss. Deadweight loss is the sum of lost consumer and producer surplus due to the deviation in price from equilibrium. The higher price, in this case due to the higher inspection fee, causes the quantity of manufactured homes demanded to decrease. In exhibit 2 the deadweight loss is represented by the shaded triangle. This scenario reasonably assumes a perfectly elastic long-run supply curve. Given a linear demand curve, the social cost associated with the fee increase is approximated at one-half of the change in price times the change in quantity. Based on the information presented in exhibit 1, the change in price for a production level of 95,000 sections is $103.62 and the change in quantity of homes sold is -243. Thus, the deadweight loss, or social cost, totals $12,590. Higher production levels of 100,000 and 105,000 sections require smaller increases in the fee, which in turn induces smaller changes in price and quantity. The deadweight loss associated with an expected production of 100,000 and 105,000 sections totals $11,349 and $10,023, respectively.

The social costs of the fee are offset by the benefits supported by the fee revenue. A full account of the social benefits include the positive impact on the market through the enforcement by HUD of HUD's safety standards, all of which have passed the benefit-cost test and are documented in previous analyses of HUD's manufactured housing safety rules.

Exhibit 2

Deadweight Loss of Manufactured Housing Fee Increase
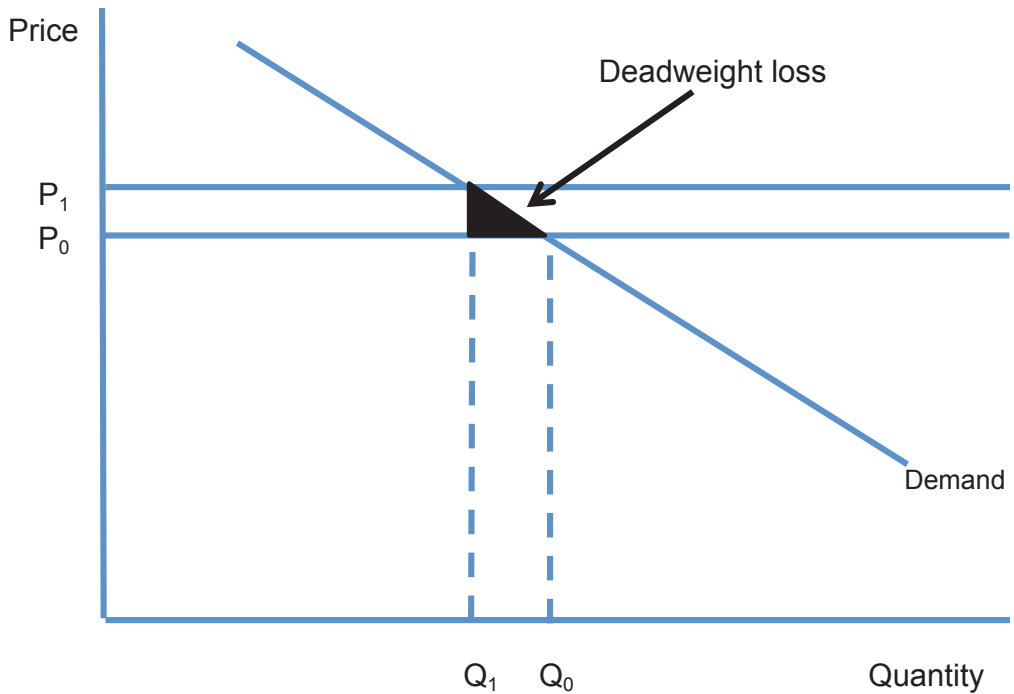
Author

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Evaluating Spatial Model Accuracy in Mass Real Estate Appraisal: A Comparison of Geographically Weighted Regression and the Spatial Lag Model

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Abstract

Geographically weighted regression (GWR) has been shown to greatly increase the performance of ordinary least squares-based appraisal models, specifically regarding industry standard measurements of equity, namely the price-related differential and the coefficient of dispersion (COD; Borst and McCluskey, 2008; Lockwood and Rossini, 2011; McCluskey et al., 2013; Moore, 2009; Moore and Myers, 2010). Additional spatial regression models, such as spatial lag models (SLMs), have shown to improve multiple regression real estate models that suffer from spatial heterogeneity (Wilhelmsson, 2002). This research is performed using arms-length residential sales from 2010 to 2012 in

Cityscape: A Journal of Policy Development and Research • Volume 16, Number 3 • 2014
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Abstract (continued)

Norfolk, Virginia, and compares the performance of GWR and SLM by extrapolating each model's performance to aggregate and subaggregate levels. Findings indicate that GWR achieves a lower COD than SLM.

