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A Journal of Policy Development and Research

HOPE VI

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U.S. Department of Housing and Urban Development
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Guest Editor's Introduction

Jennifer A. Stoloff
U.S. Department of Housing and Urban Development

The purpose of the HOPE (Housing Opportunities for People Everywhere) VI Program was to eradicate severely distressed public housing. The program was developed in response to the recommendations in the 1992 report by the National Commission on Severely Distressed Public Housing. The commission recommended action in three broad areas: physical needs, management, and social and community services.

The commission's report focused on the small but visible percentage of conventional public housing that was physically deteriorating and crime infested. An estimated six percent of the housing stock—about 86,000 units—was distressed. Despite the need for low-income housing, blighted projects often had high vacancy rates, and many had long been slated for demolition. The HOPE VI Program became the vehicle for redeveloping these projects.

On the heels of the report, Congress included in the fiscal year 1993 appropriations for the U.S. Department of Housing and Urban Development (HUD) $300 million for the Urban Revitalization Demonstration Program—the predecessor of HOPE VI. Between 1993 and 2005, HOPE VI revitalization grants were awarded to 190 housing authorities, totaling more than $6 billion. Revitalization grant funds are used for an array of purposes, including demolition of severely distressed public housing; acquisition of sites for new construction; capital costs of major rehabilitation, new construction, and other physical improvements; and community and supportive service programs for residents, including those relocated as a result of revitalization efforts.

HUD policy states the following key elements of HOPE VI:

- Changing the physical shape of public housing.
- Establishing comprehensive services to empower residents and incentives for resident self-sufficiency.
- Lessening concentrations of poverty by placing public housing in non-poverty neighborhoods and promoting mixed-income communities.
- Forging partnerships with other agencies, local governments, nonprofit organizations, and private businesses to leverage support and resources.

In many ways HOPE VI is a success: partnerships have been forged, and a great deal of blighted housing has been replaced with aesthetically pleasing mixed-income rental and homeownership units. Larger questions remain, however. How is HOPE VI a net benefit to surrounding neighborhoods? What are the positive spillover effects, if any? How does the program affect residents? Although services have been provided for families that were forced to move, what happened to those people? What are the benefits that made up for the disruption they experienced? Are families that did not move to the new development still adequately housed? How have their lives been improved by the change in residence? HOPE VI could have negative effects on neighborhoods and residents, especially on those who had to relocate two or more times. Social networks in public housing that provided childcare, job information, and other informal support could be permanently broken, leaving residents worse off. From a policy and research perspective, the questions are many and the challenges are great. How do we measure residents' self-sufficiency or concentrations of poverty? How can we capture neighborhood effects?

In this issue of *Cityscape*, the four symposium articles examine effects at the neighborhood and individual levels. Two articles review the effects of moving out of public housing to new neighborhoods on the former residents of the development. The authors question whether displaced residents are more likely to work in their new neighborhoods. The quality of the new neighborhood is also measured. They also analyze how moving has affected the lives of the displaced families. The other two articles examine whether the transformation of a housing project has spillover effects on the neighborhood. They examine crime and poverty reduction and analyze whether housing values increase.

Edward Goetz examines the effects of dispersal on families, looking at Duluth, Minnesota, to determine if families that have been involuntarily relocated by HOPE VI experience any benefits. He finds that the Duluth families, like those in other HOPE VI sites, stayed in the central city. Also like other people relocated by HOPE VI, they moved to neighborhoods with higher incomes, less poverty, less unemployment, and fewer families receiving public assistance. Yet Goetz finds no links between measures of neighborhood change and those of individual outcomes. In fact, he finds a decline in economic security in some instances. This finding runs contrary to the popular idea that improvements at the neighborhood level will lead to better outcomes for individuals.

Alexandra Curley combines quantitative and qualitative methods in an article about relocation and access to social capital. She asks if the neighborhood plays a role in developing "trust, interactions, and ties with co-residents (and also with outsiders)." Multivariate analyses of survey data indicate that the presence of neighborhood facilities and public spaces such as parks, libraries, and recreation facilities are very strong predictors of trust and reciprocity among neighbors. Hypothetically, more social capital will lead to positive changes such as better access to the labor market. Residents of public housing typically have little relevant social capital—that is, they may have good friends and strong family ties, but not of the kind that provide monetary resources or access to jobs. If "bad" neighborhoods reduce residents' access to social capital, relocation should help. Unfortunately, Curley, like Goetz, finds that benefits at the neighborhood level do not improve individual outcomes.

Nina Castells examines data on three projects in Baltimore and finds very little evidence of spillover effects in the form of increased property values. She asks if housing revitalization contributes to "the improvement of the surrounding neighborhood." Overall, she finds only one case with positive effects, and those are weak. The case involved a land swap, so the spillover was not directly linked to the original location of the public housing development. Along with her quantitative analysis, Castells also provides qualitative information. She supplements empirical estimates with "information from local newspapers and interviews with city and housing experts to better understand implementation strategies, the community response to HOPE VI redevelopment, and other neighborhood changes and investments that may have affected property prices in the HOPE VI neighborhoods during the study period."

Sean Zielenbach and Richard Voith look at several measures of neighborhood economic development in Boston and Washington, D.C. They find more spillover effects than Castells does, but the most improved area in their study shows the least impact from HOPE VI, suggesting that other neighborhood improvements may be more powerful than HOPE VI redevelopment. Zielenbach and Voith conclude that market dynamics in the nearby area largely explain the positive effects. That is, in already improving areas, a HOPE VI development probably follows—rather than leads—positive neighborhood change.

What are the next steps for research about HOPE VI? The primary questions cluster around the stability of mixed-income projects. How do they retain their income mix over the long run? Who lives in the HOPE VI projects? Which HOPE VI partnerships are financially viable over the long term?

At the individual level, we want to know if low-income households benefit from the supportive services that HOPE VI offers. What is the role of local public school performance as a mediating variable in a project's success? What are the longer-term outcomes for displaced families? How many move to the new HOPE VI development and how many stay away? How do long-term outcomes compare for similar families in the two groups?

HUD Secretary Shaun Donovan has proposed a new program—Choice Neighborhoods—designed to broaden the scope of HOPE VI. Choice Neighborhoods would differ from HOPE VI by allowing redevelopment of privately owned subsidized projects in addition to public housing and by requiring a comprehensive plan for redevelopment of the surrounding neighborhood. The new program would help public, private, and nonprofit partners extend efforts to transform neighborhoods beyond public housing, and it would ask public housing authorities to add early childhood education to the supportive services provided by HOPE VI. Ideally, Choice Neighborhoods would transform larger neighborhoods and link housing interventions more closely to school reform and innovations in early childhood education.

Choice Neighborhoods is under review by the authorizing committees of Congress and funded as a demonstration in fiscal year 2010. In the long run, we expect that careful research will enhance policy in addressing the major urban challenge of distressed housing.

Acknowledgments

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Better Neighborhoods, Better Outcomes? Explaining Relocation Outcomes in HOPE VI

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Abstract

The HOPE VI Program for redeveloping public housing has been in operation since 1993. Previous studies have shown weak and inconsistent benefits for families forcibly displaced by the program, despite the fact that families are uniformly moved into better neighborhoods (as measured on a range of indicators at the census-tract level). This article reviews studies of HOPE VI and presents the findings of an additional case study, in Duluth, Minnesota. Improving on the design of most previous studies, this study connected changes in outcomes at the individual level with changes in neighborhood conditions. The results confirm the conclusion of previous studies: the degree of neighborhood change is not statistically related to changes in individual-level outcomes. These findings suggest that the HOPE VI model of dispersal reflects an oversimplified view of urban poverty and, in particular, may neglect the importance of informal networks of support and attributes at the individual level in determining the outcomes of forced relocation.

Introduction

The HOPE VI policy of public housing redevelopment is based on the idea that neighborhood environments make an important difference in the opportunities and quality of life of public housing residents. HOPE VI has been in operation since 1993, and the growing body of evidence from evaluations of the program converges on two points: (1) the residents who are displaced from public housing units by redevelopment tend to move to neighborhoods that are much better than the original neighborhoods, based on measures of well-being of residents in the respective census tracts; and, (2) somewhat conversely, the degree of improvement in quality of life reported by the

residents is mixed, being quite modest in most cases and frequently nonexistent. This article is an attempt to grapple with this seeming contradiction. How is it that public housing residents can be relocated to better neighborhoods yet report only modest changes in their own conditions?

Previous studies have focused either on measuring changes—using census data—in the neighborhood environments of people displaced by HOPE VI or on measuring the benefits of relocation—using data from surveys or interviews with public housing families. Even when a study uses both objective census indicators of change and subjective assessments of change provided by residents, the two sets of data are not linked at the individual level (see, for example, Goetz, 2003). In this study I improve on these approaches by linking objective and subjective measures for families displaced through a HOPE VI redevelopment in Duluth, Minnesota. This design allows for a direct analysis of whether individual benefits are related to the improved neighborhood conditions that displaced families experience.

The HOPE VI Model

The HOPE VI Program is designed to provide a range of benefits to the residents of distressed public housing. These benefits are a central justification for the program (see, for example, Wexler, 2001) and thus a major criterion for program success (Epp, 1996). The program is based on a body of social science work that is generally referred to as the "neighborhood effects" literature (see, for example, Atkinson and Kintrea, 2001; Ellen and Turner, 1997; Jencks and Mayer, 1990). This literature suggests that neighborhoods shape residents' opportunities in important ways, and that people living in distressed public housing projects suffer from residing in neighborhoods high in crime, low in social capital, lacking economic opportunity, and receiving only low-quality public services.

HOPE VI imposes involuntary displacement and relocation on residents in the short term. People move to neighborhoods that are not burdened by the adverse conditions present in their original public housing project, and eventually can move back to the redeveloped project. Even if they do not return, by dint of having been removed from the adverse environment of distressed public housing, the expectation is that they will receive a range of individual benefits. Families feel safer and thus experience less psychological stress. Family members can get out of their units more frequently and interact with neighbors more regularly, and because their new neighbors are not as uniformly poor as neighbors in the housing project were, residents begin to benefit from the social capital generated by a more differentiated social network. In addition, the hope of the program is that residents will move to neighborhoods that put them in closer proximity to economic opportunities, so that their chances of employment will increase. These short-term benefits (reduced stress, greater feelings of safety and neighborhood satisfaction, and employment) will in time produce the longer term benefits of increased economic self-sufficiency and reduced dependence on social services. In other words, a move out of the projects will be accompanied by a move up the socioeconomic ladder.

The HOPE VI Dispersal Record

Several studies have been done in cities across the country that document the experiences of HOPE VI families. In this section the record of HOPE VI dispersal is summarized.

Where Do They Go?

The first consistent finding in the HOPE VI research is that, when displaced from public housing, very-low-income families do not move far. Most do not leave the central city: Comey (2007) reported that in a five-city study of HOPE VI sites, only 14 percent of the families moved to the suburbs. In Chicago, less than 2 percent of the first 3,000 families displaced by public housing redevelopment have left the city (Fischer, 2003; see also Kataria and Johnson, 2004). In Minneapolis, 87 percent of families displaced by a HOPE VI-like demolition remained in the central city, more than one-half within a 3-mile radius of their original homes (Goetz, 2003). Trudeau (2006) reported that "nearly all" households that moved as a result of the *Comer* v. *Cisneros* plan to reduce the concentration of poverty in Buffalo, New York, remained in the city, moving an average of only 1.5 miles from their previous residence. Kingsley, Johnson, and Pettit's (2003) national study showed a median distance of 2.9 miles for moves by people displaced by HOPE VI redevelopments (see similar findings in Comey, 2007). Although the distances in some cases are greater (an average of more than 5 miles in Chicago, according to Reed, 2006), what is consistent across sites is the tendency of residents to remain within communities with which they are familiar and in which they maintain social or historical ties. In Portland, Oregon, for example, two-thirds of the 382 households displaced by HOPE VI wanted to remain in the same neighborhood (Gibson, 2007; see also Varady and Walker, 2000, for evidence from four other cities, and Johnson-Hart, 2007, for similar patterns in Richmond, Virginia).

Kleit and Manzo (2006) found that place attachment is important in determining the degree to which HOPE VI families move away. Trudeau (2006) argues that the pattern of relocation to other, nearby neighborhoods in the central city is a result of low-income families' need to rely on social supports as they negotiate the demands of work, childcare, and other family obligations (see Reed, 2006, for similar findings in Chicago).

Although HOPE VI families do not move far, nonetheless they tend to move to better neighborhoods, according to a range of measures related to economic activity and livability, with the possible exception of segregation levels. Aggregate census data for the new neighborhoods typically show much lower poverty rates than in the original neighborhoods (Boston, 2005; Buron et al., 2002; Clampet-Lundquist, 2004; Fischer, 2003; Fraser et al., 2004; Goetz, 2003; Kingsley, Johnson, and Pettit, 2003; Popkin et al., 2004; Trudeau, 2006). Nationally, HOPE VI residents who received vouchers (which allowed them to rent housing in the private market), for example, moved from neighborhoods with an average poverty rate of 61 percent to neighborhoods with an average poverty rate of 27 percent (Kingsley, Johnson, and Pettit, 2003). The neighborhoods to which displaced families move also tend to be lower on other measures of disadvantage, such as unemployment and participation in public assistance programs (see, for example, Clampet-Lundquist, 2004).

Poverty rates in the new neighborhoods, however, are typically higher than the average for their cities (Boston, 2005; Buron et al., 2002; Fraser et al., 2004; Goetz, 2003). For example, the Buron et al. (2002) analysis of data from the HOPE VI Resident Tracking Study found that 40 percent of displaced residents who did not return to the rehabilitated HOPE VI development lived in census tracts with poverty rates of less than 20 percent, a substantial improvement. However, another 40 percent lived in high-poverty tracts (those with poverty rates of more than 30 percent). Clampet-Lundquist (2004), Johnson-Hart (2007), and Comey (2007) reported similar findings. In addition, although the original neighborhoods may have higher poverty rates than the new neighborhoods, many of the latter have increasing, rather than decreasing, poverty rates (Goetz, 2003).

Moreover, improvements in racial integration are not as pronounced for poor families who move as a result of forced relocation. Fischer (2003) reported only "slight improvements" in census-tract racial diversity among relocated people in Chicago, noting that most voucher recipients moved to the highly segregated south and west sides of the city. Less than 2 percent moved to the predominantly White suburbs. The Buron et al. (2002) analysis of the five projects in the Urban Institute HOPE VI Panel Study found only modest improvements in levels of racial diversity in residents' new census tracts.

Finally, evidence suggests significant residential instability among families displaced by public housing redevelopment. Brooks et al. (2005) found that 40 percent of people relocated by HOPE VI who had vouchers to use in the private market moved again within 2 years. Buron, Levy, and Gallagher (2007) reported the same percentage among those relocated with vouchers in five different HOPE VI cities. Studies of subsequent moves under the Gautreaux program found much greater regression to the mean in terms of neighborhood poverty and racial characteristics among those moving within the city (Keels et al., 2005). Goetz (2003) found that subsequent moves of displaced families tended to be to neighborhoods with higher (and growing) poverty rates and with higher (and growing) levels of racial segregation. Comey (2007), however, found that residents who have moved multiple times slightly reduce their exposure to neighborhoods with high poverty rates.

Children's School and Social Experiences

Although the most promising result of the Gautreaux program was an increase in children's educational achievement (Kaufman and Rosenbaum, 1992), achievement among children relocated by HOPE VI has not improved at the same rate. The schools to which children move as a result of HOPE VI are typically racially and economically segregated, in part because many HOPE VI moves are within the same, underperforming urban school systems (Popkin, 2006). Jacob (2004), however, found that "even students who did move to substantially better neighborhoods did not end up in significantly better schools" (Jacob, 2004: 235; see also Clampet-Lundquist, 2004). Gallagher and Bajaj (2007) reported no major changes in school engagement for children in five HOPE VI Panel Study sites across the country. Jacob (2004) found that children in households relocated due to HOPE VI-like public housing redevelopment show no educational improvements relative to control group members on a range of academic achievement measures. In Minneapolis, Goetz (2003) reported no positive effects on children's schooling—either comparing children before and after the move, or comparing them to control groups—and significant reductions in positive social

outcomes for children who were involuntarily displaced compared with their situation before the move (Goetz, 2003).

Employment and Financial Security

The evidence from research consistently indicates that dispersed households do not benefit from relocation in terms of employment, earnings, or overall income. This indication has been true of Gautreaux, Moving to Opportunity (MTO), HOPE VI, and the involuntary displacement that resulted from Hurricane Katrina (Clampet-Lundquist, 2004; Curley, 2006; Goering and Feins, 2003; Goetz, 2002; Levy and Woolley, 2007; Rubinowitz and Rosenbaum, 2000; Turney et al., 2006; Vigdor, 2007). For those relocated by HOPE VI, the same lack of improvement is evident across the five Urban Institute Panel Study sites, which showed no employment or earnings effects from being moved out of these severely distressed public housing projects (Levy and Woolley, 2007).

Evidence suggests that the social capital arguments made to support HOPE VI relocation may actually work in reverse: relocation could destroy the useful support networks that lower income families construct to get by. Clampet-Lundquist (2004) reported that, among the relocated people who moved into units subsidized with vouchers, "none … reported having learned of a job opportunity from their new neighbors, nor did they talk to their neighbors about jobs. By contrast, several interviewees reported having found a job through a friend or other local connection while living at (the old public housing site)" (Clampet-Lundquist, 2004: 71). Barrett, Geisel, and Johnston (2006) found that lack of transportation and childcare were barriers to employment.

Although HOPE VI relocations (and other mobility programs) may resolve the spatial mismatch of jobs and residence for low-income households, this improvement might be less important than other changes, such as reducing deficits in human capital, overcoming family effects (Oreopolous, 2003) and racial and ethnic discrimination in the job market (Carlson and Theodore, 1997; Immergluck, 1998), or improving health (Levy and Woolley, 2007; see the review in Chapple, 2006). In the end, Levy and Woolley (2007) conclude: "HOPE VI relocation and voluntary supportive services are unlikely to affect employment or address the many factors that keep disadvantaged residents out of the labor force" (Levy and Woolley, 2007: 1).

These disappointing findings related to employment, along with the increased housing costs that generally accompany relocation from public housing, contribute to greater financial insecurity among people relocated by HOPE VI, according to a number of studies. Barrett, Geisel, and Johnston (2006) found that, of those relocated in Fort Worth, Texas, two-thirds worried about having enough money for food, a large increase over the percentage of concerned residents before the move.