Introduction

Ad valorem property taxes are a prominent source of government revenue in jurisdictions around the world. Taxing authorities are held accountable to ensure that these valuations are fair and equitable. In such roles, the optimization of the accuracy of mass real estate valuation approaches is critical.

Because of their precision and time- and cost-saving advantages, real estate mass appraisal methods that employ multiple regression-based models, known as automated valuation models (AVMs), are becoming increasingly prominent in industry practice and have received attention from the academic community. AVMs are used in a host of industries—both public and private—including loan origination, fraud detection, and portfolio valuation (Downie and Robson, 2007), and are promoted and advanced by such organizations as the International Association of Assessing Officers (IAAO). Statistical standards of equity established by such organizations give additional benchmarks by which modelers may test various approaches and methodologies.

Academic research has expanded regression models using geographically specific dummy variables and distance coefficients, and, although this approach has been shown to improve ordinary least squares (OLS)-based regression models, they often still suffer from biased coefficients and t-scores (Berry and Bednarz, 1975; Fotheringham, Brunsdon, and Charlton, 2002; McMillen and Redfearn, 2010). Some researchers (Fotheringham, Brunsdon, and Charlton, 2002) have used geographically weighted regression (GWR), a locally weighted regression technique, which has improved model performance by employing a spatial weighting function and allowing for coefficients to fluctuate across geographic space (Huang, Wu, and Barry, 2010; LeSage, 2004). Similarly, the spatial lag model (SLM)—a spatial autoregressive (SAR) model—addresses spatial heterogeneity by including an autocorrelation coefficient and spatial weights matrix (Anselin, 1988).

Because real estate markets behave differently across geographic space, AVMs free of spatial consideration often produce inaccurate, misleading results (Anselin and Griffith, 1988; Ball, 1973; Berry and Bednarz, 1975). GWR is prominently demonstrated throughout literature as a more accurate alternative to multiple regression analysis (MRA) AVMs (for example, Borst and McCluskey, 2008; Lockwood and Rossini, 2011; McCluskey et al., 2013; Moore, 2009; Moore and Myers, 2010). Similarly, SAR models have been sufficiently demonstrated to increase the predictive accuracy of such models (Borst and McCluskey, 2007; Conway et al., 2010; Quintos, 2013; Wilhelmsson, 2002). Descriptions of their methods and findings are summarized in exhibit 1.

Despite the popularity of both GWR and SLM models in housing research, to our knowledge, a study that simultaneously compares the performance of GWR and SLM using industry-accepted IAAO standards and that extrapolates each model's performance to aggregate and subaggregate levels has yet to be published. Farber and Yeates (2006) found GWR to have more accuracy and produce less spatially biased coefficients than SAR models, but no comparison has been made of how each performs against the other in the context of mass appraisal for tax assessments. A major finding of Bidanset and Lombard (2013)[1] is that traditional measures of hedonic model performance (for example, the Akaike Information Criterion [AIC], $\overline{R^2}$) do not necessarily indicate which model will perform the best given the assessment industry standards of uniformity (that is, coefficient of dispersion [COD]).[2] This article compares spatial regression techniques of the SLM and GWR and compares not only their prediction accuracy ability but also their attainment of IAAO equity and uniformity standards. Given the increasing availability of Geographic Information System, or GIS, data and advances incomputational ability to perform spatial AVMs, the understanding of the capability that each method lends to governments in reaching more accurate value estimations is critical.

Exhibit 1

Select Survey of Previous SAR Real Estate Research

Paper	Methodology	Results/Conclusions
Wilhelmsson, 2002	Compared OLS, SAR, and SEM.	SAR model improves model predictability of OLS model with spatial dummies but does not correct for spatial dependency.
Borst and McCluskey, 2007	Compared OLS-based and GWR alternatives with CSM.	CSM methodology is similar to the weights matrix used in an SLM and reduces baseline COD more than specified GWR model.
Conway et al., 2010	Developed spatial lag hedonic model to capture price effects of urban green space.	SLM improves OLS performance by helping to account for spatial autocorrelation.
Quintos, 2013	Used SLMs to create location-based base prices and location adjustment factors.	Spatial lags significantly improve OLS model performance.