Economic insecurity can be one reason for the residential instability of people displaced from public housing (Barrett, Geisel, and Johnston, 2006; Gibson, 2007; Reed, 2006). Nationwide, for example, three out of five people who had been relocated and given vouchers by HOPE VI reported difficulties paying rent or utilities within the previous year (Popkin, 2006). Among displaced public housing residents in Fort Worth, one-half reported that they feared eviction because of their economic insecurity (Barrett, Geisel, and Johnston, 2006). In Portland, one-third of those displaced by HOPE VI reported hardship making their rent payments, 60 percent reported difficulties paying for utilities, and 17 percent were deemed by the local housing authority to be

at risk because of these financial difficulties (Gibson, 2007). Such outcomes are troublesome in and of themselves, but they are especially worrisome because the HOPE VI Program is intended to improve the economic self-sufficiency of public housing families.

Health and Behavior

Although data on displaced people's health are limited, Popkin's (2006) analysis of interview data from the Urban Institute's HOPE VI Panel Study found that participants faced serious health problems before relocation. More than one-third of the adults reported having a chronic illness or health condition. More than 20 percent of the adults reported having asthma, and the rate of children's asthma was more than three times the national average (Popkin, 2006). Mental health problems—including depression, stress, fear, and anxiety—were also common and occurred at a rate nearly 50 percent higher than the national average (Popkin, 2006). Manjarrez, Popkin, and Guernsey (2007) found that these conditions have not improved for people relocated by HOPE VI, despite the passage of time. Three-fourths of the panel study respondents reported no change or a decline in their health. The number of respondents indicating health conditions that required regular, ongoing care increased significantly (Manjarrez, Popkin, and Guernsey, 2007). The mortality rate for African-American women in the HOPE VI Panel Study is higher than for African-American women in general and in the MTO control group that did not move (Manjarrez, Popkin, and Guernsey, 2007).

The HOPE VI Panel Study data also show no improvements in overall health for relocated children (Gallagher and Bajaj, 2007). Boston (2005), on the other hand, reported greater mortality among a comparison group of public housing residents living in projects that were not renovated than among those displaced by HOPE VI-like redevelopments in Atlanta.

Safety

Studies consistently show that families that move out of neighborhoods of concentrated poverty report an increased sense of safety (see Buron et al., 2002; Goetz, 2003; Popkin and Cove, 2007). Residents report a significant decline in drug-related activity, a greater personal sense of safety, and improvements in safety for their children. Among people displaced by HOPE VI, those who moved into other public housing reported fewer benefits (Popkin and Cove, 2007). Interestingly, no statistical correlations exist between these findings and any secondary benefits, such as improved mental or physical health (Popkin and Cove, 2007). Gibson (2007) reported that 30 percent of displaced households in Portland's Columbia Villa HOPE VI project thought their new neighborhoods were safer, but 18 percent thought they were less safe in their new neighborhoods.

Housing and Neighborhood Characteristics

Most (63 percent) of the people relocated by HOPE VI who participated in the panel study reported their new housing to be in "good" or "excellent" condition (Popkin, 2006: 216). Brooks et al. (2005) found a similar outcome for those relocated in Atlanta, although families using vouchers reported much higher levels of satisfaction. Goetz (2003) found that former residents of public housing in Minneapolis were more satisfied with the quality of their new housing than were comparison groups, whether they had moved voluntarily or involuntarily. Satisfaction was greater,

however, among families who had chosen to move, suggesting that people who were involuntarily displaced—particularly those who were hard to house—may have found it challenging to obtain good-quality housing in the private market.

The HOPE VI Resident Tracking Study found that displaced households reported less crime, better housing conditions, and improved neighborhoods when compared with their former residences (Buron et al., 2002; Popkin et al., 2004). Displaced households do not always view their new neighborhoods in favorable terms, however. People displaced by HOPE VI tend to evaluate their new homes more favorably than the housing projects they left and tend to report fewer neighborhood problems (Comey, 2007). But this is not always the case: in interviews and focus groups with former residents of a Seattle HOPE VI development, Manzo, Kleit, and Couch (2005) found that 60 percent of the people interviewed thought their former public housing residence was a better place to live than their new neighborhoods.

Social Networks

Research has shown that HOPE VI redevelopments have done little to help displaced families with social integration into their new neighborhoods. In interviews with 41 displaced Philadelphia families conducted 2 years after relocation, Clampet-Lundquist (2004) found that very few households built social ties in their new neighborhoods, regardless of neighborhood poverty levels. Young people in these families were more likely to build friendship networks than the adults were; however, young people were unlikely to view their new neighbors as role models or to interact with adults in their new neighborhoods (Clampet-Lundquist, 2007). Barrett, Geisel, and Johnston (2006) reported fewer neighboring behaviors (such as talking to a neighbor for more than 10 minutes or watching a neighbor's child) and fewer supportive relationships after a HOPE VI displacement in Fort Worth. Curley (2006) reported similar findings for families in Boston who were displaced by HOPE VI. Such data suggest that the process of forming social networks is complex and may depend on several factors, including attitudes and perceptions of neighbors, whether relocation was voluntary or involuntary, and characteristics of households being displaced.

Kleit and Manzo (2006) found that HOPE VI relocations result in objective improvements in neighborhood conditions but may also include "some negative social outcomes" (Kleit and Manzo, 2006: 271). Place attachment, according to these authors, is important in determining whether residents want to leave the site (see also Vale, 1997). Those who have lived in public housing the longest are the least willing to move because they regard their particular development as home: they had put down roots and become attached to the community (Kleit and Manzo, 2006; Vale, 1997). Gibson (2007) found that two-thirds of the residents of the Columbia Villa project in Portland did not want to leave. Even after being forced to move, many residents reminisced about the community and mourned the loss of their neighbors, the open space in the project, and the level of comfort they had felt there. Most did not believe that their new neighborhoods provided as much sense of community as Columbia Villa had; only one-third felt a greater sense of community in their new neighborhood. Goetz (2003) found that relocated people experienced only limited interactions with their neighbors. Families who moved voluntarily—and whose immediate neighbors lived in subsidized, rather than market-rate, housing—reported higher levels of interaction with their neighbors than did families who moved involuntarily. Finally, the Urban Institute's HOPE VI Panel

Study data showed a greater level of social isolation for children of displaced families, although the authors suggested that the isolation might be good for the children, because it would protect them from the negative influences of their surroundings (Gallagher and Bajaj, 2007).

Summary

The findings related to individual benefits from HOPE VI are mixed. No evidence suggests that the program is producing benefits such as increased economic self-sufficiency and access to enhanced social capital. The best outcomes are related to perceptions of safety and of neighborhood quality (as expressed through measures of satisfaction). The next section of the article presents evidence from a single HOPE VI case in Duluth, Minnesota, used to investigate the relationship between neighborhood conditions and individual outcomes.

Harbor View HOPE VI

Duluth is a small city (population 87,000) on the edge of the Iron Range region northeast of Lake Superior. The city's population has shrunk during the past several decades, reflecting a general decline in iron mining. Duluth's major employers are now hospitals and the University of Minnesota. The city's Harbor View public housing project, built in 1951, provided 200 townhouse units in a series of two-story, barracks-style buildings on a 20-acre site north of downtown. In 2003, the Duluth Housing Authority (DHA) received a HOPE VI grant for $20 million to completely demolish the project and build a new, mixed-income development on site. Families were relocated during the demolition and redevelopment.

Data

The research combines information on where families moved with survey data from two points in time, capturing how residents felt about their lives and living conditions before being displaced and then again up to 30 months after displacement. Measures of neighborhood change are generated by comparing the characteristics of new neighborhoods to the characteristics of the original public housing site. Combining the measures of neighborhood change with personal evaluations of the families allows an examination of the relationship between changes in neighborhood conditions (as measured by census-tract data) and changes in residents' perceptions.

In 2003, as part of the intake process to facilitate relocation counseling and to establish needs for community and social services, the DHA interviewed residents in 216 households. The intake interviews included a number of questions related to health, income, employment, neighborhood satisfaction, and social integration. In late 2005, the author mailed surveys to 192 addresses, with 111 questionnaires returned (a 58-percent response rate).[1] The mail survey asked many of the same questions as the interviews, providing data points for before and after the move. Exhibit 1

[1] At the time of the mailing, the DHA did not have address or contact information for 9 of the 216 households that responded to the initial intake survey, leaving 207 potential respondents to the mail survey. Of the 207 surveys mailed to former residents, 192 turned out to be valid addresses. The response rate for the relocation survey, therefore, is based on a denominator of 192.

compares the survey respondents with nonrespondents, based on data collected at the initial interviews in 2003. The groups differ significantly on just one attribute: education. Survey respondents are significantly more likely to have earned a high school diploma than those who did not respond. Survey data show no statistically significant differences in race, gender of the head of household, first language spoken, presence of young children, or whether a family member has a physical or mental disability. In addition, data show no differences in the employment rate in year 1 of the study, in the reported level of satisfaction with the Harbor View neighborhood, or in the reported sense of safety in that original neighborhood.

The neighborhoods to which respondents and nonrespondents moved are largely identical from a statistical standpoint. Exhibit 2 shows census-tract data for nine different social and housing characteristics. The new neighborhoods for respondents and nonrespondents are statistically the same for eight of the nine characteristics. The one difference is that nonrespondents tend to live in neighborhoods with a higher percentage of non-White residents (17.8 and 15.5 percent, respectively). But for a range of other characteristics—employment, median income, poverty, and homeownership—the data show no statistically significant differences across groups.

Exhibit 1

Characteristics of Survey Respondents and Nonrespondents (Percent)

	Respondents (N = 111)	Nonrespondents (N = 101)
White	51	54
Female	78	84
Nonnative speaker of English	15	10
Some college	53	41
High school diploma**	86	64
Disabled family member	45	46
Children less than 5 years of age	31	31
Employed in year 1 of the study	37	37
Satisfied or very satisfied with old neighborhood	78	70
Felt safe or very safe in old neighborhood	66	68

*** p < .01.*

Exhibit 2

Conditions in New Neighborhoods

	Relocation Neighborhoods of Survey Respondents	Relocation Neighborhoods of Nonrespondents
Percent non-White*	15.5	17.8
Percent African American	4.6	4.9
Percent female-headed household	9.7	9.9
Percent employed	91.6	91.5
Median family income	$30,119	$30,767
Percent receiving public assistance	9.6	10.1
Percent below poverty level	23.1	22.7
Percent homeowner	48.7	50.2
Median value of home	$71,547	$75,257

** p < .05. (Statistical significance is based on difference-in-means T-tests.)*

The following analysis, which focuses on the change in responses before and after the respondents moved, attempts to determine whether and how these changes are related to changes in neighborhood conditions. Neighborhood conditions were measured for two points in time: premove conditions are defined by the characteristics of the census tract in which all families lived while at the Harbor View site and postmove conditions are defined by the characteristics of the census tracts to which families moved as a result of relocation. For residents who moved more than once since the initial relocation, the analysis uses the characteristics of their neighborhoods at the time of the survey. As with the neighborhood data, change variables (the difference between the respondents' assessment in year 3 of the study and their assessment at intake) were created for all items analyzed.

The following five outcome measures, which come from the survey instruments, are computed as change variables. Appendix A provides details about question wording and the construction of indices. Coding was done so that higher values indicate a positive change in the variable.

1. **Neighborhood satisfaction.** A summary question about the respondent's overall satisfaction with the neighborhood provided five answer categories. The computed change variable ranges from -4 to +3.

2. **Sense of safety.** A summary question about how safe the respondent feels in the neighborhood provided five answer categories. The computed change variable ranges from -4 to +4.

3. **Neighboring behaviors.** An index of six questions related to the degree to which the respondent engages in neighboring activities or behaviors, such as talking to people in the neighborhood, borrowing things, and providing informal childcare, had six answer categories for each of the six neighboring behaviors. The index was a simple average of responses across the six questions and thus could range from 1 to 6. The Cronbach's Alpha, testing the reliability of the indices, was 0.746 for the intake interview items and 0.738 for the year-3 survey items. These values exceed the commonly used threshold for the Alpha statistic, suggesting that the items constitute valid indices. The computed change variable ranges from -3.17 to +1.67.

4. **Economic security.** A question about whether the respondent has enough money to pay for basic needs each month (with three answers: "never," "sometimes," and "always") had answers coded so that higher values mean greater economic security. The computed change variable ranges from -3.0 to +1.5.

5. **Employment.** A binary variable taking the value of 1 for respondents who were employed and 0 otherwise had a computed change variable that ranges from -1 to +1.

From the census-tract data, the analysis uses the following nine items:

1. Percent of the population that is non-White.
2. Percent of the population that is African American.
3. Percent of the households headed by a woman.
4. Percent of the labor force employed.
5. Median family income.
6. Percent of the population receiving public assistance.

7. Percent of the population below the poverty level.
8. Percent of residences that are owner occupied.
9. Median value of owner-occupied housing.

Change variables were computed for each of the nine census measures by subtracting the value for the new neighborhood from the value of the Harbor View neighborhood. Thus, if a resident moved into a neighborhood with more poverty, the change variable would register a positive number.

Findings

Neighborhood-Level Outcomes

The relocation of families from the Harbor View site took place between April 2003 and August 2004. Most of the families remained in a central city neighborhood: 77 percent stayed in Duluth's inner city and another 7 percent moved to the inner cities of Minneapolis or St. Paul. Most of the relocated families moved to neighborhoods with significantly lower levels of distress than their original public housing neighborhood (exhibit 3). Unemployment in the new neighborhoods was around 8 percent compared with 12 percent for the Harbor View neighborhood. Poverty rates in the new neighborhoods were roughly one-half that in the original neighborhood, median incomes were almost twice as high, homeownership rates were significantly greater, and the percentage of the population on public assistance was less than one-half (9.6 percent instead of 28 percent).

These findings are similar to those reported in other studies of HOPE VI: families typically remain in the central city, and relocation from HOPE VI sites seems invariably to result in moves to better neighborhoods, as measured by census-tract indicators. The reasons for such consistent outcomes are not a mystery. Most HOPE VI sites are located in what had been the most disadvantaged neighborhoods of their respective cities. The public housing projects subject to the redevelopment were concentrations of poverty in and of themselves, and typically the immediately surrounding communities have similar socioeconomic profiles. Thus, almost by definition, moving out of such neighborhoods means moving to neighborhoods with fewer indicators of economic distress.

Exhibit 3

Conditions in Old and New Neighborhoods for Survey Respondents (N = 111)

	Harbor View Neighborhood	New Neighborhood	Significance
Percent non-White	31.4	15.5	***
Percent African American	7.3	4.6	**
Percent female-headed household	15.8	9.7	***
Percent employed	88.3	91.6	***
Median family income	$17,500	$30,119	***
Percent receiving public assistance	28.1	9.6	***
Percent below poverty level	45.5	23.1	***
Percent homeowner	32.9	48.7	***
Median value of home	$69,700	$71,547	—

*** $p < .001$, ** $p < .01$.

One in five families (21 percent) had moved more than once by the time of the survey, in year 3 of the study. Multiple-movers live in neighborhoods that are statistically similar to single-movers' neighborhoods, with one exception: multiple-movers' neighborhoods have a significantly lower median income ($27,140 compared with $31,745). Although the two types of neighborhoods have slight differences in poverty, homeownership, and percentage of residents on public assistance (all of which indicate that multiple-movers are in neighborhoods with slightly higher levels of distress), these differences do not reach statistical significance.

Individual-Level Outcomes

Exhibit 4 describes the changes that residents reported before and after relocation. The first row of figures indicates that 35 percent reported less neighborhood satisfaction, 40 percent reported the same degree of satisfaction, and 25 percent reported more satisfaction. The difference between the two time points was not statistically significant (either as a difference in mean response or by Wilcoxon Signed Rank test).

On the other hand, statistically significant numbers of respondents reported fewer neighboring behaviors after moving (57 percent engaged in fewer behaviors, 37 percent in more, and 6 percent in the same). This outcome may be a result of the families' having only recently moved into their new neighborhoods, although other research has indicated that length of time in the new neighborhood was not related to the frequency of neighboring behaviors among relocated people (Goetz, 2003). Residents also reported significantly less economic security after the move, indicating that they more frequently lack enough money to buy basics or more frequently make use of local food banks. The data also show a higher rate of families with health problems after relocation. Either these health problems are unrelated to environmental conditions (and are thus coincidental to relocation) or the relocation process or the new neighborhood environment is producing negative health outcomes. On the positive side, respondents felt significantly safer in their new neighborhoods: 44 percent felt safer, 22 percent felt less safe, and 34 percent were unchanged. No data suggested a significant difference in employment rates. On the whole, these outcomes are largely negative. Only in their sense of safety did Harbor View families report an improvement after moving. The other five measures showed no change or showed negative outcomes.

Taken together, the findings in exhibits 3 and 4 mirror the outcomes seen in many studies of families involuntarily displaced by HOPE VI. Families in the Duluth HOPE VI project seem to have moved to better neighborhoods by the objective indicators available from the census (exhibit 3),

Exhibit 4

Change in Individual-Level Outcome Measures, Before and After Relocation

	Percent Reporting Each Type of Change			Significance	N
	Less/Fewer	No Change	More/Greater		
Neighborhood satisfaction	35	40	25	—	96
Neighboring behaviors	57	6	37	**	94
Sense of safety	22	34	44	*	98
Economic security	31	61	8	***	91
Employment	5	85	10	—	91

*** = $p < .001$, ** = $p < .01$, * = $p < .05$. (Statistical significance is based on difference-in-means T-tests.)

yet they reported little to no improvement on a range of subjective individual-level measures (exhibit 4).

The lack of benefits for the sample as a whole, however, may mask patterns of benefits to certain subpopulations. Some relocated people do report benefits, although the number doing so varies from measure to measure. If the same respondents are reporting benefits across different measures, it might be possible to identify subpopulations for which HOPE VI relocation works well. Bivariate correlations among the outcome measures indicate the degree to which respondents who report change (one way or the other) on one item are more likely to report similar change on other items. A look at the correlation matrix for change in individual outcomes indicates that little overlap exists between these outcomes (exhibit 5). Change in economic security is positively correlated with change in employment but is statistically unrelated to all other changes measured. An increased sense of safety is correlated with a higher level of neighborhood satisfaction but is unrelated to changes in neighboring behaviors and employment. Changes in neighboring behaviors are not correlated with any other individual-level variables examined.

These patterns suggest that the individual changes reported by residents displaced from Harbor View are not cumulative. Those who report a positive change in one area, in general, are not more likely to report positive changes in other areas. Thus, it is not the case that some residents report uniformly rosier outcomes, while others consistently report worse outcomes. These findings suggest that models that explain one set of outcomes may not explain others.

Exhibit 5

Intercorrelation of Individual-Level Outcomes

	Economic Security	Sense of Safety	Neighboring Behaviors	Neighborhood Satisfaction
Sense of safety	.131			
Neighboring behaviors	.027	– .059		
Neighborhood satisfaction	.128	.697***	.061	
Employment	.214*	– .020	– .100	.139

N = 91.

**** = p < .001, * = p < .05. (Statistical significance is based on bivariate Pearson correlations: all variables are measured as changes from year 1 to year 3.)*

Linking Better Neighborhoods and Better Individual Outcomes

To examine more closely the link between neighborhood outcomes and individual outcomes, the analysis tested the hypothesis that the degree of neighborhood change is related to the degree of individual-level change. Bivariate correlations were calculated for each of the six individual outcome variables and each of nine measures of neighborhood change described earlier. Of the 54 bivariate correlations produced, only 4 achieved statistical significance (data not shown), and all 4 were related to changes in the racial characteristics of the neighborhood (both an increase in non-White population and an increase in African-American population were correlated with decreases in economic security and employment). At the bivariate level, it seems, changes in the objective conditions of the neighborhoods were largely unrelated to the changes that people relocated by HOPE VI reported in their own lives.

It is possible, however, that when multiple dimensions of neighborhood change are considered, better outcomes might occur. Thus, an index of neighborhood change was created, using changes in poverty, racial composition, and housing market value. Displaced people were then divided into two groups, with those who experienced the greatest change on all three dimensions put into one group and everyone else put in the other group. Respondents reporting a reduction of more than 20 percentage points in the non-White population of their neighborhood (41 percent of the sample) *and* a reduction of more than 30 percentage points in poverty (40 percent of the sample) *and* an increase of more than $10,000 in median housing value (30 percent of the sample) were classified as having had significant change in neighborhood. This categorization classified 21 respondents (19 percent of the sample) as having experienced the greatest neighborhood change on all three dimensions. These 21 people reported individual outcomes that were not statistically different than the rest of the sample for all five outcome measures examined (data not shown). Thus, even a combination of different types of neighborhood change is unrelated to individual outcomes.

If neighborhood change is not related to individual outcomes, what is? The literature suggests a range of individual-level attributes may influence the relocation experience. Senior citizens may be more adversely affected by being forced to move away from their long-time community, and residents for whom English is not a first language may also experience more difficulties in a relocation process (Kleit and Manzo, 2006). Other characteristics, such as household size, gender, marital status, the presence of small children in the family, education level, and, of course, race, may have important effects on how HOPE VI families fare during relocation.

Attachment to the original neighborhood (and thus a person's willingness to move) may color a person's perceptions of the new neighborhood. Respondents who felt a close attachment to the old neighborhood may resent being forced to move. These respondents may report worse outcomes than those for whom HOPE VI provided the opportunity to leave a neighborhood they wanted to escape.

The following multivariate analysis tests each of these propositions. Regression models were run for each of the six individual change variables. Equation 1, which is estimated using a linear ordinary least squares (OLS) model, was rerun for three additional dependent variables: changes in sense of safety, neighboring behaviors, and economic security.

$$Y = a + b_1[NBHDCH] + b_2[IND] + b_3ATTACH + e, \quad (1)$$

where Y equals the respondent's change in neighborhood satisfaction, NBHDCH is a vector of neighborhood change measures, IND is a vector of individual attributes, and ATTACH is the respondent's lack of desire to have moved from Harbor View.

Equation 2 is estimated as a binary logistic model. The independent individual-level variables are described in exhibit 6.

$$EMPLOY3 = a + b_1EMPLOY1 + b_2[NBHDCH] + b_3[IND] + b_4HEALTH3 + b_5ATTACH + e, \quad (2)$$

where EMPLOY3 equals the respondent's employment status at the time of the year-3 survey (a binary variable taking the value of 1 if the respondent is employed and 0 otherwise), and EMPLOY1 is the employment status at the time of the intake interview (coded in the same manner as the previous variable).

Exhibit 6

Independent Variables in the Multivariate Analysis

	Variable Name	Description	Mean	Standard Deviation
Education	POSTHS	Equals 1 if the respondent had attended school beyond high school at the intake interview; otherwise equals 0.	.53	.50
	HSPLUS	Equals 1 if the respondent had at least a high school diploma or GED at the intake interview.	.85	.35
Family characteristics	CHILDREN	The number of children in the household aged 5 years or younger at the intake interview.	.47	.77
	DISABILITY	Equals 1 if "any person in the family has a physical or mental disability," measured at the intake interview; otherwise equals 0.	.38	.49
Social network	FRIENDSandFAM	The number of close friends and family members living in the respondent's neighborhood in year 3.	1.40	2.40
Age	AGE	The age of the head of household at the intake interview.	34.44	14.83
	SENIOR	Equals 1 if the head of household is aged 55 or older at the intake interview.	.15	.36
Gender	MALE	Equals 1 if the head of household is male; equals 0 if the head is female.	.22	.58
Race/ethnicity	ASIAN	Equals 1 if the respondent is Asian.	.22	.41
	BLACK	Equals 1 if the respondent is African American.	.13	.34
	AMERINDIAN	Equals 1 if the respondent is Native American.	.14	.35
	HISPANIC	Equals 1 if the respondent is White with Hispanic ethnicity.	.04	.19
	NONWHITE	Equals 1 if the respondent is non-White and Hispanic; equals 0 if the respondent is White non-Hispanic.	.51	.50
Employment	EMPT1	Equals 1 if the head of household was employed at the intake interview.	.42	.50
Health	FAMHEALTH3	Equals 1 if the respondent answered yes to the survey question: "Does anyone in your family have a health problem?"; otherwise equals 0.	.50	.50
Neighborhood attachment	ATTACHMENT	Equals 1 if the respondent answered yes to the survey question: "Before you found out that Harbor View was going to be torn down, did you want to move out?"; equals 2 if the respondent answered not sure and 3 if the respondent answered no.	2.37	.77

The mix of individual-level variables for any given dependent variable was determined so as to maximize the explanatory power of the equation (that is, to produce the highest adjusted r-squared). In some cases, the analysis uses alternative measures of the same concept. For example, with education, the data were collected in ordinal categories. Two alternative dummy variables were created: one variable differentiated those with at least a high school diploma from those without and a second differentiated those with any education beyond high school from those without. Family characteristics, such as the number of small children and a dummy variable indicating whether any member has a physical or mental disability, are included. The age of the head of household is measured in years and also as a dummy variable separating seniors (aged 55 or older) from the rest. Race/ethnicity is measured as a series of dummy variables for the categories of Asian, African American, Native American, and Hispanic. When these variables are used in the multivariate analysis, the excluded group is White non-Hispanics. Alternatively, another dummy variable is computed to differentiate White non-Hispanics from all other groups. The respondent's potential support network is measured by a variable indicating the number of close friends and family members living in the same neighborhood. Gender is measured by a dummy variable, taking the value of 1 for a male head of household. The employment status of the head of household at year 1 (coded as a dummy variable) is also included as a control variable.[2]

Exhibit 7 presents the findings for OLS regressions with changes in neighborhood satisfaction, sense of safety, neighboring behaviors, and economic security as dependent variables. Neighborhood change variables are unrelated to the change in the first three dependent variables—respondents' neighborhood satisfaction, sense of safety, and neighboring behaviors. Economic security, however, is negatively related to a move to a neighborhood with more White residents. This finding could be capturing the higher cost of living, including higher rents, in White neighborhoods. In any case, the relationship is the opposite of what program advocates hope for; that is, relocation to neighborhoods with a smaller proportion of non-Whites may reduce economic self-sufficiency.

A number of individual-level variables are significantly related to the dependent variables. The age of the head of household is important in all the models. Younger heads of households show greater improvement in neighborhood satisfaction, sense of safety, and economic security (at the more marginal $p < .10$ level) than do older heads. Seniors are much more likely to increase their neighboring behaviors after relocation than are younger families. Families with fewer young children also report more positive change in neighborhood satisfaction and sense of safety than those with more young children. Respondents with a high school diploma or more education report more neighboring behaviors and less economic insecurity after relocation than do those who lack a high school education. Asian respondents, most of whom are recent Hmong immigrants to the United States, report a significantly greater reduction in neighborhood satisfaction and sense of safety than do Whites. African-American respondents also report less improvement in neighborhood satisfac-

[2] Two additional individual-level variables were left out of the final analysis. First, English-language proficiency was omitted because of its very high correlation with the variable measuring Asian racial status. Second, whether the family made an intermediate move (between the time of relocation and the survey in year 3) was omitted because it was unrelated to any of the dependent variables examined, and its inclusion did not improve the explanatory power of any of the models. In addition, interaction terms between the desire to move and the neighborhood change variables were examined. These terms were statistically insignificant in all cases and did not change the substantive findings from those discussed in this analysis.

Exhibit 7

Multivariate OLS Regressions for Four Dependent Variables

Variable	Variable Definition	Dependent Variable: Change in Neighborhood Satisfaction			Dependent Variable: Change in Sense of Safety			Dependent Variable: Change in Neighboring Behaviors			Dependent Variable: Change in Economic Security		
		ß	SE	p	ß	SE	p	ß	SE	p	ß	SE	p
CHNONWH	Change in percent of non-White residents	– .01	.01	.670	.01	.01	.653	.00	.01	.998	– .02	.01	.024
CHPOV	Change in percent of residents in poverty	.01	.01	.349	– .01	.02	.479	.01	.01	.318	– .00	.01	.859
CHHMVALUE	Change in median home value	.00	.00	.428	.00	.00	.957	.00	.00	.474	.00	.00	.187
EMPT1	Head of household employed at year 1							– .29	.23	.210	.08	.17	.646
FRIENDSandFAM	Number of friends and family in neighborhood	.09	.06	.128	.08	.06	.239	.08	.05	.132	– .02	.03	.623
AGE	Age of head of household	– .04	.01	.001	– .05	.01	.001				– .01	.01	.085
SENIOR	Head of household aged 55 or older at year 1							1.03	.43	.019			
CHILDREN	Number of young children in household at year 1	– .48	.22	.031	– .60	.24	.016	.16	.17	.339	– .11	.20	.588
MALE	Male head of household	– .46	.39	.242	– .39	.43	.366	.45	.32	.163	– .29	.21	.169
POSTHS	Head of household with education beyond high school	.19	.29	.515	– .10	.33	.769						
HSPLUS	Head of household with high school diploma GED							.75	.34	.032	– .56	.24	.022
DISABILITY	Physical or mental disability in household at year 1										.11	.18	.549
ASIAN	Asian head of household	– .83	.41	.047	– 1.20	.46	.012				– .03	.25	.928
BLACK	African-American head of household	– .87	.43	.045	– .43	.47	.365				.06	.23	.789
AMERINDIAN	Native American head of household	.27	.45	.541	.78	.49	.118				– .05	.25	.832
HISPANIC	Hispanic head of household	– 1.20	.76	.101	– .21	.84	.800				– .86	.50	.088
NONWHITE	Non-White, non-Hispanic head of household							.17	.24	.473			
ATTACHMENT	Desire to remain in original neighborhood	– .72	.19	.000	– .78	.21	.000	– .13	.16	.430	– .02	.16	.928
$\bar{R}^2$ / F statistic / p level for F		.242 / 3.036 / .001 N = 85			.263 / 3.338 / .000 N = 86			.061 / 1.412 / .189 N = 78			.083 / 1.480 / .139 N = 80		

OLS = ordinary least square.

tion than Whites. Families in which someone has a physical or mental disability show a significant improvement in economic security after the move compared with other families. This relative improvement seems counterintuitive but may reflect a greater level of income stability for families receiving disability assistance.

The last variable added to the model is the attachment of the family to the Harbor View neighborhood. This variable is extremely important to an increase in both neighborhood satisfaction and sense of safety. Families that wanted to move report significant positive changes in safety and satisfaction compared with those that did not want to move. Those more attached to the Harbor View development reported significantly less change in satisfaction and sense of safety. Neighborhood attachment, however, is unrelated to changes in neighboring behaviors and economic security.

The logistic model largely repeats the findings of the OLS analysis (exhibit 8). Employment at year 3 is unrelated to the degree of neighborhood change in race, poverty, or housing value. Having been employed in year 1 is the most important determinant of employment at year 3, but age and family health are also statistically significant. In this case, older respondents and those who report no health problems among family members are more likely to have improved their employment status.

Exhibit 8

Binary Logistic Regression for Employment at Year 3

Variable	Variable Definition	Dependent Variable: Employment at Year 3			
		ß	SE	p	Exp(ß)
EMPT1	Head of household employed at year 1	4.89	1.30	.000	133.71
CHNONWH	Change in percent of non-White residents	– .08	.06	.198	.920
CHPOV	Change in percent of residents in poverty	– .01	.06	.901	.993
CHHMVALUE	Change in median home value	.00	.00	.753	1.000
FRIENDSandFAM	Number of friends and family in neighborhood	– .08	.21	.684	.919
AGE	Age of head of household	.11	.06	.048	1.121
CHILDREN	Number of young children in household at year 1	1.83	1.10	.098	6.227
MALE	Male head of household	– 1.50	1.46	.315	4.336
POSTHS	Head of household with education beyond high school	.92	.94	.325	2.522
ASIAN	Asian head of household	– .64	1.61	.690	.526
BLACK	African-American head of household	.51	1.49	.735	1.657
AMERINDIAN	Native American head of household	.14	1.49	.926	1.148
HISPANIC	Hispanic head of household	.29	6.31	.963	1.345
FAMHEALTH3	Family health problems at year 3	– 4.60	1.72	.008	.010
ATTACHMENT	Desire to remain in original neighborhood	.19	.58	.738	1.214

86 percent correctly predicted Model $\chi^2 = 61.935$
Cox and Snell $R^2 = .553$
N = 79

Summary and Implications

These findings are based on a single case study and cannot be generalized to all HOPE VI sites. Nevertheless, many of the attitudes and outcomes reported by residents in Duluth are consistent with those reported in other locations. Relocation outcomes and neighborhood change among displaced families in Duluth, for example, mirror the national pattern: most families remained in the central city and moved to neighborhoods that exhibited significantly less disadvantage on a range of measures based on census-tract data. Also mirroring national trends, the Duluth families reported very little overall improvement on a range of individual-level outcomes. Thus, the Duluth case offers the potential for understanding why self-reported individual benefits from the HOPE VI Program have been so limited for displaced households.

One explanation for these findings is that, because neighborhood benefits are not a linear phenomenon, relocated people must experience a certain threshold of change before reporting short-term benefits. It might be the case that HOPE VI does not move families to neighborhoods that are good enough to generate benefits. This explanation is suggested by the findings here and elsewhere showing that, although HOPE VI families' new neighborhoods are better than their original ones, the new areas are nevertheless high in conditions such as poverty, unemployment, and racial segregation compared with local averages. One form of the threshold hypothesis was tested in this study, but it was found that residents who had experienced the greatest degree of change across three different dimensions—racial segregation, poverty, and housing market value—did not differ from others in the extent to which they reported individual-level benefits.

A second explanation for the lack of relationship between objective improvements in neighborhood environment and subjective assessments of individual benefits is that individual attributes play a more central role in determining how and whether families benefit from displacement and relocation. The Duluth case supports this explanation. The age of the head of household and the presence of young children are consistently important predictors of the benefits from relocation that respondents report. Race, health, and the education level of the head of household are also important predictors of the individual benefits examined in this analysis. By contrast, the indicators of neighborhood change as measured by census-tract data are statistically insignificant in virtually all cases.

This analysis provides empirical support for a third explanation of why objective measures of neighborhood change are unrelated to individual benefits among relocated families. The attachment to place as measured by the willingness of the families to move away from the original public housing site was significantly related to improvements in neighborhood satisfaction and perceptions of safety. Respondents who expressed a desire and readiness to move away from the public housing site experienced greater benefits from relocation than those who did not wish to move. This finding is an extension of previous evidence that those participating in voluntary programs of dispersal report greater benefits than those who are involuntarily displaced (Goetz 2003). The Duluth findings show that even among those who were involuntarily displaced, some families are ready and willing to move, and that these families report the most benefits from relocation. In Duluth and elsewhere (see, for example, Gibson, 2007; Goetz, 2003; Kleit and Manzo, 2006; Vale 1997), however, the number of people who do not wish to move is very sizable (more than

one-half of the people who were relocated in most cases in which researchers have collected that information).

The preceding analysis contains two additional findings that are instructive for a more general assessment of the policy of dispersion. First, individual-level outcomes from relocation tend not to be consistent across a range of measures. That is, relocated people who show positive change on one type of outcome do not necessarily show the same magnitude of change on other outcomes. Equally, negative outcomes in some areas do not imply a negative experience across the entire spectrum of outcomes. This finding suggests a need to refine the logic of the HOPE VI model by, at the very least, differentiating between the presumed individual-level benefits and the processes that are presumed to bring them about.

Second, this analysis of HOPE VI outcomes in Duluth directly relates the degree of neighborhood change to the degree of individual changes reported by residents. The findings confirm evidence from other studies indicating that neighborhood change is largely unrelated to the individual-level benefits. The Duluth case found no relationship between any measures of neighborhood change—even indices that compounded positive changes across three dimensions of change—and several measures of individual outcomes. The one exception was a finding that ran counter to the dispersal hypothesis: a move to neighborhoods inhabited by more Whites was associated with a decline in economic security among relocated people.

As argued previously, these findings invite a systematic deconstruction of theoretical linkages so as to provide a more realistic assessment of changes from involuntary relocation in a HOPE VI project. Among the range of possible outcomes from relocation, for example, previous studies (although not this one) seem to indicate that perceptual changes, such as feelings of greater safety and perceptions of greater social order, can be influenced by a change in neighborhood. On matters related to actual behavioral change, to the achievement of goals such as employment and self-sufficiency, and to improvement in physical conditions such as health, environmental change alone is unlikely to produce consistently positive results. As Levy and Woolley (2007) argue in relation to employment outcomes and as Clampet-Lundquist (2007) argues in the context of social networks, the policy assumptions and program interventions of HOPE VI probably underestimate the complexity of the social and economic changes they aim to induce.

Changes in employment, income, health, and social interactions involve systems that are complex and not fully determined by environment. Perhaps the most obvious is employment and related indicators such as income and economic self-sufficiency. These and other outcomes are likely to be influenced by a mix of systems operating at different scales. Varying factors—such as the availability of appropriate jobs in a metropolitan area, traditions of urban segregation by class and race that vary by region, the willingness of employers to hire, individual attributes such as adequate training and education, and the variable social interactions involved in the job search, the interview, and the hire—play different roles in determining economic outcomes for poor and minority households. Similarly complex systems could be described to help explain the development of social networks and neighboring behaviors that vary by race and income.