COD = coefficient of dispersion. CSM = comparable sales method. GWR = geographically weighted regression.
OLS = ordinary least squares. SAR = spatial autoregressive. SEM = spatial error model. SLM = spatial lag model.

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[1] The final paper of this research, Bidanset and Lombard (forthcoming), is scheduled to be published in the *Journal of Property Tax Assessment and Administration*, volume 11, issue 3.

[2] AIC is a commonly used goodness-of-fit test of models applied to the same sample. It has the following calculation:
$$AIC_i = -2logL_i + 2K_i,$$
where L_i is the maximum likelihood of the *i*th model, and K_i is the number of free parameters of the *i*th model.

Model Descriptions and Estimation Details

The traditional OLS regression model is represented by

$$y_i = \beta_0 + \sum_k \beta_k x_{ik} + \varepsilon_i, \tag{1}$$

where y_i is the ith sale, β_0 is the model intercept, β_k is the kth coefficient, x_{ik} is the kth variable for the ith sale, and ε_i is the error term of the ith sale. The GWR extension is depicted by the following—

$$y_i = \beta_0(u_i, v_i) + \sum \beta_k(u_i, v_i) x_{ik} + \varepsilon_i, \tag{2}$$

where (u_i, v_i) indicates the latitude-longitude (xy) coordinates of the ith regression point. GWR creates a local regression allowing coefficients to vary at each observation. In this article, the xy coordinates of the respective sale represent each observation.

In matrix notation, the OLS model and GWR model are represented by equations 3 and 4, respectively.

$$Y = X\beta + \varepsilon, \text{ and} \tag{3}$$

$$Y = (\beta \otimes X)1 + \varepsilon, \tag{4}$$

where $\otimes$ denotes a logical multiplication operator; β is multiplied by the respective and corresponding value of X. This differentiates GWR from the constant vector of parameters (β) of the OLS model.

The GWR model will employ a Gaussian spatial kernel and a fixed bandwidth. Bidanset and Lombard (forthcoming) show that kernel and bandwidth combinations should be examined during the model calibration phase—specifically regarding effect on IAAO ratio study standards—to examine which produces the optimal results. With the current variables and data, the Gaussian kernel with a fixed bandwidth achieves the lowest COD and is used in comparison against other spatial weighting functions tested (that is, bisquare kernel with adaptive bandwidth, bisquare kernel with fixed bandwidth, and Gaussian kernel with adaptive bandwidth).

During model calibration, the fixed bandwidth used in the GWR model is selected by a procedure that identifies the bandwidth that will achieve the lowest AIC corrected value (Fotheringham, Brunsdon, and Charlton, 2002).

The Gaussian kernel incorporates a distance decay function that places a higher weight on properties more closely situated to the observation point (exhibit 2).

Exhibit 2

Spatial Kernel Used in Geographically Weighted Regression
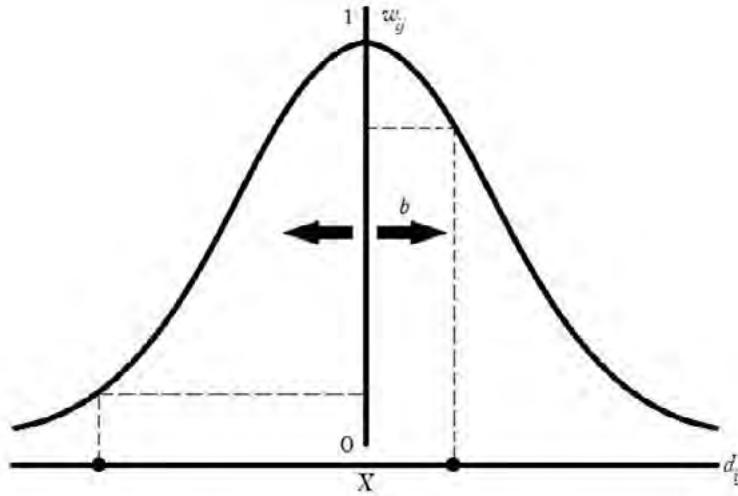
where
  X is the regression point,
  ● is a data point,
  w_{ij} is the weight applied to the jth property at regression point i,
  b is the bandwidth, and
  d_{ij} is the geographic distance between regression point i and property j.