Thus, a reevaluation of the dispersal hypothesis requires a more explicit set of theoretical connections between neighborhood change and specific individual-level outcomes. Indeed, one step

would be to identify those areas in which positive change may reasonably be expected and those that involve larger systems that may be more resistant to such a simplified and problematic stimulus for change such as forced relocation.

Of significance, the degree of neighborhood change was unrelated to feelings of greater safety and neighborhood satisfaction among relocated people in Duluth. Instead, the most prominent factor associated with these outcomes was the desire to move away from the Harbor View site. This finding is important for two reasons. First, it locates the origin of attitudinal change in residents' evaluation of their original neighborhood. If residents found the existing environment wanting and desired to move away, they were likely to experience the short-term perceptual benefits hypothesized by the program model. At the same time, if this finding is replicated elsewhere, it suggests that the HOPE VI model of involuntary displacement will probably not produce consistent benefits for a substantial number of relocated families. Among the residents in many public housing redevelopment projects, a substantial portion does not wish to move. In Duluth, for example, one-half of the residents did not want to move; in Portland, two-thirds did not want to leave (Gibson, 2007). Thus, voluntary relocation programs might be a more appropriate approach for achieving outcomes such as a greater sense of safety and a higher level of neighborhood satisfaction.

For families involuntarily displaced from their homes, the questions of safety and neighborhood satisfaction may be more dependent on the families' networks of social support. To the extent that forced displacement disrupts those informal webs of support, HOPE VI may engender resentment among the displaced and fail to produce the outcomes desired by the program's architects.

Appendix A. Description of Variables

Independent Variable	Survey Question	Answer Categories	Year of Study
ATTACHMENT	"Before you found out that Harbor View was going to be torn down, did you want to move out?"	1. Yes 2. Not sure 3. No	3
FRIENDSandFAM	"How many of your close friends live in the same neighborhood as you?"		1 and 3
	"How many family members live in the same neighborhood as you, not counting family members who live in your household?"		1 and 3
DISABILITY	"Does anyone in your family have a physical, mental health, or learning disability?"	0. No 1. Yes	1
FAMHEALTH3	"Does anyone in your family have any health problems?"	0. No 1. Yes	1 and 3
EMPT1 and EMPT3	"Are you currently employed?"	0. No 1. Yes	1 and 3
Dependent Variable			
Neighborhood satisfaction	"Overall, how satisfied are you with your neighborhood?"	1. Very dissatisfied 2. Somewhat dissatisfied 3. Neither 4. Somewhat satisfied 5. Very satisfied	1 and 3
Sense of safety	"Overall, how safe do you feel in your neighborhood?"	1. Very unsafe 2. Somewhat unsafe 3. Neither safe nor unsafe 4. Somewhat safe 5. Very safe	1 and 3
Neighboring behaviors	"In your neighborhood in the past 6 months, how often did you … A. Say hello to a neighbor in the street or hallway? B. Talk with a neighbor for more than 10 minutes? C. Borrow things from a neighbor? D. Have lunch or dinner with a neighbor? E. Borrow a neighbor's car? F. Watch a neighbor's child?"	1. Never 2. Less than once a month 3. Once a month 4. Once a week 5. Two to four times a week 6. Daily	1 and 3
Economic security	"Does your family have enough money to buy food and clothing and pay bills?"	1. Never 3. Sometimes 5. Always	1 and 3

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Neighborhood Institutions, Facilities, and Public Space: A Missing Link for HOPE VI Residents' Development of Social Capital?

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Abstract

This study assessed the factors that shaped the development of shared trust, norms, reciprocity (TNR), and social ties—important foundations of social capital—for low-income HOPE VI (Housing Opportunities for People Everywhere) residents who relocated to new communities. A longitudinal mixed-methods approach revealed the distinct but understudied role that neighborhood institutions, facilities, and public spaces play in shaping observations, encounters, and interactions with other coresidents (as well as outsiders). Multivariate analyses of survey data indicate that neighborhood facilities and public spaces, such as parks, libraries, and recreation facilities, were very strong predictors of TNR among neighbors. Indepth interviews with relocated women revealed the ways in which neighborhood structure and public spaces can shape social encounters and relations in the neighborhood. This article presents a discussion of the ways in which these important but often overlooked neighborhood attributes can structure contact with neighbors and considers implications for policies aimed at improving low-income people's access to social capital through relocation.

Introduction

Although the concept of social capital is being used increasingly in policy discourse, our comprehension of how social capital is built, maintained, and accessed is far from complete. This article seeks to further our understanding by examining some of the potential mechanisms for developing

social capital in the neighborhood and by considering how relocation might shape residents' access to social capital. This study addresses a key question: What is the role of the neighborhood for the development of trust, interactions, and ties with coresidents and with outsiders? Specifically, the study explores how neighborhood attributes affected the development of these important precursors to social capital for low-income residents who were relocated to different types of communities through the HOPE VI Program.

Social capital describes a unique and important set of resources that can both depend on and enhance our economic and human capital (Bourdieu, 1986). As a resource that flows through social networks and relationships based on trust, norms, and reciprocity (TNR), social capital helps facilitate productive activity that can benefit individuals and groups (Coleman, 1988; Putnam, 2000). Much of the social capital literature has focused on social networks and how they can help us "get by" and "get ahead" in life by providing resources of support and social leverage (Briggs, 1998) and on the relative importance of "weak" or "bridging" ties in particular for accessing upward mobility opportunities (Granovetter, 1973; Putnam, 2000). Other social capital research has focused on aggregate levels of trust and civic engagement (Putnam, 2000), or has highlighted the informal social control that can be generated from social capital (Sampson, Raudenbush, and Earls, 1997). Although definitions of social capital are widely debated (see Fulkerson and Thompson, 2008; Portes, 1998; Portes and Landolt, 2000), in this article we define social capital as the actual or potential resources that can be accessed through social relationships where TNR are established. Therefore, social ties and trust are not social capital but, rather, are the prerequisites for social capital.

The latest wave of "neighborhood effects" research has brought social capital and social networks to the forefront of numerous academic and policy discussions as a potential mechanism through which neighborhood disadvantage might be channeled. It has been argued that living in poverty-concentrated neighborhoods, for example, can shape the social capital resources to which one has access (Wilson, 1987). In neighborhoods where most residents are disadvantaged, marginalized, or disconnected from "mainstream" society, residents may have access to a limited set of information and opportunities through their social networks, compared with those who live in economically mixed or higher income neighborhoods. Thus, inadequate access to social capital has been added to a growing list of conditions characteristic of high-poverty neighborhoods (for example, poor housing quality, crime and social disorder, and pervasive joblessness) that put residents at a severe disadvantage for escaping poverty and achieving upward mobility. The idea that neighborhood demographics affect residents' access to social capital has informed urban housing policies that seek to alter the demographic makeup in high-poverty neighborhoods. In countries including the United States, the United Kingdom, Australia, and the Netherlands, creating mixed-income communities has become an explicit policy goal for urban redevelopment initiatives targeting high-poverty neighborhoods, partly due to the assumption that mixed-income environments are richer in trust, shared norms, and resourceful social networks. Mixed-income neighborhoods are thought to provide lower income people with greater opportunities to connect with people who adhere to "mainstream" norms of work and family and to tap into better job networks (Wilson, 1987).

Research and Literature

This section reviews a number of empirical and theoretical studies that contribute to the present understanding of how neighborhoods can shape the development of residents' social capital in an effort to understand how HOPE VI relocation might affect low-income residents' access to social capital. This section first provides a brief review of the research on neighborhood population characteristics and social networks. Next, it turns to the literature that explores the role of neighborhood institutions before finally considering the contributions from research on trust, public familiarity, and stigma, which may help further the understanding of social capital development in a neighborhood context.

Wilson's (1987) research suggests that poverty concentration at the neighborhood level can shape residents' social networks by limiting everyday opportunities to interact and form relations with higher income people who have long-term attachments to the workforce. Some studies have proposed that residents in such communities are lacking "weak" or "bridging" ties to working- or middle-class people who have access to important information and resources necessary for upward mobility (Granovetter, 1973; Putnam, 2000). Some evidence indicates that people living in high-poverty communities have social networks that are more homogeneous and dense than the social networks of people living in low-poverty areas, suggesting that information on jobs and other opportunities may be more redundant in high-poverty neighborhoods (Dominguez and Watkins, 2003; Smith, 1995). Poor urban residents were often found to have insular and localized social networks that offered little opportunity for advancement (Tigges, Browne, and Green, 1998; Wacquant and Wilson, 1989; Wilson, 1996, 1987). In his study of low-income Latino and African-American youth, Briggs (1998) found that those who had wider and more diverse networks had more access to job information.

While our social worlds today are less likely to be bound by our neighborhoods of residence due to advancements in communication and transportation (Guest and Wierzbicki, 1999; Wellman, 2001), spatial proximity may still influence the development of social ties (Mok, Wellman, and Antonia-Carrasco, 2008; Wellman, 1996), particularly for lower income people who are more bound to a place due to limited resources (as well as those who have limited mobility, including elderly people and people with disabilities).[1] Length of residence may also have a positive association with neighborhood-based social networks as people become more embedded in their communities and get to know their neighbors over time (Coleman, 1988; Saegert and Winkel, 2004). Others, however, have pointed out that physical proximity to higher income people alone does not automatically translate into having helpful social ties (Curley, 2009), because factors such as social status (Lin and Dumin, 1986), trust, reputation, motivation, community context (Smith, 2005, 2007), pride, shame, and stigma (Blokland and Noordhoff, 2008) can complicate the mobilization

[1] Some studies have found that people with more education and higher incomes have larger and more geographically dispersed social networks, partly because they are less constrained by limited resources to travel (Fischer, 1982). Unemployed people, in contrast, tend to have more neighborhood-based social ties, because they depart the neighborhood less regularly (Fischer, 1982). Households with children are thought to have greater social capital because the members of the household typically spend more time in the community and have multiple avenues for connecting with people in the neighborhood (Kleinhans, Priemus, and Engbersen, 2007; Saegert and Winkel, 2004).

of such ties. Further, social proximity may be more important than physical proximity, as people are drawn to others like themselves in terms of lifestyle, social status, and values (that is, "birds of a feather flock together") (McPherson, Smith-Lovin, and Cook, 2001). There is some evidence that ethnic diversity at the neighborhood level may have a negative association with local social relations, because residents in homogeneous communities may be more likely to trust their neighbors and be involved with their communities (Fischer, 1982; Putnam, 2007).

Although many questions remain about the effects of neighborhood poverty concentration on social networks and the relative importance of social versus physical proximity for local social ties, inquiry into what happens to low-income individuals' networks when they relocate out of high-poverty areas is also growing. Attention to this issue was prompted with the development of programs across the United States and Europe designed to relocate poor people in an effort to deconcentrate poverty, create mixed-income neighborhoods, and improve the life chances of the poor. Two such programs in the United States—HOPE VI and MTO (Moving to Opportunity)—have relocated tens of thousands of low-income families from high-poverty communities in the past decade. By decreasing poverty concentration through relocation or redevelopment, it is assumed that lower income residents will be more exposed to higher income people and might diversify their social networks to include them. Few studies have provided evidence, however, that mixed-income programs (or relocation initiatives) improve low-income residents' access to social capital. In fact, studies on both sides of the Atlantic show little social mixing among higher and lower income people in redeveloped mixed communities (Brophy and Smith, 1997; Buron et al., 2002; Curley, 2009; Kleinhans, 2004; Smith, 2002; van Beckhoven and van Kempen, 2003), suggesting that increased residential proximity does not necessarily promote social interaction. Others have similarly found that low-income movers tend not to receive job information from their new neighbors, challenging the assumption that higher income neighbors will become useful or willing job contacts or that altering neighborhood demographic composition will promote the development of social capital (Briggs et al., 2007; Curley, 2009; Kleit, 2001).[2]

In addition to the potential effect neighborhood population demographics may have on the development of trust and relations among neighbors, other neighborhood attributes may play a role as well, including physical structure of the neighborhood, its institutions and public spaces, and even neighborhood stigma. Although few studies have explored the explicit link between local institutions or other neighborhood features and social capital development in the context of a relocation program, a number of studies have suggested that neighborhood institutions are important for community stability, social control, collective efficacy, and social democracy. These studies are informative because they highlight the important role of local institutions and public spaces and provide a framework for understanding how neighborhoods may shape HOPE VI relocatees' development of trust and social relations in their communities.

[2] Although one study assessing the MTO program found that moving to a low-poverty neighborhood increased the chances that adults would have friends who graduated from college or earned more than $30,000 a year, only 8 percent of participants in the study found a job through a neighborhood tie, and no differences existed between those in high- and low-poverty neighborhoods (Kling, Liebman, and Katz, 2005; Orr et al., 2003). Further, HOPE VI researchers found that relocation often broke up strong social networks, which could reduce access to social support—another important form of social capital (Clampet-Lundquist, 2004; Curley, 2009; Greenbaum, 2002; Popkin, Levy et al., 2004; Saegert and Winkel, 1998).

For example, in *The Truly Disadvantaged*, Wilson (1987) emphasized the role local social institutions played in maintaining stability in urban neighborhoods. He argued that one consequence of the outmigration of the African American working and middle classes from American cities in the 1970s was the removal of an institutional base and the stability and social control it brought to those neighborhoods. As families from those urban neighborhoods left for the suburbs, so too did the businesses and services (for example, grocery stores, churches, banks, and restaurants) that catered to and were supported by them. The resulting lack of institutional stability compounded with the increasing concentration of economic deprivation created socially isolated communities with few resources to leverage political and economic investment.[3] Sánchez-Jankowski's (2008) ethnographic research similarly highlighted the ways in which local institutions such as beauty salons and "mom and pop" stores can play an important socialization function in poor neighborhoods and contribute to a sense of community, stability, and social order. Peterson, Krivo, and Harris (2000) also pointed to the importance of institutions: "When local organizations that link individuals to each other and to broader political and economic institutions are less prevalent, commitments to mainstream values are less likely to be encouraged, socialization to conformity is undermined, and the resulting *indirect* social control is weakened" (Peterson, Krivo, and Harris, 2000: 34). In multivariate analyses of census and crime data, they found that the presence of recreation centers reduced violent crime in areas with extreme economic deprivation, suggesting that such facilities and their programs may serve an important social control function (Peterson, Krivo, and Harris, 2000). Neighborhood institutions may promote mechanisms of informal social control by providing a venue for social interaction and for developing collective efficacy (Sampson, Raudenbush, and Earls, 1997), which has been defined as the trust, shared expectations, and willingness to intervene in one's community.[4] Related to these mechanisms of social control is the ability of residents to realize their common values and goals. In *Bowling Alone*, Putnam (2000) raised alarm about the declining civic engagement of Americans and the implications of a weakened institutional base. He argued that declining participation in formal membership-based organizations, religious institutions, and politics (voting) was indicative of a broader trend of declining social capital, which he contended threatens the democratic and social fabric of our society.

While the previously discussed quantitative and qualitative studies highlight the important links between institutions and neighborhood stability, social control, and trust, only two known quantitative studies have documented a clear connection between neighborhood facilities and local social networks. These studies include those of Van Bergeijk, Bolt, and van Kempen (2008), who found

[3] Interestingly, however, Small and McDermott (2006) found that neighborhood poverty level had a positive relationship with the number of organizational resources in the neighborhood (such as grocery stores, pharmacies, and childcare centers). In another study, Small, Jacobs, and Massengill (2008) examined the interorganizational ties of childcare centers in New York and found that centers in high-poverty neighborhoods were better connected and had more referral and organizational ties, challenging the general belief that concentrated poverty weakens the capacity for strong, local organizations. Small's (2006) research also suggests that as "resource brokers" and as sites for social interaction, neighborhood institutions and their connections may play an important mediating role between neighborhood poverty and well-being.

[4] In their analyses of resource inequality, social processes, and spatial dynamics that might predict rates of homicide, Morenoff, Sampson, and Raudenbush (2001) found that, although the number of local organizations alone was "relatively unimportant" (Morenoff, Sampson, and Raudenbush, 2001: 553), local organizations and social networks were valuable for their ability to "promote the collective efficacy of residents in achieving social control and cohesion" (Morenoff, Sampson, and Raudenbush, 2001: 517).

that use of neighborhood facilities had a positive effect on social networks in distressed neighborhoods undergoing renewal in the Netherlands, and Dekker and Filipovic (2008), who found that residents of large housing estates in the Netherlands and Slovenia who reported problems with the upkeep of public space and local services had fewer social ties in the neighborhood and were less positive about social contacts in the neighborhood compared with those who were satisfied with public spaces and services.

Although most of the previously discussed studies highlight the importance of neighborhood institutions for the stability they bring to communities, research on trust and public familiarity suggests that local institutions and public spaces might play another important role. A small number of qualitative studies, although not necessarily making connections to social capital, provide insight in how trust, public familiarity, and social relations can develop in the public domain. By studying social order in "a world of strangers," Lofland (1973) found that when "conventional encounters occurred repeatedly in a single public locale, they become… one of the mechanisms by which total strangers are transformed into personally-known others" (Lofland, 1973: 168). In other words, when we come across the same people repeatedly in public spaces, we can develop a sense of "public familiarity." "Public familiarity arises when interdependent anonymous people keep encountering each other…" (Blokland, 2003: 93). In his empirical research on trust, Sztompka (1999) pointed out: "Repeated routines that people follow make it possible to predict their conduct" (Sztompka, 1999: 124) and estimate their "potential trustworthiness" (Sztompka, 1999: 96). Without opportunities to build public familiarity among other inhabitants in a neighborhood, for example, residents may be prone to have mistrust—a lack of clear expectations, predictability, and security (Sztompka, 1999). Public space may also help foster a sense of community because people come together to display and legitimize their identities in the public domain (Holland et al., 2007). Blokland (2003) highlighted the importance of the knowledge that can develop over time through encounters in which people become familiar with each other and begin to distinguish among those who may share similar norms and values.

Finally, this article considers how physical neighborhood structures, such as American public housing communities that are imbued with complex and powerful social stigmas, may shape encounters and interactions, not with other coresidents, but with outsiders. Goffman (1963) described the ways in which people are stigmatized based on assumptions of their moral inferiority. Although stigmas based on race, income, gender, and disability prejudices are familiar, public housing residents (many of whom already belong to a categorized and stigmatized group) may suffer from an additional stigma associated with their place of residence. Vale (2002) described the unique stigma, one that is both person- and place-based, that is applied to residents of America's public housing projects.