Source: Fotheringham, A. Stewart, Chris Brunsdon, and Martin Charlton. 2002. Geographically Weighted Regression: The Analysis of Spatially Varying Relationships. *Chichester, United Kingdom: John Wiley & Sons*

Gaussian weight—

$$w_{ij} = exp\ [-1/2\,(d_{ij}/b)^2]. \tag{5}$$

The SLM is represented by the following equation (Borst and McCluskey, 2007; Can, 1992)—

$$Y = \rho WY + X\beta + \varepsilon, \tag{6}$$

where W is a spatial weights matrix indicating distance relationship between observations i and j. The weights matrix establishes the effect nearby observations have on the subject property. The spatially lagged dependent variable is represented by the coefficient ρ. The weights matrix and the spatially lagged dependent variable help capture "spillover" effects from neighboring observations. In this article, a nearest neighbor matrix is derived to create a row standardized weights matrix.

Equity and Uniformity Measurement Standards

IAAO created and maintains standards that promote equity and fairness in real estate appraisals and assessments. The COD and the price-related differential (PRD) are two coefficients by which accuracy and fairness are measured.

For single-family homes, the IAAO set a maximum acceptability value of 15.0 for COD scores (IAAO, 2013). Values under 5.0 are indications of sales-chasing (cherry-picking sales that will produce optimal results) or sampling error (properties and areas more difficult to model are underrepresented; IAAO, 2013). The COD calculation is as follows—

$$COD = \frac{100}{n} \frac{\sum_{i=1}^{n} \left| \frac{EP_i}{SP_i} - Median\left(\frac{EP_i}{SP_i}\right) \right|}{Median\left(\frac{EP_i}{SP_i}\right)} \, , \tag{7}$$

where EP_i is the expected price of the *i*th property, and SP_i is the sales price of the *i*th property. The price-related differential is a score measuring vertical equity, represented by equation 8.

$$PRD = \frac{Mean\left(\frac{EP_i}{SP_i}\right)}{\sum_{i=1}^{n} EP_i \; / \; \sum_{i=1}^{n} SP_i} \; . \tag{8}$$

According to the IAAO Standard on Automated Valuation Models, PRD values of less than 0.98 suggest evidence of progressivity, while PRD values of more than 1.03 suggest evidence of regressivity (IAAO, 2003).

The Data and Variables

The data comprise 2,450 arms-length single-family home sales in Norfolk, Virginia, from 2010 to 2012 and their respective characteristics at the time of sale. City assessment staff review all transfers of real estate within the city of Norfolk and an unbiased third party confirms them. An arms-length transaction requires that neither party be under duress to buy or sell, the property is listed openly, and no previous relationship or affiliation exists between the buyer and the seller. Because assessment offices are required by law to value properties at fair market value—and non-arms-length transactions, such as foreclosures and short sales, do not necessarily reflect the true market—only arms-length transactions are included in the analysis. To promote the accuracy of results, outliers are identified and omitted using an IQRx3 approach (removing about 2 percent of observations). Furthermore, to reduce the likelihood of skewed results, observations are inspected to ensure no egregious errors, such as buildings with zero total living area, are present.

Exhibit 3 shows a list of the independent variables and their respective descriptions. *TLA* is the total area (in square feet) of livable space (excluding, for example, unfinished attics). *TGA* is total garage area (in square feet) of attached and detached garages. *Age* is the age of the building (in years). Regarding improvements built around the same time, the effective age (*EffAge*) represents the state of cured depreciation (Gloudemans, 1999). Each of these four variables is transformed to natural log form to allow for nonlinear relationships, such as diminishing marginal returns to price. A dummy variable *bldgcond* is included for the condition of the improvement, with a default of average. Using the reverse month of sale (*RM1* through *RM36*), 11 time-indicator 3-year linear spline variables are created, with *RM1* denoting the most recent month of sale and *RM36* denoting the oldest month of sale). Linear spline variables offer significantly more explanatory power than monthly, quarterly, or seasonally based variables (Borst, 2013). *RM12* and *RM21* improved model performance significantly and are included in the exhibit.

Ln.ImpSalePrice is the dependent variable, which is calculated by first subtracting the respective assessed land value from each sale price and then transforming this value to its natural logarithm. This method attempts to isolate the effects of the independent variables on the improvement alone (Moore and Myers, 2010).