> The stigma that operates at an individual level through negative associations with a particular person's race, ethnicity, gender, health status, or behavior is reinforced in public housing by powerful group-based and place-based messages. Public housing forces stigmatized people to experience a bounded and stigmatized environment in two mutually reinforcive ways: as a group of buildings and as a system of rules and preferences. The end result of all this is that the physical environment of public housing often reinforces social stigmas by inducing yet another unwelcome form of group identity: that of project resident. (Vale, 2002: 15)

Because of this unique stigma, public housing communities may shape residents' encounters and interactions with people from outside the neighborhood. Nonstigmatized people may choose not to engage with public housing residents due to this persistent social stigma and how it might make them look to other "normals" (nonstigmatized people) (Goffman, 1963: 30). Thus, stigma may be another important mechanism through which neighborhoods can shape a key foundation for social capital—social networks.

The findings from the literature discussed in this section suggest that several neighborhood factors, including population characteristics, institutions, and stigma, may shape trust, social interaction, and social ties among neighbors. The question of which factors are most significant, combined with the gaps in the understanding of social capital development in the context of relocation, warrants further investigation into the potential role of neighborhoods in promoting or inhibiting relocatees' development of trust and social ties—key foundations for social capital. By further examining the extent to which relocation to different types of neighborhoods shaped perceptions of trust and local social relations, this study seeks to advance the understanding of how social capital may be built in a neighborhood context.

The Study

This study assesses neighborhood mechanisms for developing social capital, focusing specifically on the role of neighborhood attributes in shaping perceptions of trust, norms, and reciprocity and social interaction for low-income residents who were relocated from a poverty-concentrated public housing neighborhood as part of the HOPE VI Program. The study poses this key research question:

> *To what extent are neighborhood characteristics important for TNR and for interactions with coresidents and outsiders?*

A key contribution of this study is the investigation into neighborhood mechanisms for developing trust and relations in the context of a relocation initiative. Thus, a distinctive component of the study is its systematic comparison of different types of relocatees, which enables the assessment of whether those in mixed-income communities, for example, are more likely to trust their neighbors or report shared norms and reciprocity than are public housing residents. Another notable feature of this study is its mixed methodology, combining both quantitative survey data with qualitative interview data to provide a well-rounded data set on relocatees' experiences in establishing the foundations for social capital in their neighborhoods.

Data Sources and Methodology

The data for the study were collected as part of a broad longitudinal evaluation of the Maverick Gardens HOPE VI Program in Boston, Massachusetts.[5] The U.S. HOPE VI Program was established in 1993 to redevelop the "most severely distressed" public housing projects in the nation into new

[5] The Center for Urban and Regional Policy at Northeastern University conducted the study between 2002 and 2007.

mixed-income communities of opportunity (HUD, 2008a) (see also Popkin, Katz et al., 2004).[6] To redevelop these areas, HOPE VI involves the large-scale relocation of residents, most of whom move off site to private-market housing with portable vouchers[7] or to other traditional public housing developments. Some relocated households return to the new mixed-income housing when it is completed, while others remain permanently off site.

Selected for HOPE VI redevelopment in 2002, Maverick Gardens was originally constructed in 1941 in line with the typical "barracks" style design for public housing built in the United States during that era. The development was located on an 8-acre site at the end of a dead end street, consisted of 12 brick buildings (413 units) with flat roofs surrounded by paved interior walkways, and had no streets running through it. One side of the development abutted a rundown park with remarkable views of Boston Harbor and the city beyond. Its location across the harbor in East Boston meant Maverick Gardens was somewhat isolated from the larger Boston community. To get downtown and to most other Boston neighborhoods, residents had to drive over a bridge or through a tunnel under the harbor (both required a $3 toll) or take the subway ($3 round trip). Although its physical location contributed to some feelings of isolation, Maverick Gardens was situated only about two blocks from the bustling Maverick Square, which houses a subway station and numerous restaurants, shops, and services catering to the large local Hispanic population. At the beginning of the HOPE VI program, the Maverick Gardens population was 47 percent Hispanic, 26 percent African American, 15 percent Asian, and 12 percent White (Fitzgerald and Curley, 2003). According to the 2000 U.S. Census, Maverick Gardens was in a census tract with a poverty rate of 43 percent and a non-White population of 50 percent (U.S. Census Bureau, 2000).[8]

The Maverick Gardens HOPE VI Program lasted from 2002 until 2007, with the demolition of buildings and relocation of residents beginning in 2003 and construction ending in 2006. When

[6] The program seeks to reduce the concentration of poverty and the housing density in the developments, build housing that blends in with the surrounding community, create streets that connect the developments to the abutting areas, strengthen management, and provide supportive social services (HUD, 2008a). The initiative targets housing developments that suffer from physical deterioration, high rates of crime, chronic unemployment, welfare dependency, inadequate services, and high concentrations of extremely poor residents, minorities, and single-parent families.

[7] The Housing Choice Voucher Program, formerly known as the Section 8 Rental Voucher Program, was created in 1974 to assist "very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market." This portable voucher program enables such households to select their own units in the private market. "The housing voucher family must pay 30 percent of its monthly adjusted gross income for rent and utilities, and if the unit rent is greater than the payment standard the family is required to pay the additional amount" (HUD, 2008b: 2).

[8] Maverick Gardens stands out from many other HOPE VI sites in a number of important ways. First, Maverick Gardens was a relatively small development with fewer units and less density than many other public housing developments around the country. For example, Maverick Gardens had 413 units and no highrise buildings compared with Chicago's Cabrini-Green development, which at one time housed 15,000 people, or Robert Taylor Homes, which housed 27,000 people (see http://www.thecha.org). In addition, compared with many other public housing communities, Maverick Gardens was not as isolated from transportation and other services and was in a prime real estate location with waterfront views of the downtown urban landscape. The population of Maverick Gardens also differed because nearly one-half of the population was of Hispanic origin; in many other HOPE VI communities residents were predominantly African American (Popkin et al., 2002). Further, the Greater Boston housing market for rentals was among the tightest in the country during the Maverick Gardens HOPE VI Program (2002–07), with relatively high and steadily increasing prices and low vacancy rates (vacancy rates were about 3 percent for the Greater Boston area in the year 2000 compared with the national average of 7 percent) (Comey, Briggs, and Weismann, 2008).

the redevelopment was completed in late 2006 and all new units were occupied, just under one-half of the original 375 households (48 percent) returned to the new mixed-income community, which was renamed Maverick Landing, and slightly more than one-half remained in their relocation units for a variety of reasons related to choices and constraints (see Curley, 2004; Curley and Fitzgerald, 2007). Those who did not return to the site remained permanently off site in other public housing developments (23 percent), with portable vouchers (17 percent), in market-rate housing (3 percent), or in homes they purchased (2 percent).[9] This article investigates residents from the three main relocation groups—HOPE VI (the new community), public housing, and voucher users—focusing on their perceptions of trust and their interactions and social tie formation in their neighborhoods. Two key data sources were used: the final post-HOPE VI resident survey and repeated indepth resident interviews.

A longitudinal resident survey was conducted to track changes in resident outcomes over time. The surveys covered a wide range of topics, including relocation, neighborhood conditions, social services usage and service needs, social networks, employment, income, economic stability, and adult and child health. Surveys were implemented before relocation and redevelopment, 1 year later (in the middle of relocation and demolition), and 6 months after the redevelopment was completed. A multilingual staff of sociology and social work graduate students, who had prior survey or community work experience, or both, conducted the survey interviews.[10] The surveys were translated into Spanish and Vietnamese and interviewers read all questions aloud and recorded respondents' answers on the surveys. They conducted most survey interviews, which lasted about an hour each, in residents' homes and provided respondents a $25 gift card to a local supermarket for their time.

This article presents data from the final of the three resident surveys. In 2007, interviewers completed 199 final post-HOPE VI surveys with original Maverick Gardens residents, including 105 who were living in the new mixed-income HOPE VI community, 41 who were residing off site with their vouchers, 40 who were off site in other housing developments, and 13 who were off site in private-market housing, homes they purchased, or the homes of family or friends with whom they were doubling up.[11] They completed in-person surveys with residents in Spanish (48 percent), English (47 percent), and Vietnamese (5 percent). The sample consisted mainly of female heads of households from a variety of racial/ethnic backgrounds (51 percent Hispanic, 18 percent White, 18 percent African American, 10 percent Asian), about one-half of whom were employed (48 percent). Many respondents had low levels of education (41 percent lacking a high school

[9] Another 6 percent of those who relocated were evicted or abandoned their units; the housing authority did not track them.

[10] Interviewers completed a half-day training session that covered topics such as confidentiality procedures, the role of the researcher, accurate data collection, understanding the survey questions, arranging interviews, explaining the study, and overcoming objections. To obtain updates and discuss any issues regarding the survey and completing interviews with residents, the program manager held weekly briefings with all interviewers. As a quality control measure, after selecting a random sample of completed surveys, the program manager phoned the respondents to verify several answers to the survey questions.

[11] Of the 216 baseline survey respondents, 134 completed the final post-HOPE VI survey (a response rate of 62 percent). In addition, to expand the sample of post-HOPE VI respondents and broaden the understanding of a larger number of affected households from the different relocation groups, a supplemental sample of other original Maverick Gardens households who were not surveyed at baseline was added to the final survey. Of the 110 additional residents who were randomly selected, 65 residents completed the post-HOPE VI survey (a response rate of 59 percent).

diploma) and low incomes (66 percent earning less than $16,000 a year) (see Curley, forthcoming [2010a]) for further sample demographics). Overall, the survey sample is comparable to the larger population of original Maverick Gardens tenants (in terms of race/ethnicity, employment status, and relocation outcomes, for example).

Linear regression models were used to assess the relationship between neighborhood characteristics and perceptions of TNR. Principal component analyses were conducted with questions regarding trust, norms, reciprocity, and place attachment, and Varimax Rotation clearly showed two scales.[12] An index of *TNR* based on the mean response to 11 items (Cronbach's α = .78) was used as the dependent variable. Respondents were asked, for example, about levels of trust and shared norms among neighbors, whether neighbors were willing to help each other, whether people were respectful and generally got along with one another, and whether people in the neighborhood were capable of solving problems in the neighborhood (see appendix A for a detailed list of all indices). Responses ranged from a low of 0 to a high of 1. Independent variables included demographics, length of residence,[13] relocation group, neighborhood satisfaction, and indices of place attachment; neighborhood institutions, facilities, and public spaces; perceived neighborhood problems; and feelings of safety. *Place attachment* was measured as the mean response to four items assessing the extent to which respondents felt at home in their neighborhood, that it was a good place for them to live, that it was very important for them to live in their particular community, and whether they expected to live there for a long time (Cronbach's α = .82). Scores ranged from a low of 0 (weak place attachment) to a high of 1 (strong place attachment).

Neighborhood institutions, facilities, and public spaces were assessed with a 15-item index that measured the availability of resources such as churches, employment and job training services, libraries, child care, recreation for youth and adults, afterschool programs, supermarkets, healthcare facilities, transportation, food pantries, and parks or playgrounds in the neighborhood (Cronbach's α = .74). Index scores ranged from a low of 0 (few resources) to a high of 1 (many resources). *Neighborhood problems* were measured with a 13-item index (Cronbach's α = .96) assessing residents' perception of the severity of crime and social and physical disorder in the neighborhood. Responses ranged from a low of 0 (no problem) to a high of 1 (some/big problems). Problems in this index included shootings; attacks/robbery; rape/sexual attacks; people selling drugs; people using drugs; gangs; groups of people hanging out; police not coming when called; graffiti; lack of outdoor lighting; trash in parking lots, sidewalks, and lawns; unattractive common outdoor areas; and lack of recreational space. *Safety* was measured with an 8-item index (Cronbach's α = .79) that assessed feelings of safety and the presence of and satisfaction with police patrols in the neighborhood. Scores ranged from a low of 0 (unsafe) to a high of 1 (safe).

Relocation group was included as an independent variable as a proxy for poverty concentration in participants' neighborhoods. Those who remained permanently relocated with vouchers were

[12] Component one included trust, norms, values, reciprocity, and place attachment variables and component two included place attachment variables. For the analysis, the place attachment scale was used separately from the TNR scale.

[13] Length of residence is included because trust and interactions with coresidents are assumed to take time (Coleman, 1988; Saegert and Winkel, 2004).

living in more economically mixed areas (with poverty rates averaging 14 percent), as were those living in the new Maverick Landing HOPE VI community. Although HOPE VI created a "mixed-income" community at Maverick Landing, the current poverty level of the new community is unknown because the most recent U.S. Census was conducted in 2000 (before redevelopment). For purposes of this article, it is assumed that the new Maverick Landing is a more mixed-income neighborhood because many low-income households relocated out of the community and higher income residents moved into the community's new market-rate units. In contrast, people who moved to alternate public housing lived in census tracts with poverty levels averaging 31 percent (compared with the pre-HOPE VI Maverick Gardens census tract, averaging 43 percent below poverty level) (2000 U.S. Census).[14]

In addition to conducting the survey, interviewers repeated indepth interviews with 30 women from the original community over the course of the evaluation; those interviews provided rich data on the effects of HOPE VI and on the processes through which relocation and redevelopment affected residents' lives. Themes covered in the semistructured interviews ranged from social networks, economic stability, and health, but the data relevant for the research question explored in this article center on establishing trust and social connections in the neighborhood.[15] The sample for the indepth interviews consisted of women who had lived at Maverick Gardens for at least 2 years before the HOPE VI Program began and who were relocated in the first phase of the program.[16] The indepth interviews were limited to female residents due to the high percentage of female-headed households in public housing. The sample was stratified to include women from the three main relocation groups: 11 onsite movers (37 percent),[17] 10 voucher movers (33 percent), and 9 public housing movers (30 percent). One-half of the women spoke primary languages other than English, and eight were interviewed in Spanish. Participants were recruited for the study via mail, phone, and in-person visits.

The author and a Spanish-speaking ethnographer first interviewed the 30 women in 2004 (1 year after relocation) and conducted followup interviews every 6 to 12 months through the end of the HOPE VI Program evaluation (a total of five rounds of interviews).[18] They conducted interviews in residents' homes. The tape-recorded interviews lasted between 1.5 and 2.5 hours, and participants were paid $25 to $30 per interview for their time. Tapes and field notes were transcribed, systematically coded, and analyzed using QSR N6, a qualitative data analysis program. A combined

[14] Voucher holders also lived in areas that are less concentrated with racial/ethnic minorities (35 percent on average) than public housing movers (42 percent on average) (compared with the pre-HOPE VI Maverick Gardens census tract, averaging 50 percent non-White).

[15] This qualitative component of the research was also part of a dissertation study that focused particularly on changes in social networks, economic stability, and health and was funded in part with a HUD Doctoral Dissertation Grant (see Curley, 2006, 2009).

[16] During the first phase of relocation (in which 116 households relocated), 41 percent of residents moved on site (to older units that were scheduled for redevelopment in a later phase of the program), 39 percent moved to other public housing, 18 percent moved with vouchers, and 2 percent moved out of subsidized housing altogether.

[17] Because the community was redeveloped in phases, some households were able to relocate on site into older vacant units that were scheduled for demolition in a later phase.

[18] The response rate per interview ranged from 93 percent for the first three interviews to 83 percent for the fourth interview and 80 percent for the fifth.

deductive/inductive approach was used for coding the data according to the research questions and hypotheses regarding changes in social networks and neighbor relations, in addition to allowing themes and concepts to emerge from the data through open coding. Interrater reliability was checked with a colleague who coded a random sample of transcripts using the developed coding scheme.

Findings

Survey Data

The post-HOPE VI survey provided interesting data on residents' perceptions of trust, norms, and reciprocity in their current neighborhoods and their perceptions of physical and social disorder, feelings of safety, and the availability of neighborhood institutions, facilities, and public spaces. To assess the relative importance of different neighborhood attributes on perceptions of TNR, linear regression models were used. The *TNR* index was used for the dependent variable; independent variables included various individual, household, and neighborhood characteristics (most of which were associated with TNR in earlier bivariate tests).[19] Exhibit 1 presents the final regression model, which included measures of race/ethnicity; language; length of residence; relocation group; neighborhood satisfaction; safety; place attachment; neighborhood problems; and neighborhood institutions, facilities, and public space. This model is very robust—explaining 76 percent of the variance in TNR. The analysis indicates that three factors are statistically significant predictors of TNR: (1) neighborhood institutions, facilities, and public spaces; (2) place attachment; and (3) feelings of safety. Interestingly, none of the demographic and household variables are significantly associated with TNR after controlling for the other variables in the model. The survey also reveals that no significant relationship exists between relocation group (here used as a proxy for neighborhood income mix; see methodology section) and TNR. This finding is in contrast with the policy assumption that creating the right social mix in a neighborhood will produce desired levels of trust and social capital, thereby improving the livability of the neighborhood and life chances of low-income people. This regression model indicates that other factors are more important for TNR than neighborhood type (relocation group).

First, the findings indicate that perceptions of TNR are higher for people who report a greater availability of resources such as *neighborhood institutions, facilities, and public spaces* in their neighborhood (for each unit increase in neighborhood resources, TNR increased 1.06 points).

Second, *place attachment* is a significant predictor of TNR. With each unit increase in place attachment, TNR increased .18 points. The data do not establish causality, however, and it is likely that TNR and place attachment reinforce each other. It could be concluded that stronger place attachment leads to greater TNR or shown that, with higher levels of TNR, people develop greater place attachment. The significance of place attachment here is consistent with Kleinhans, Priemus, and Engbersen (2007), who also found a strong relationship between place attachment

[19] For a more detailed discussion of bivariate results and a discussion on how different dimensions of social capital (social support, social ties, civic engagement, trust) are interrelated, see Curley (forthcoming [2010b]).

Exhibit 1

Predicting Perceived Trust, Shared Norms, and Reciprocity

Independent Variables	B	SE
Relocation group (dummy variables)		
Public housing	– 0.025	0.032
Voucher	– 0.007	0.025
HOPE VI (reference)		
Race/ethnicity (dummy variables)		
White	0.036	0.029
Other	0.006	0.033
African American	– 0.008	0.029
Hispanic (reference)		
Speaks English (0 = No, 1 = Yes)	0.027	0.024
Years lived at current address	0.001	0.010
Neighborhood satisfaction (0 = very/somewhat dissatisfied, 1 = very/somewhat satisfied)	0.037	0.044
Neighborhood institutions, facilities, and public space***	1.061	0.084
Neighborhood safety*	0.146	0.060
Neighborhood problems	– 0.026	0.048
Place attachment**	0.182	0.053
N	177.000	
F	47.680	
Sign F	0.000	
R^2 (adjusted)	0.760	

B = unstandardized coefficient. F = F-test. N = number. SE = standard error.
**p<.05, **p<.01, *** p<.001.*

and social capital[20] in their multivariate analyses of survey data in the Netherlands. In an examination of the link between place attachment and individual and neighborhood characteristics in the United Kingdom, Livingston, Bailey, and Kearns (2008) also found a link between what they call social cohesion or social networks and attachment to place. Despite the link between social capital indicators and place attachment having been established in several studies, the direction of causality remains unclear.

Third, *safety* is also a significant predictor of TNR—with each unit increase in safety, TNR increased .15 points. This finding implies that feeling safe in one's community is conducive to greater levels of trust and positive neighborly relations. Feeling unsafe may have a "chilling effect" on social relationships (Saegert and Winkel, 2004) and consequently lead to social withdrawal (Skogan, 1990). It is also possible, however, that TNR contribute to feelings of safety by strengthening informal social control. Sampson and Raudenbush (1999), for example, found that strong

[20] Social capital was measured with indices of social interactions, norms and trust, and associational activities.

collective efficacy (derived from shared norms, trust, and the willingness to intervene for the public good) was associated with lower crime rates—even in high-poverty areas.[21]

Interview Data

Although the quantitative survey data provide an informative picture of the relative importance of different individual, household, and neighborhood characteristics for TNR, the data cannot explain *why* neighborhood institutions, facilities, and public space or feelings of place attachment and safety are so important for the development of TNR among neighbors. Data from the indepth interviews with residents provide two important clues about the ways in which neighborhoods shaped social interaction and, therefore, social capital development. First, neighborhood physical structure, local institutions, facilities, and public spaces shaped opportunities for observing and interacting with other neighborhood residents. Second, stigma based on the negative meanings people associate with a neighborhood structure and its residents shaped interactions with outsiders (nonresidents).

Neighborhood Structure, Institutions, and Public Space: Shaping Trust, Interactions, and Ties With Neighbors

Neighborhood structure and the arrangement of public space were common themes that arose when relocatees talked about getting to know their neighbors and making new ties after relocation to new communities. In describing their encounters and relations with new neighbors, residents often made comparisons with Maverick Gardens, their old public housing community, highlighting the differences in community layout and design and the availability of public space. These differences were particularly salient for those who moved from Maverick Gardens to private-market housing with a voucher. Moving out of Maverick Gardens and into private-market housing meant moving from a community that had a unique built environment. The pre-HOPE VI Maverick Gardens was noticeably different from most other neighborhoods due to numerous features typical of traditional public housing developments in the United States, including the "super-block" arrangement of buildings; the walkways that wove their way throughout the housing development; the unmistakable lack of shops and streets running through the community; the building entryways, hallways, and stairs that were shared by multiple households; the common mail room and management office; and the relatively high population density.

Although the physical arrangement of the buildings and public spaces in the Maverick Gardens public housing community might be described as isolating, stigmatizing, and devoid of "defensible space" (that is, creating safe havens for crime committed by outsiders who can easily evade authorities in such an environment) (Newman, 1972), some features of the built environment were cited by residents as central in shaping neighbor relations, a sense of place attachment and community, and feelings of safety. For example, Nilda, a 23-year-old mother of three children who lived at Maverick Gardens for 4 years before relocation, talked about the sense of belonging and community she experienced at the old Maverick Gardens and how public spaces in the neighborhood facilitated social networks and exchanges with others:

[21] Their work highlights the importance of collective efficacy and informal social control for discouraging unwanted behavior.

> …At Maverick, we used to sit down at the park [across the street]; all the neighbors gathered and had conversations; or [we would] go to the office and talk to the staff. This way we shared, supported each other. …We were all one family. And we used to get along well. …We supported each other; we also consulted each other on things that happened to us in Maverick. We helped each other a lot.

These comments suggest that public spaces such as parks and semipublic facilities or institutions such as community centers or even management offices can provide important opportunities for meeting neighbors for conversation and support. As discussed later in this article, however, some influential factors can also limit the uses of such spaces in a neighborhood.

The resident interviews uncovered numerous other examples of how the spatial arrangement of neighborhood buildings, facilities, and public spaces can influence the likelihood and frequency of contact among neighbors. The old Maverick Gardens community, by housing many families in close quarters and with its particular neighborhood structure, inevitably led to repeated occasions for observations and interactions with neighbors. This environment fostered social ties that were "multiplex" and had intergenerational closure; for example, an environment where children's friends were the children of their parents' friends (Coleman, 1988). These dense, overlapping networks enhanced residents' support systems and contributed to their collective efficacy (Sampson, Raudenbush, and Earls, 1997) because residents knew each other's children and often felt a shared responsibility to monitor them (for example, from apartment windows) and report misbehavior to their parents. As Josie's comments suggest, these spatial and social dimensions of the environment at Maverick Gardens also contributed to feelings of belonging and safety and accommodated neighbors' supportive exchanges:

> …Well, in Maverick you knew everybody. You knew each other's kids, you knew their parents, their cousins, their uncles. So everywhere you went, everybody knew who you was. So you felt fine. ...You knew everything that happened at Maverick. …It's like Maverick is just one big bubble.

> …Upstairs, downstairs, across the hall, three buildings over. …That's the thing you liked about living in a small place like that. You can go three doors over and be like, "Can I borrow a cup of sugar?"

Living in a high-density community like Maverick Gardens, where common areas and public spaces encouraged (or even required) recurring encounters with the same people daily, meant that most residents were well informed on who belonged in the area and who did not. In essence, the arrangement of buildings and public spaces promoted *public familiarity* (Lofland, 1998). Although public familiarity may remain at the level of mere facial recognition of neighbors, for many of the Maverick Gardens residents in this study it led to more meaningful repeated social interactions, the development of social ties, and a sense of belonging. Some residents were deeply affected by the loss of community that occurred with the HOPE VI redevelopment, and their comments indicated that the altered population of residents at Maverick Landing (a mix of old and new residents) and the change in the use of shared public space played a role. Thus, the residents who returned to the rebuilt mixed-income Maverick Landing community connected their altered social environment with the changes that were made to the built environment. As one resident explained:

> …no one sits around outside on the porch and talk. Things are different now. Even my old neighbors that I knew [before] that live in this building don't talk. No one stops to talk anymore.

Other residents discussed the change to the social environment and the change in residential behavior. In contrast to the old community, where many residents had a habit of leaving their doors open for casual conversation and air to flow in and out, residents in the new Maverick Landing kept their doors shut and locked. As one resident said:

> I was very sad to see my old apartment go. …Because everyone knew everyone and you didn't lock your doors behind you. Now no one wants to know anyone—they shut their doors and stay to themselves.

Some residents talked about how at the old Maverick Gardens, when the weather was nice, people would put out lawn chairs and plastic kiddie pools in the small paved areas outside the building entrances. There they would spend long hours together as their children played and they enjoyed conversations outdoors. Although the public spaces in the old community were far from glamorous, residents had a lot of flexibility in how they used them and they often made the most of these spaces. The new Maverick Landing, in contrast, contains two well-designed public spaces: a spacious courtyard with attractive stonework design, pleasant greenery, and walls for seating and a new plaza with a fountain located in front of a small new park and community center at one edge of the development. In addition, the entire built environment is different: the new neighborhood consists of townhouse style homes with individual front porches and small, fenced front yards and two midrise buildings with shared entryways. The quality of all of these spaces (public, semiprivate, and private) improved dramatically with the HOPE VI redevelopment; however, many returning Maverick Gardens residents rarely used them because of the constraints placed on the uses of these new spaces. The management office of the new community put into effect strict rules for the uses of public spaces and personal outdoor spaces (see also Graves, 2008). Curfews were stringently enforced for the courtyards (one of which the management office overlooked), biking on the property was forbidden, restrictions were placed on music, and loitering was prohibited in hallways and lobbies of buildings. The rules also forbade residents from personalizing their front doors with decorations and from placing furniture and outdoor children's toys on front porches or in public spaces outside entryways. Many residents thought these rules discouraged their use of these shared spaces, leading them to spend less time in areas where they could engage with other residents.[22] In essence, although Maverick Landing is now sparkling and new, management regulations have reduced opportunities for public familiarity, trust, and social relations to develop among residents in the new community by limiting the uses of both public and private outdoor spaces.[23]

[22] On a similar note, Collins et al. (2005) also found that residents of another HOPE VI site did not frequently use their new community center that was built as part of the new community because they felt it was not "theirs." In contrast with the old community center that was well worn and bustling with children and adults most days, the new community center was plain, lacked permanent furniture, and had new time and use regulations.

[23] In her ethnographic study of social relations in the mixed-income Maverick Landing community, Graves (2008) provides a detailed account of the ways in which management discouraged interactions among residents (including structuring and enforcement of the community rules).

Although the physical structure and public spaces of the old Maverick Gardens public housing development contributed to many residents' tight-knit social networks, their attachment to the community, their feelings of safety, and their sense of belonging, others thought the same neighborhood structure reduced their privacy. The high concentration of resource-poor residents combined with the structural characteristics of public housing communities also contributed to the development of "draining" social ties for some residents (see Curley, 2009 for a detailed discussion about these draining ties). Several relocatees who moved to private-market housing with vouchers talked about how moving away from "the projects" eliminated the hassle of neighbors constantly being involved in each other's "business" and enhanced feelings of privacy. Relocating out of Maverick Gardens, then, provided some residents the opportunity to step back and regain their sense of privacy and anonymity. Katherine, a mother of two teenage daughters who moved with a voucher explained:

> For me—it's good [here]. …I don't like bothering with other people; I don't like other people knowing my business—I like it. When you live in the projects, it's like—don't get me wrong, I'm not putting it down—that's where I grew up. But you got like all these different smells from all these different foods, everybody who blares their stereo, who's slamming their door, who's yelling at their kids, or who's knocking on your door to use your phone or borrow something, or who's looking out the door to see when you bought something or when you're having company—I don't miss that *at all*. It's a total different way of living, you know—it's not my own house but I have my own space [here]. It's bright, it's private, my landlord—he doesn't bother me.

For Jocelyn, a single mother of two boys who moved to a residential neighborhood in Boston with a voucher, the peace and quiet of the area and the distinct privacy it granted her were similarly welcome reprieves. The street to which she moved was entirely residential and, although she could no longer send her 10-year-old son to get something at the corner store (because there were no stores nearby) and the neighborhood offered little opportunity for social interaction, she was satisfied with the community. Even after living in her new neighborhood for 3 years, she knew only one neighbor by name (her landlord who lives in the downstairs apartment of the two-family home) and could recognize the faces of only three others on the street. Her level of comfort and feeling at home in the neighborhood, however, may be closely tied to the public familiarity she has developed on her street. Everyday, an unmarked space on the sidewalk across the street turns into the school bus stop for her son and three other neighborhood children. In this undefined public space, whose use is transformed only briefly twice a day as children are picked up in the morning and dropped off in the afternoon, public familiarity is established with other parents who wait with their children. Through such repeated encounters, whether they are at the bus stop, the grocery store, or the nearby park, people can gain an awareness of neighbors and their everyday routines. Although their encounters may appear to be routine and mundane and their relationships may remain informal, the public stage through which they observe each other helps build familiarity (Blokland, 2003; Lofland, 1973, 1998). Although Jocelyn knew the other parents only by face, enough trust and familiarity developed through these repeated encounters to the point where she felt confident that they would watch her son when she sent him to the bus stop alone some mornings. Jocelyn was pleased with this spatial structure of the neighborhood and she valued the privacy it afforded her. Although this same configuration might lead others to feel lonesome

and isolated, for Jocelyn, who had a supportive social network of relatives and friends who lived elsewhere (and with whom she visited regularly by car), her minimal contact with neighbors was sufficient, and she found it a pleasant place to live.

Other voucher holders also recognized the different interaction patterns among neighbors in their new communities and attributed these to the spatial differences of their neighborhoods. Josie, a single woman in her mid-30s, moved with her voucher to an adjacent community just north of Boston. She rented an apartment on the third floor of a three-family house on a residential side street that consisted of mostly other two- and three-family homes. When asked about her new neighbors (whether she had gotten to know them at all, socialized with them, etc.), Josie explained that, because many residents in her new neighborhood own their homes and have their own yards, they do not congregate in public places—outside entrances or in parks—as her old neighbors did at Maverick Gardens. She said, "Since everybody in Chelsea has a house, they tend to stay on their own property and do what they want to do." In essence, the spatial arrangement of her new neighborhood did not facilitate encounters the way her old public housing community did (see Josie's comments about the old community earlier in this article). Although she too enjoyed the newfound sense of privacy, she was equally frustrated with the lack of opportunities to get to know her new neighbors.

Shakira, a single mother of three school-age boys who also moved to private-market housing with a voucher, similarly offered a spatial explanation for her lack of knowledge about neighbors in her new community:

> You don't see a lot of people just hanging out [here]. Everybody's like stays to themselves. They don't bother nobody. …I guess when you're living in the projects, you see a lot of people coming out.

The lower population density in her new community and the arrangement of homes with their individual back porches and yards were in stark contrast to Maverick Gardens, the high-density public housing development she had moved from, where 12 or more households departed and entered from the same entryway every day and where children and mothers frequently gathered on the front steps or on the park benches across the street.

Although many relocatees appreciated the newfound privacy that came with the structure of their new neighborhoods, at the same time, many experienced increased isolation and talked about how the neighborhood spatial arrangements impeded their ability to get to know their neighbors or make new ties. Nilda became lonely and frustrated with her lack of interaction with neighbors in her new community, and she suggested that the absence of shared public space played a role:

> The neighbors here are quiet; they are always inside their apartments. They don't share. I don't like that. Maybe it's because we don't have any park around here where we can sit and talk. …Here—I don't know my neighbors. …Life is very sad here. But people don't let me get close to them. When I go out I say "hi" and that is it.

Nilda's comments suggest that without public spaces such as parks, neighbors may have little opportunity to develop public familiarity, meet one another, establish social ties, or build a sense of community. Public spaces and local facilities may be so essential because they enable people who

repeatedly encounter one another to have brief exchanges or more lengthy conversations without the efforts and obligations required of more formal meetings.

Neighborhood Structure: Shaping Interaction and Ties With Outsiders

In addition to shaping encounters and relations within a community, neighborhood structure and public space can also influence encounters and relations with people from outside the community. The distinguishable structure of public housing neighborhoods was cited by residents as severely limiting their interactions with nonresidents—precisely the types of people thought to be lacking from the social worlds of low-income people living in high-poverty neighborhoods—due to the heavy social stigma associated with public housing communities and their residents. Some residents carefully negotiated relations with "outsiders" to avoid revealing their residence in a public housing development and the rejection, embarrassment, and humiliation that could accompany such a revelation. Stephanie, a mother of three children who relocated to a different public housing development, hated the fact that she lived in a community that was so stigmatizing. She talked about the stark physical image of her current public housing community, a development built in the typical "barracks style" of the 1950s that has an ominous feel both on the interior and exterior. Although Maverick Gardens was similar in its brick superblock construction, this housing development was different because it was located on the edge of a steep hill that had a large cross (50 feet high) rising from a vacant lot (owned by a church) at the edge of the development. "What I don't like is that it's up on the hill. I don't know—it looks like some kind of crazy asylum with the cross like that." Stephanie went on to explain how her fear of being judged by where she lives influences her relations with people from the outside:

> People see the projects…and there is a prejudgment that comes along with that. And I don't know—unfortunately, the majority right off the bat consider you to be a piece of shit. So you know, I don't know which one is gonna be like 'you know, it's just low-income—they just don't make that kind of money.' And I don't know which parents are gonna say like, "piece of shit." So I know that I try to protect my kids all the way.

Thus, neighborhood physical structures are not neutral, because people attribute meanings to them. Stephanie's comments illustrate how the physical structure of public housing projects, by carrying such a strong negative stigma, results in prejudice toward the individuals residing there and can have a negative effect on their access to social capital (that is, by shaping their encounters and ties with others). She alludes to the different uses of public spaces in these communities contributing to the negative image and social stigma attached to all its residents:

> … And the ones that I see hanging out [in public spaces], they're drinking, they're swearing, they're smoking. And what I don't like is there is a place and time to do that; go to the bar. Get your drink over there. But that's part of living here. And then it makes me look ignorant when company comes. …when you're hanging out and you're drinking with Christmas lights and there is a barbecue out front and I bring somebody over or my kids bring someone over—we're not only looking poor—because you can *clearly* tell what the projects look like. You automatically know my income when you see the building. So I hate that there is no lying about it.

In public housing communities, where density is high and private space is severely limited (that is, large households living in small apartments where meals are sometimes eaten in shifts due to limited seating or table space), residents are more likely to engage in "private" behaviors in public spaces (Sánchez-Jankowski, 2008). Although the activities Stephanie described might be acceptable if undertaken in the private backyards of the middle-class, these same activities and behaviors are viewed differently for the poor who must display them in shared spaces. Because of these different uses (or misuses) of public spaces in her public housing community and its discernible neighborhood structure, Stephanie manages her relationships and her children's relationships with outsiders to avoid the disclosure of information regarding their place of residence. In the past, such disclosure had produced a significant amount of embarrassment and was pivotal in marking the end of establishing relationships. One tactic she used was forbidding her daughter from inviting classmates to her house after school (although she allowed her daughter to play at others' homes) and not allowing her daughter to accept rides home from her schoolmates' parents so as not to reveal that they lived in "the projects." This pattern of avoidance is consistent with Goffman's theory of stigma: "…the tendency for a stigma to spread from the stigmatized individual to his close connections provides a reason why such relations tend either to be avoided or to be terminated" (Goffman, 1963: 30).

Another woman, Gianna, who moved to the same public housing neighborhood as Stephanie, thought that the physical characteristics of the area affected her contact with her preexisting network of friends and family. Gianna's ties described her community as "the dungeons," in part, because it is a bleak-looking community and quite isolated from transportation, stores, facilities, and other conveniences. She explained:

> Well, it [relocation] changed my life because over there [at Maverick]… I had like close friendships with people. When I moved here, I lost contact with all the people from Maverick. …For some people that I used to see over there, they think I moved so much further away. I don't know why. …My nieces and them, they used to get off at the train and just walk down. But nobody likes getting off [here] and walking up. Even the ones that drive, they feel like I am living in the dungeons.