Exhibit 3

Independent Variables

Variable	Description
ln.TLA	Total living area in square feet (natural log)
ln.EffAge	Effective age in years (natural log)
ln.Age	Age in years (natural log)
ln.TGA	Total garage area in square feet, detached + attached (natural log)
bldgcond	Condition of building (average is default)
RM12	12th reverse month spline variable
RM21	21st reverse month spline variable

Results

GWR achieves the most uniform results with the lowest COD of 9.12 (exhibit 4). The SLM follows with a COD of 10.86. Both models outperform the global model (12.51) with respect to uniformity. None of the models exceeds the IAAO maximum threshold of 15.00. PRD, although the highest with global (1.03) and the lowest with GWR (1.01), does not change very much across the three models. No model suggests evidence of regressivity or progressivity, although the global model is at the highest acceptable limit set by IAAO standards (1.03) before evidence of regressivity becomes present.

Across these models, rank of AIC is the same as rank of COD and PRD (exhibit 5).

Exhibit 4

Model Performance Results

Method	AIC	COD	PRD
Global	324.52	12.51	1.03
SLM	– 207.84	10.86	1.02
GWR	– 784.79	9.12	1.01

AIC = Akaike Information Criterion. COD = coefficient of dispersion. GWR = geographically weighted regression.
PRD = price-related differential. SLM = spatial lag model.

Exhibit 5
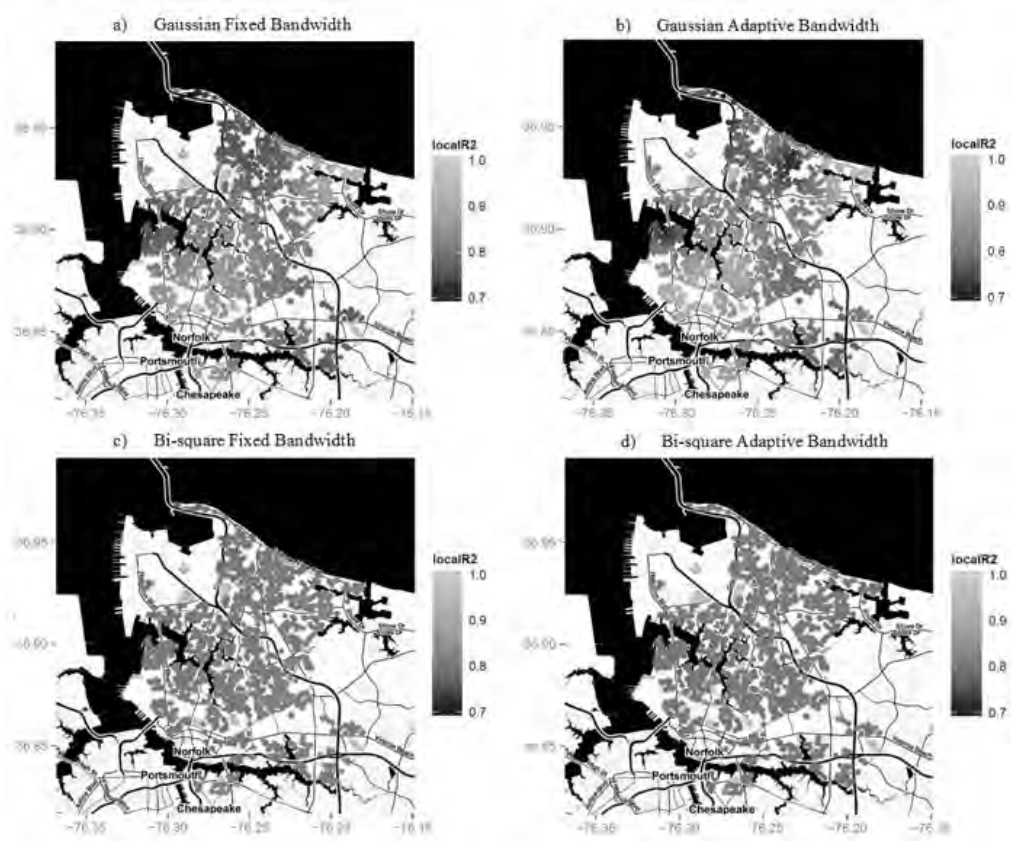
Local R^2 Maps by Spatial Weighting Function

Exhibit 6 (three maps—6a, 6b, and 6c) shows the COD for each Norfolk neighborhood. These neighborhoods are identified by city authorities and are delineated by neighborhood shapefiles provided by the city. Because neighborhoods are on average composed of more similar homes (age, architecture, size, condition, proximity to various parts of the city, and so on), they serve as submarkets for further analysis and evaluation of model performance. Understanding how various models perform across neighborhoods of varying compositions enables modelers to calibrate modeling techniques that optimize individual submarkets. Because the geographic location of a