Although Maverick Gardens also stood out in its stark appearance, Gianna's family and friends were willing to visit because it was near the train—and not isolated on top of a hill. Gianna's and Stephanie's experiences indicate that the physical structure of a neighborhood, its spatial arrangements, facilities, and public spaces can have implications not only for interactions with coresidents but also for interactions with outsiders. Therefore, by shaping social networks, and thus access to social capital, stigmatization can play an important role in the social reproduction of inequalities.[24]

The findings indicate that the structural arrangements of high-density public housing communities can enhance social interactions with coresidents, which can lead to the development of social capital. The social capital accessed through ties to low-income neighbors, however, may be more

[24] See Sampson (2009) for a discussion of how perceptions of disorder, because they are largely shaped by social context and perceptions of disorder among others, play an important role in a cyclical process that reinforces societal stigmas based on racial prejudices and contributes to the reproduction of inequalities.

of the supportive type that helps people "get by" in life rather than the leveraging type of social capital that helps people "get ahead" (Briggs, 1998). At the same time, the same neighborhood structure, combined with a high concentration of resource-poor residents, can lead to the development of draining social ties, which can hinder the development of both supportive and leveraging social capital. The question raised by this study is whether relocation out of such communities can improve residents' access to social capital. Most relocatees in this study had formed very few social ties within their new neighborhoods during the 2 to 3 years following their relocation. Thus, residents' access to social capital was not obviously improved through relocation to different types of neighborhoods. The findings suggest, however, that particular neighborhood attributes were important for the development of social trust and public familiarity in the neighborhood, which are important foundations of social capital and could lead to the development of social ties over a longer period of time.

Discussion

This study explored the factors that contribute to low-income residents' development of trust and social relations—the foundations of social capital. Both quantitative and qualitative methodologies helped uncover an important and understudied connection among trust, norms, reciprocity, interactions, and encounters on the one hand and neighborhood structure, facilities, institutions, and public spaces on the other. Multivariate analysis identified the significance of the availability of these neighborhood resources and, to a lesser extent, feelings of place attachment and safety, because neighborhood attributes mattered more for TNR among neighbors than all other individual, household, and neighborhood factors examined. The residents in the study who had access to more neighborhood institutions and public spaces (and who had greater feelings of place attachment and safety) were significantly more likely to trust their neighbors and perceive shared norms and reciprocity among coresidents in their communities. Data from the indepth interviews with residents living in different types of housing and neighborhoods were used to better understand some of the patterns found in the survey data. This rich qualitative data revealed that neighborhood resources were important for generating and sustaining trust and social relations. It was precisely through such institutions and public spaces that residents could observe and interact with their neighbors and where they developed and maintained social ties in the community. In addition to this rather straightforward process, local facilities and public spaces can also generate trust and shared norms among neighbors in a more subtle way: by providing the stage for *public familiarity* to develop. Repeated encounters in such spaces can build public familiarity as people gain valuable information about each other (that is, about habits and patterns of living) that enable them to identify (or not identify) with a group (Blokland, 2003; Lofland, 1973; Sztompka, 1999). Institutions and public spaces, including childcare centers, parks, libraries, and recreation facilities, offer places where residents can congregate both informally and formally and observe each other in public. These repeated encounters in such spaces can generate public familiarity, a basic component of trust (Sztompka, 1999). Neighborhoods devoid of shared public spaces and institutions may leave residents with few opportunities to observe each other in this way, and, as a result, residents may be more likely to have mistrust—a lack of clear expectations, predictability, and security (Sztompka, 1999) and may be less likely to develop relationships with their neighbors.

In addition to shaping the development of trust and interactions among coresidents, neighborhood structures, according to the findings, can also influence the development of relations with outsiders. This was the case for public housing residents who reported that the profound social stigma associated with public housing, combined with the inescapable stark appearance of their neighborhood's structure, weighed heavily on their encounters and relations with people from outside their community. Ironically, although the physical structure of the pre-HOPE VI Maverick Gardens community often contributed positively to the development of trust, interactions, and social ties among many coresidents, the same physical form negatively affected residents' ability to form relations with nonresidents (and contributed to overbearing, draining relationships with neighbors for some).

Policy Implications and Future Research

Transforming poverty-concentrated housing developments into mixed-income or mixed-tenure communities has become popular policy practice in the United States and in Western Europe, Australia, and Canada. Aside from the improvements in housing quality, one expectation of this approach is that lower income people living in a more mixed environment will have greater access to social capital. Contrary to this expectation, numerous studies have found that such initiatives do not produce anticipated effects on at least one prerequisite for social capital—social networks. The current research suggests that this approach may also not have the desired effect on another important foundation of social capital—trust, norms, and reciprocity. The evidence from this study indicates that these prerequisites for social capital depend not on neighborhood poverty concentration but on neighborhood facilities and public spaces, the feeling of attachment to place, and the feeling of safety. Thus, the connection between income mix and social capital made by some policymakers and academics may be overstated.[25] The qualitative evidence from the current study confirms that spatial arrangements of neighborhoods, public spaces, and facilities are significant for residents' encounters with others and, subsequently, for the development of public familiarity, trust, and social relations in neighborhoods. Simply relocating residents to lower poverty areas does not result in relocatees being well integrated or enmeshed in rich, new social worlds that provide them with access to social leverage and upward mobility opportunities. Rather than simply trying to place residents in communities with the "right" social mix, a more effective strategy for encouraging the development of social capital may be building, preserving, and improving public spaces, facilities, and institutions that serve a variety of residents; making communities safe; fostering a sense of community and attachment to place; and providing residents opportunities to observe and meet one another.[26] Housing programs like HOPE VI that seek to improve prospects for upward mobility should move beyond the fixation on mixed neighborhoods and lower poverty rates by broadening the definition of desirable neighborhoods to include "opportunity areas" (Briggs, 2006): resource-rich areas with ample social supports, good-quality services, institutions and public spaces, transportation, schools, and entry-level jobs with career ladders.

[25] Dekker and Bolt (2005) similarly found that socioeconomic status (that is, higher income and more education) was not associated with strong levels of social capital, suggesting that social mixing may be "a counter-intuitive strategy to strengthen social cohesion" (Dekker and Bolt, 2005: 2468).

[26] Although not the focus of this article, encounters in public space could possibly lead to or enhance existing tensions and conflicts among groups in a neighborhood.

Improving neighborhood resources for lower income people may be particularly important not only because of the potential effect on public familiarity, trust, and social ties (and therefore social capital) but also for the simple fact that high-quality services and resources can compensate for lower individual resources. Further, quality and accessible resources in the neighborhood may reduce the likelihood of low-income residents "draining" or being drained by other lower income people (Curley, 2008). Finally, the important functions of public space in promoting familiarity, trust, norms, and social contacts should be kept in the forefront of any discussion of urban redevelopment. For example, public spaces can be designed as friendly places with design features and seating arrangements that promote flexible use and maximize potential opportunities for repeated encounters, observations, and interactions (Whyte, 1988). Public spaces can play an important role in enhancing everyday life in communities, and policies and initiatives that support or allow the privatization of public spaces in urban areas must also consider how these changes may negatively affect a community's social fabric (Holland et al., 2007).[27]

A key contribution of this study is that it highlights the significance of neighborhood resources for the development of social capital. Although previous research has suggested that neighborhood institutions are important for the stability of communities, few studies have considered the role neighborhood structure, local facilities, and public spaces play in the social capital-building process among residents. Thus, future research and policy discussions on social capital and neighborhoods should carefully consider physical structure, local institutions, and public spaces. More qualitative and quantitative research is needed to further assess the role of different types of neighborhood resources and determine whether certain institutions or public spaces better provide more useful meeting places, better promote familiarity and trust, or provide greater access to resources or other social capital-building opportunities. Future studies could also investigate the extent to which different design features of public spaces, neighborhood structures, and facilities promote or inhibit encounters with other residents and with nonresidents.

Appendix A
Index Measures

Trust, norms, and reciprocity (TNR)
(11-item index, Cronbach's α = .78)
Scores ranged from a low of 0 to a high of 1. (True/false, coded 1/0 [reverse coded as necessary])

1. My neighbors and I want the same things from this neighborhood.
2. I care what my neighbors think of my actions.
3. Most of the residents in this neighborhood are respectful of their neighbors.
4. People in this neighborhood can be trusted.
5. People living here do not share the same values.

[27] See Smith (1996) and Lofland (1998) for further discussion on the privatization and regulation of public space. Smith warns that in many cities public spaces have been transformed, purified, and privatized to accommodate and attract new, higher income urban dwellers, investors, and tourist consumers.

6. People living in this neighborhood generally do not get along with each other.
7. I have no influence over what this neighborhood is like.
8. If there is a problem in this neighborhood people who live here can solve it.
9. People around here are willing to help their neighbors.
10. I can recognize most of the people who live in this neighborhood.
11. Very few of my neighbors know me.

Neighborhood institutions, facilities, and public spaces (15-item index, Cronbach's α = .74)
Scores ranged from a low of 0 (few resources) to a high of 1 (many resources).
Are the following services available in your neighborhood? (yes [1]/no [0])

1. Health care.
2. Afterschool programs.
3. Supermarket/grocery.
4. Recreation for youth.
5. Recreation for adults.
6. Childcare.
7. Churches.
8. Library.
9. Transportation.
10. Employment services.
11. Job training.
12. Food pantry.
13. Parks or playgrounds.
14. Lack of social services in the neighborhood (some/big problem [0] vs. no problem [1]).
15. Have you needed any services and not been able to get them? (yes [0]/no [1]).

Place attachment (4-item index, Cronbach's α = .82)
Scores ranged from a low of 0 (negative) to a high of 1 (positive).

1. I think this neighborhood is a good place for me to live.
2. I feel at home in this neighborhood.
3. It is very important to me to live in this particular community.
4. I expect to live in this neighborhood for a long time.

Safety index (8-item index, Cronbach's α = .79)
Scores ranged from a low of 0 (unsafe) to a high of 1 (safe).

1. Do you feel safe in the neighborhood? (y/n)
2. Do police patrol neighborhood? (y/n)
3. Satisfaction with police patrols. (y/n)

4. Do the police come when called?
5. I feel physically safe in this neighborhood (true/false).
6. Residents in this neighborhood worry about illegal activities occurring in the neighborhood.
7. People living in this neighborhood worry about being physically attacked.
8. Residents in this neighborhood do not worry about stealing or thefts.

Neighborhood problems (13-item index, Cronbach's α = .96)
(some/big problem [1] vs. no problem [0]) [Scores ranged from 1 (some/big problem) to 0 (no problem)?]

1. Shootings.
2. People being attacked/robbery.
3. Rape/sexual attacks.
4. People selling drugs.
5. People using drugs.
6. Gangs.
7. Groups of people just hanging out.
8. Police not coming when called.
9. Graffiti.
10. Lack of outside lighting.
11. Trash in parking lots, on sidewalks, and on lawns.
12. Unattractive common outdoor areas.
13. Lack of recreational space.

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HOPE VI Neighborhood Spillover Effects in Baltimore

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Abstract

A major goal of the HOPE VI (Housing Opportunities for People Everywhere) Program is to improve surrounding communities by removing physically deteriorating public housing projects—a source of concentrated poverty and crime—and replacing them with mixed-income communities. This article uses a difference-in-differences approach to determine if Baltimore's three completed HOPE VI redevelopments had positive neighborhood spillover effects on surrounding property values. The analysis compares property sales prices in the area immediately surrounding each site before and after redevelopment to sales prices of comparable properties farther away but in the same neighborhood and at the same time. Only one redevelopment showed convincing evidence of a positive effect on property values in its surrounding neighborhood. This redevelopment was located in a less distressed neighborhood than the other two sites, adhered more closely to the mixed-income model, and implemented the project's social and community services component through a partnership between the private developer and the tenant organization. These findings suggest that adherence to HOPE VI's main principles of implementation and preexisting neighborhood conditions make a difference in neighborhood spillover effects and raise the question of whether HOPE VI investment is best targeted to severely distressed neighborhoods or to stable or already improving neighborhoods.

Introduction

Under the federal HOPE VI (Housing Opportunities for People Everywhere) Program, distressed public housing is redeveloped into mixed-income and mixed-tenure (that is, some occupants are renters and some are owners) communities with the goals of reducing the concentration of poverty, moving residents of public housing toward self-sufficiency, and revitalizing communities. It is the most ambitious U.S. urban initiative of the past few decades. Between fiscal year (FY) 1993 and FY 2005, the U.S. Department of Housing and Urban Development (HUD) awarded more than $6 billion in HOPE VI grants to 190 housing authorities across the country (HUD, 2006).

HOPE VI represents a new vision of public housing policy. Historically, HUD's primary role in public housing was to maintain and manage its properties. After most new construction of public housing ended in the early 1970s, the physical and social conditions of these projects deteriorated over time. By the 1980s, a subset of public housing projects—primarily highrises in large inner cities—along with the neighborhoods surrounding them had become notorious for their blight, social isolation, and high concentrations of poverty and crime. HOPE VI was created in 1992 as a way to deal with the structural deterioration of the most severely distressed of these projects, but over time it has evolved into a more ambitious revitalization effort that also addresses the problems associated with high concentrations of poverty. By combining subsidized and market-rate units (thus housing a range of income groups) and attracting private investment to the community, HOPE VI revitalization aims to transform neighborhoods.

The Quality Housing and Work Opportunity Reconciliation Act, which reauthorized HOPE VI in 1998, reflects this redefinition of public housing. It outlined HOPE VI's four main goals:

1. Improving the living environment for public housing residents.
2. Revitalizing public housing project sites and contributing to the improvement of the surrounding neighborhood.
3. Providing housing that will avoid or decrease the concentration of very low-income families.
4. Building sustainable communities.[1]

This article focuses on the second of these goals—which explicitly states the expectation that HOPE VI will have positive spillover effects (that is, indirect effects on the quality or desirability of its developments' surrounding neighborhoods)—and uses a difference-in-differences[2] approach to test this hypothesis for three HOPE VI sites in Baltimore, Maryland. Empirical estimates are supplemented with qualitative information from local newspapers and interviews with city and housing experts to better understand implementation strategies, the community response to HOPE VI redevelopment, and other neighborhood changes and investments that may have affected property prices in the HOPE VI neighborhoods during the study period. This article aims to contribute to existing knowledge of HOPE VI spillover effects in general and to provide insight into whether HOPE VI has contributed to neighborhood revitalization in Baltimore. The article refers to neighborhood revitalization and positive spillover effects as improvement in the neighborhood's economic value to property owners,[3] reflected by property sales prices.

Only one redevelopment showed convincing evidence of a positive effect on property values in its surrounding neighborhood. Local newspaper coverage and interviews with city and housing

[1] U.S. Housing Act of 1937, Section 24(a). Public Law 93-383 (42 U.S.C. 1437v), as amended by Section 535 of the Quality Housing and Work Responsibility Act of 1998. Public Law 105-276, October 21, 1998.

[2] A difference-in-differences approach estimates a treatment effect by comparing the change in an outcome of one group before and after treatment with the change in the outcome over the same time period for a comparison group that was not exposed to the treatment.

[3] Sean Zielenbach (2000) identifies two alternative interpretations of neighborhood revitalization: neighborhood improvement in terms of the social conditions of the residents and neighborhood improvement in terms of the economic development and viability of the neighborhood. This article focuses on the second interpretation.

experts are consistent with empirical findings, showing that this redevelopment adhered more closely to the mixed-income implementation model than did the other two. Also, it was located in a less distressed neighborhood than were the other two sites, raising the question of whether HOPE VI investment is best targeted to severely disadvantaged neighborhoods or to stable or already improving neighborhoods.

Previous Research on Hope VI Spillover Effects

Existing research that evaluates the neighborhood spillover effects of HOPE VI redevelopments generally finds improvements in the social and economic conditions of the surrounding neighborhoods, although the magnitude of effects is mixed, and some indicators of neighborhood health did not show improvement in some sites. Four major studies have looked at HOPE VI in different cities to examine these impacts: (1) a study by Sean Zielenbach (2002) for the Housing Research Foundation, (2) an assessment by Holin et al. (2003) for HUD, (3) a large-scale evaluation by the U.S. General Accounting Office (GAO) (2003), and (4) a series of case studies by the Brookings Institution (Turbov and Piper, 2005). Two studies have examined the effect of HOPE VI on surrounding neighborhoods in Baltimore: (1) a study of all 5 Baltimore sites by a class of public policy graduate students from Johns Hopkins University (JHU MPP, 2003) and (2) a case study of Pleasant View Gardens, Baltimore's first HOPE VI redevelopment, which forms part of the 11-site interim assessment by Holin et al. (2003).

Zielenbach was the first to examine HOPE VI spillover effects. In his 2002 report for the Housing Research Foundation, he examined changes in economic conditions (such as unemployment, lending rates, and crime) in the neighborhoods of eight large HOPE VI projects across the country. Comparing the status of the projects' surrounding neighborhoods in 1990, before any of the HOPE VI projects began, to that in 2000, when the eight projects were far along in their redevelopment, he found that the neighborhoods showed substantial improvement in socioeconomic and market indicators, including significant increases in per capita income and rates in commercial and residential lending rates, as well as substantial decreases in crime and unemployment rates relative to citywide indicators (Zielenbach, 2002). In a separate study (Zielenbach, 2003) he expanded this analysis to include comparison neighborhoods with poverty rates greater than 30 percent. HOPE VI neighborhoods were worse off economically and had higher crime rates than these comparison neighborhoods in 1990, before redevelopment, but by 2000 they had improved so much that they were better off than the high-poverty comparison neighborhoods.

Holin et al. (2003) examined changes in unemployment, poverty, crime, racial integration, vacancy rates, and residents' education levels in the surrounding neighborhoods of 11 of the earliest HOPE VI sites between 1990 and 2000 and compared the changes to those for the city as a whole. Although nearly all the surrounding neighborhoods experienced some improvement relative to pre-HOPE VI conditions, the study found great variation in the levels of improvement among the 11 sites.

The large-scale evaluation of the HOPE VI Program by the GAO (2003) included an examination of the surrounding neighborhoods of the 20 sites that had received a revitalization grant in 1996. The study found significant improvements between 1990 and 2000 in levels of education, average household income, poverty rates, and average housing values in neighborhoods surrounding

HOPE VI sites but found mixed or insignificant changes in mortgage lending activity, unemployment rates, percentage of units built within the past 10 years, occupancy rates, average gross rent, and total population. The authors also looked more closely at four of these sites, comparing them with four public housing neighborhoods in the same city that had not had HOPE VI developments, and found that the HOPE VI neighborhoods had greater improvements in mortgage lending activity and crime compared with the four non-HOPE VI neighborhoods, but that other indicators—such as poverty rates and average housing values and rents—did not demonstrate significant improvement (GAO, 2003).

The most recent study of HOPE VI spillovers, by Turbov and Piper (2005), used census data and administrative data[4] on crime, housing values, non-HOPE VI investment, and school performance along with interviews to examine the effects of four HOPE VI projects on surrounding neighborhoods and assess the program's ability to attract new investments and encourage revitalization. They found a surge in new investments and property value increases in HOPE VI neighborhoods—as well as significant improvements in socioeconomic indicators such as income, crime, and unemployment—and concluded that HOPE VI was successful as a catalyst for neighborhood investment and revitalization.