Exhibit 6

COD Disaggregated by Neighborhood (1 of 2)

(a) Global Results
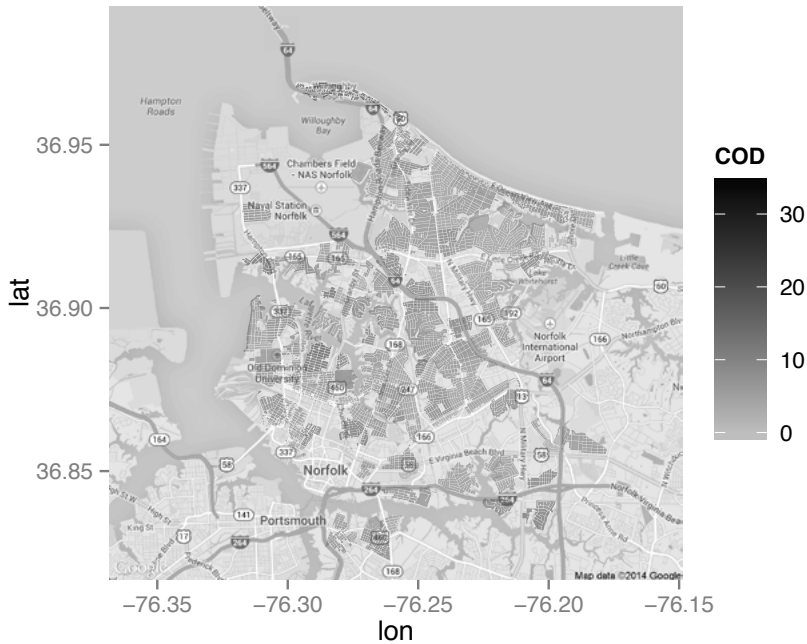
(b) SLM Results
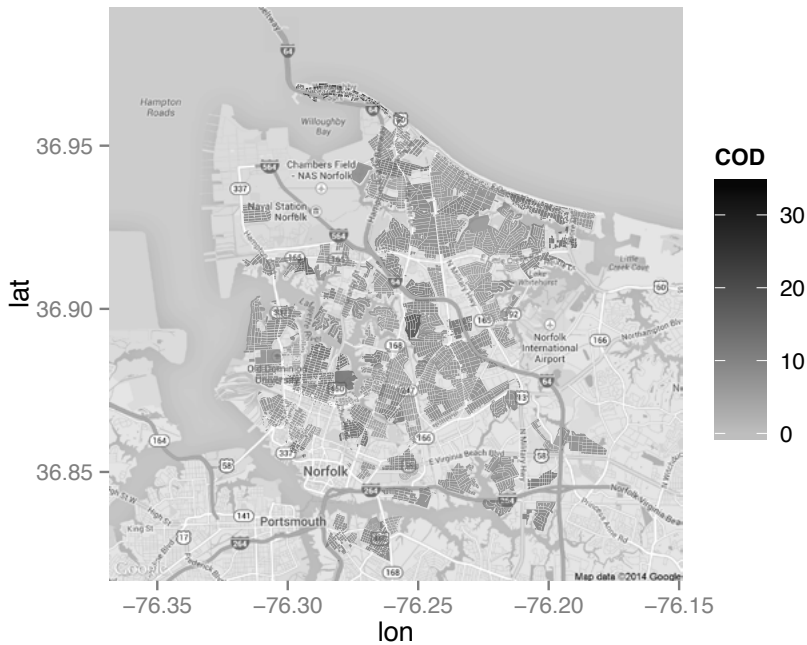
Exhibit 6

COD Disaggregated by Neighborhood (2 of 2)

(c) GWR Results
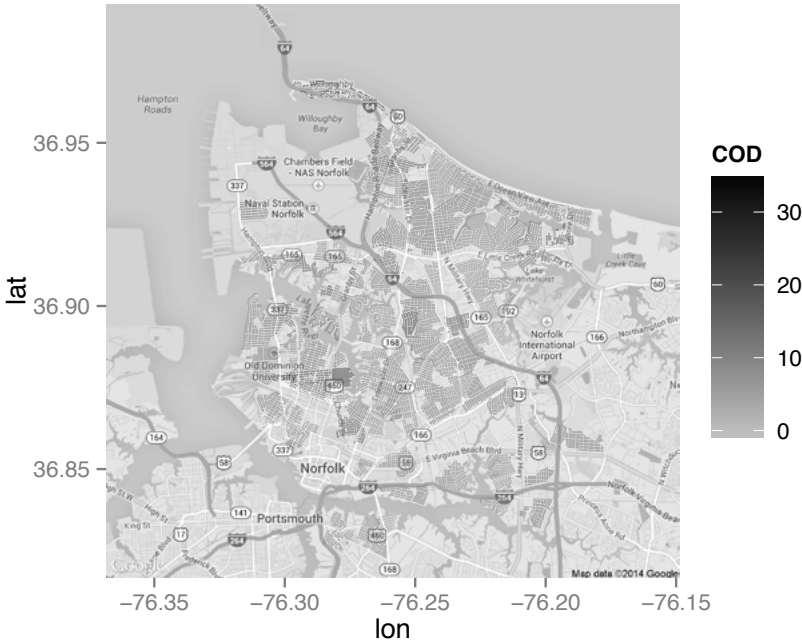
COD = coefficient of dispersion. GWR = geographically weighted regression. lat = latitude. lon = longitude. SLM = spatial lag model.

neighborhood can be correlated with socioeconomic and demographic conditions, such disaggregation enables assessors to further ensure all markets are treated without discrimination—yet another step toward promoting equitable valuations.

Darker shaded areas indicate higher COD values (decreased uniformity in value predictions) and lighter shaded areas represent lower COD values (increased uniformity in value predictions). The global model produces, overall, many dark gray- to black-shaded neighborhoods of low uniformity (exhibit 6a). The SLM model (exhibit 6b), although it alleviates only a few neighborhoods of high COD values, actually makes many neighborhoods worse.

The global model is more uniform than SLM (for example, at about [36.89, -76.25]), but the SLM outperforms the global model and GWR (exhibit 6c) directly to the east of Old Dominion University.

Exhibit 6c reveals the GWR model overall achieves a much smoother distribution of lower COD values, as evidenced by the lighter gray colors and less severe contrast of shades.

Although GWR achieves the lowest citywide COD, the global model outperforms GWR at about (36.95, -76.16). The global model and SLM outperform GWR at about (36.85, -76.255). Similar to findings of Bidanset and Lombard (forthcoming), this variation in COD suggests that, although

a model achieves optimal aggregate results, it may still be outperformed within subaggregate geographic regions. Several areas, such as the northeastern peninsula labeled "Willoughby Spit," are drastically improved with GWR, and the COD is reduced to an IAAO-acceptable level (less than 15.00). Waterfront homes in neighborhoods are grouped into a separate neighborhood shapefile. In each map of exhibit 6, the waterfront homes in Willoughby Spit are significantly less uniform than the nonwaterfront homes.

Conclusions

Using arms-length residential sales from 2010 to 2012 in Norfolk, Virginia, this article compares the performance of GWR and SLM, specifically regarding IAAO levels of uniformity and equity at aggregate and subaggregate geographic levels. Findings suggest that GWR achieves more uniform results (lower COD) overall than SLM, and both achieve more uniform results than the spatially unaware global model. Although a model may produce optimal overall results, disaggregation into submarkets (for example, neighborhoods) reveals that it can still be outperformed within subgeographic areas by other models that produce inferior overall results. Compared with the global model, the SLM model actually increases the COD for a number of neighborhoods, despite having a lower overall citywide COD. This variation of models across geographic space supports findings of Bidanset and Lombard (2013) and suggests that modelers should explore various models' performance in various locations to optimize equity and uniformity in assessment jurisdictions overall.

Furthermore, waterfront estimations of value are included in land values, which, as previous literature suggests, are subtracted from total value in an attempt to isolate the explanatory variables' effects on the price of the building only. The differences between waterfront and nonwaterfront properties' uniformity suggest that this method does not fully account for such effects and, therefore, should be included in the model, perhaps in the form of a dummy variable.

Further GWR- and SLM-performance research is needed. Variations in SLM weights matrix style, such as binary, global standardized, and variance stabilization, and their effect on COD and PRD could be examined. In addition, more research that uses different variable selections and different markets of varying size and characteristics could be explored. Temporal variations and weighting schemes should also be evaluated to measure potential effects on the behavior of spatial models.

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