The JHU MPP 2003 study is the only comprehensive analysis to date of spillover effects of all five HOPE VI projects in Baltimore. The study used census and administrative data to examine socioeconomic and demographic changes in surrounding neighborhoods, as well as interviews with experts and neighborhood residents to assess any changes in the public image of HOPE VI's ability to attract investment to these neighborhoods. They did not find strong evidence of positive spillover effects for the three HOPE VI redevelopments included in the present analysis. Spillover effects in Townes at the Terraces and Heritage Crossing were very limited and short lived. Broadway Overlook was not completed at the time of the study, but the authors did not find evidence of positive spillovers from announcements of the redevelopment.

Neighborhood Context of Hope VI in Baltimore

Five HOPE VI sites are currently in Baltimore: Pleasant View Gardens, Townes at the Terraces, Heritage Crossing, Broadway Overlook, and Flag House Courts. This analysis focuses on three of these sites: Townes at the Terraces, Heritage Crossing, and Broadway Overlook. Flag House Courts and Pleasant View Gardens are excluded because the former was not completed at the time of this study and the latter's surrounding neighborhood has only a small residential area and thus has too few residential property sales to detect the effects of redevelopment. The three HOPE VI sites in this study differ greatly from each other in implementation and neighborhood conditions, as shown in exhibit 1.

The following descriptions of the HOPE VI sites and neighborhoods, based on expert interviews and local newspaper coverage, provide important context for interpreting the empirical findings. The limited public investments—outside of HOPE VI—that are narrowly targeted to the study neighborhoods (and the limited effectiveness of the public investments that did occur, such as the

[4] Organizations or government agencies collect administrative data for their own administrative purposes.

Exhibit 1

HOPE VI Site Characteristics

HOPE VI Site	Townes at the Terraces	Heritage Crossing	Broadway Overlook
Former public housing project	Lexington Terrace	Murphy Homes	Broadway Homes
Number of units in former public housing project	667	781	429
Date of demolition	July 1996	July 1999	August 2000
Date of first unit's availability for occupancy	July 1999	June 2002	August 2003
Number of public housing units after redevelopment	250	75	84
Number of subsidized (including LIHTC) homeownership units[a]	100	185	5
Number of market-rate rental units	41	0	48
Number of market-rate homeownership units	0	0	29
Total residential units after redevelopment	391	260	166

LIHTC = Low-Income Housing Tax Credit Program.

[a] Some disagreement exists within the Housing Authority of Baltimore City (HABC) about the definition of "market-rate homeownership units." For instance, the HABC website refers to for-sale units that were constructed with LIHTC or other public funds and sold to homebuyers with incomes under 60 or 80 percent (depending on the development) of the Area Median Income as "market-rate homeownership units." In this article, these units are referred to as subsidized homeownership units.

Sources: HABC (2006); Shea (2006)

Empowerment Zone [EZ] discussed later in the article) reinforce the assumption that observed differences in the changes in property values of the immediate surrounding neighborhood and properties in the same neighborhood farther away are likely attributable to HOPE VI redevelopment. Also, expert and public opinion is consistent with the differential spillover effects estimated in the empirical analysis and provides insight into why differences in spillover effects may exist.

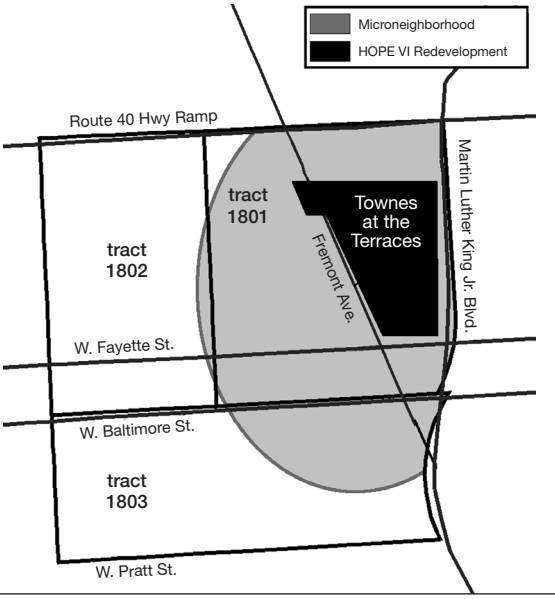
In summary, general impressions of HOPE VI's effect on surrounding neighborhoods from media coverage and experts were that Townes at the Terraces would have a limited effect on its surrounding neighborhood despite major investment in the area, Heritage Crossing could possibly affect its surrounding neighborhood because of its ability to attract homebuyers and investment interest, and Broadway Overlook would have a large effect on its neighborhood because of its strong management and design decisions and the nature of the neighborhood's housing market.

Townes at the Terraces

Townes at the Terraces is located on the west side of Baltimore (hereafter referred to as West Baltimore) in the East Poppleton neighborhood. I relied on the Census Bureau to define study neighborhood boundaries (that is, census tracts). As shown in exhibit 2, the microneighborhood (the area immediately surrounding the redevelopment, as explained in more detail below) is bordered to the north by the U.S. Route 40 ramp, to the east by Martin Luther King Jr. Boulevard

Exhibit 2

Townes at the Terraces



(a major road), to the south by the Hollins Market neighborhood (tract 1803), and to the west by the West Poppleton neighborhood (tract 1802). It replaced the public housing project called Lexington Terrace, which consisted of 667 units (housing 2,100 people) in five 11-story highrise and 22 lowrise buildings (Raffel et al., 2003). The buildings were razed in 1996 and, by 1999, the new lowrise HOPE VI redevelopment was open for occupancy. The new HOPE VI townhouses include 391 new units: 250 public housing units, 41 market-rate rental units, and 100 subsidized homeownership units. In addition, a 4-story building with 88 units for seniors housing and an office building with retail space were constructed as part of the redevelopment (HABC, 2006). An elementary school was demolished along with the highrises in 1996, and plans were to reopen it in 2004 (Raffel et al., 2003); however, the site remains a vacant lot to this day. Poe Homes, a lowrise public housing project to the west of Townes at the Terraces, was renovated before the HOPE VI redevelopment but was not demolished (JHU MPP, 2003).

The results of investment in the Poppleton area in the past decade and a half in general have been disappointing. Aside from the HOPE VI redevelopment, two major revitalization initiatives have been undertaken in Poppleton: an EZ and a University of Maryland (UMD) biotechnology park.

Poppleton was designated as an EZ in 1994.[5] This federal program funded tax incentives and grants to stimulate economic development in the area. Although this zone encompasses the HOPE VI neighborhood, much of the EZ's economic activity is focused on the UMD neighborhood across

[5] The City of Baltimore received an EZ grant of $100 million in 1994. This grant was allocated among six geographic areas in the city (managed by "village centers" that were created under the EZ program) that totaled 6.8 square miles (City of Baltimore, 2007).

from Martin Luther King Jr. Boulevard (JHU MPP, 2003). Press accounts indicate that Baltimore's EZ initiative has not been successful in stimulating business growth or developing job opportunities and placement (Anft, 1999, 2000).

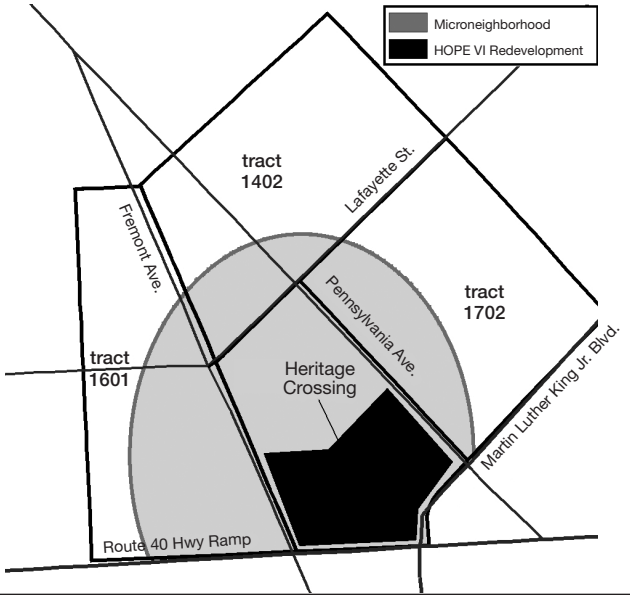
In 2002 UMD announced plans for developing its biotechnology park across from Martin Luther King Jr. Boulevard on West Baltimore Street. The project will include 10 buildings for lab and office space and 2 parking garages on 10 acres of land. Construction began in 2004, and, at the time of this writing, one building is complete and occupied and the second building is almost complete. Although the HOPE VI redevelopment was not an explicit reason for UMD to cross Martin Luther King Jr. Boulevard—cited by some as a symbolic divider between the more developed UMD neighborhood to the east and the more distressed neighborhood to the west—removing the highrise public housing buildings may have contributed to making way for this investment. City and community leaders have expressed high hopes for this revitalization effort by UMD (Beamon, 2004); however, it is still too early in the project's life to assess any neighborhood spillover effects.

Heritage Crossing

Heritage Crossing, also located in West Baltimore, is north of U.S. Route 40 and just southwest of Pennsylvania Avenue, a street with some commercial activity (exhibit 3). The neighborhood on the other side of Pennsylvania Avenue is Upton, known for its rich African-American heritage from decades ago but now, like the Poppleton neighborhood south of U.S. Route 40, an area with high crime and many vacant homes. Heritage Crossing is a sprawling 32-acre development consisting of 75 public housing units and 185 subsidized homeownership units. It replaced the four 14-story Murphy Homes public housing buildings, containing 781 units.

Exhibit 3

Heritage Crossing



Expectations for Heritage Crossing's spillover potential are mixed. The development is very large and appears isolated from the surrounding community. Although it has been able to attract low- to moderate-income homebuyers for its row homes, its inclusion of only public housing units and homeownership units has led to tension between the new homeowners and the returning public housing residents. Also, investor speculation was a major factor in this neighborhood (Seipp, 2007) and throughout Baltimore in the early 2000s (Dewar, 2003; Dolan, 2005). Although news of redevelopment piqued the interest of outside investors and attracted private investment into the neighborhood, it has also led to irresponsible investment decisions that may have hampered neighborhood improvements prompted by the HOPE VI redevelopment.

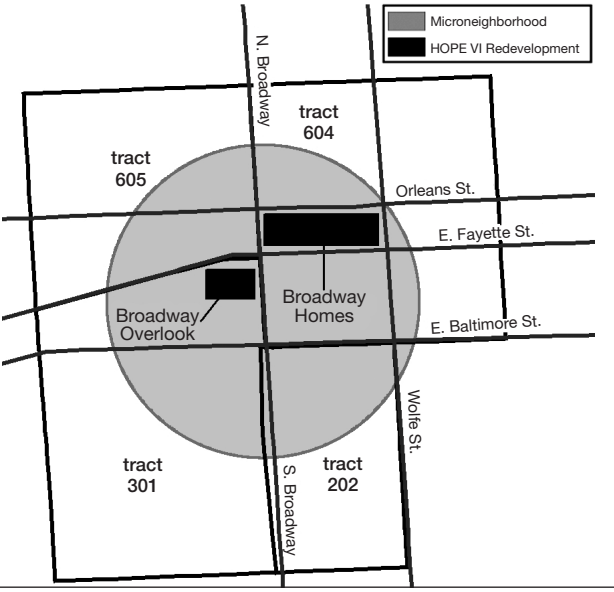
Broadway Overlook

Broadway Overlook sits at the northern edge of the Washington Hill neighborhood in East Baltimore. The original 22-story highrise and 14 lowrise Broadway Homes public housing buildings were located diagonally across the street from the new Broadway Overlook HOPE VI development. The Johns Hopkins Medical Institutions (JHMI), consisting of the Johns Hopkins University Hospital and its medical campuses, are just north of the new development and have a major presence in the neighborhood. During the HOPE VI planning process, JHMI made an agreement with HABC and the Broadway Homes residents to swap the land where Broadway Homes formerly was located with the land where Broadway Overlook is now situated. These locations are shown in exhibit 4.

JHMI and HABC found this swap to be mutually beneficial, because JHMI would be able to accomplish a geographically cohesive expansion of its medical campuses and the new HOPE VI development would be located closer to a desirable neighborhood. JHMI became a major investor

Exhibit 4

Broadway Overlook



in the Broadway Overlook HOPE VI project.[6] The new development consists of 166 new residential units: 84 public housing units, 5 subsidized homeownership units, 48 market-rate rental units, and 29 market-rate homeownership units.

Interviews with city experts and local press accounts reveal a positive and hopeful impression of the Broadway Overlook redevelopment (Brophy, 2006; Seipp, 2007; Shea, 2006). Because Broadway Overlook is the fourth HOPE VI development in Baltimore, the developer and the other stakeholders involved in its planning had the advantage of being able to learn from the experiences of the previous three HOPE VI projects. The Broadway Overlook architects made a concerted effort to integrate the building design into the diverse architectural landscape of Washington Hill (Gunts, 2003). In addition, the private developer of Broadway Overlook managed the project's community and social services, whereas HABC had controlled these in the other two study sites. Broadway Overlook's developer and tenant organization formed a partnership and created effective programs for employment and family support that dramatically increased the tenants' employment levels and median income (Shea, 2006). The developer also involved the tenant organization extensively in the planning process. Finally, Broadway Overlook has a wide range of housing types, including subsidized and market-rate rentals and subsidized and market-rate homeowner properties, which may help avoid tensions between homeowners and public housing residents. With nearly 30 percent of the units being market-rate rentals, there may be an added incentive to the project's management to maintain the property and keep it attractive to market-rate tenants. Public housing units are scattered throughout the development and are indistinguishable from market-rate units (Gunts, 2003).

The Broadway Overlook redevelopment also differs from the Townes at the Terraces and Heritage Crossing redevelopments because it is located in a neighborhood where revitalization efforts were already under way. In Washington Hill, homeownership and renovation initiatives were funded by the Maryland Department of Housing and Community Development and implemented through local organizations. Home prices were starting to increase, and JHMI was bringing investment into the community before the HOPE VI initiative. Therefore, it is difficult to be sure that observed improvements in neighborhood conditions are attributable to the removal of an element of blight in an otherwise up-and-coming neighborhood—thus allowing for the acceleration of neighborhood revitalization and improvement—or to positive spillovers from the HOPE VI redevelopment itself.

Data Sources

Data for this study come from the Baltimore Policy Project[7] and include the address, price, and date of all property sales in Baltimore City from 1990 through the end of 2006. These data were supplemented with data from Maryland Property View 2005, which includes structural characteristics of Baltimore City properties such as year of construction, lot size, structure size, number of

[6] JHMI invested $3 million in the HOPE VI redevelopment and other resources targeted at the surrounding community (JHU MPP, 2003).

[7] Professor Sandra Newman of the Johns Hopkins University graduate program in public policy developed and maintains this database.

stories, building type, and construction type.[8] The analysis is limited to single-family, arms-length[9] sales that occurred after 1990 and were more than $5,000. I also removed four outliers that sold for more than $800,000. Exhibit 5 reports the number of yearly sales by neighborhood for each of the three HOPE VI sites. For each of the three neighborhoods, the number of sales is shown separately for the microneighborhood and the area outside the microneighborhood, but in the same macroneighborhood. These neighborhood definitions are described further in the next section.

Exhibit 5

Number of Sales by Year in Microneighborhood and Outside Microneighborhood by Site

Year	Townes at the Terraces		Heritage Crossing		Broadway Overlook	
	Micro	Outside Micro	Micro	Outside Micro	Micro	Outside Micro
1990	19	57	34	24	16	72
1991	7	52	51	24	15	46
1992	4	47	32	14	12	44
1993	14	35	33	17	17	36
1994	8	28	20	60	16	42
1995	2	41	23	33	21	43
1996	8	30	25	30	24	43
1997	4	62	33	38	26	49
1998	9	74	46	66	20	72
1999	6	72	31	33	24	100
2000	15	69	23	30	29	92
2001	6	43	30	19	39	60
2002	8	33	21	18	25	71
2003	6	43	17	20	40	81
2004	12	82	32	19	46	111
2005	12	117	43	73	37	126
2006	9	92	67	62	31	118
Total	149	977	561	580	438	1,206

Note: All sales occurred in the Townes at the Terraces micorneighborhood in tracts 1801, 1802, and 1803; in the Heritage Crossing microneighborhood in tracts 1402, 1601, 1702, and 1703; and in the Broadway Overlook microneighborhood in tracts 202, 301, and 604.

Neighborhood Definition

A central aspect of this study's methodology is examining the extent to which price levels in the area immediately surrounding the HOPE VI sites deviate from price levels in the same neighborhood but farther away from the sites. Created for the study, microneighborhoods for the three HOPE VI sites served as impact areas around the projects. The first step in creating the microneighborhoods was to use geographically coded sales data to identify which sales fall

[8] Missing values in these data are imputed using a multiple imputation method. See Appendix A for a detailed description of how missing values are handled.

[9] Arms-length sales best reflect market values of properties. They exclude transactions between related parties (for example, spouses, relatives, and affiliated companies).

within a certain distance from each HOPE VI site. Like the Holin et al. (2003) study, this study used a single ring to define the microneighborhood for each project. For Townes at the Terraces and Broadway Overlook, the study used a 1,500-foot ring. For Heritage Crossing, which covers a substantially larger area, the study used a 2,000-foot ring.[10] Macroneighborhoods are full census tracts that contain property sales within this ring; therefore, the macroneighborhoods include sales within the microneighborhoods and sales outside them but within the same census tract.

For the two HOPE VI sites in West Baltimore, Heritage Crossing and Townes at the Terraces, the study further defined these neighborhoods to adjust for two additional neighborhood boundaries: (1) a highway ramp that cuts through the area south of Heritage Crossing and north of Townes at the Terraces and (2) a major road, Martin Luther King Jr. Boulevard, that runs along the eastern boundary of both neighborhoods.[11] All property sales south of the highway were excluded from the Heritage Crossing neighborhood, and all property sales north of the highway were excluded from the Townes at the Terraces neighborhood. In addition, few of the sales within 1,500 feet of Townes at the Terraces were located on the opposite side of Martin Luther King Jr. Boulevard. Therefore, these sales, along with the other sales in that census tract, were also excluded from the Townes at the Terraces neighborhood.

Exhibit 6 shows some key neighborhood characteristics from the census that differ from citywide characteristics. The neighborhoods in this study are worse off than the city average in terms of per capita income and rates of poverty, unemployment, housing vacancy, and homeownership. These neighborhoods also have a higher proportion of minority residents.

Exhibit 6

Neighborhood Characteristics by Site and Citywide

	Townes at the Terraces	Heritage Crossing	Broadway Overlook	Baltimore City
Total population	5,364	10,887	7,905	651,154
% White, non-Hispanic	15%	2%	23%	31%
% Black, non-Hispanic	82%	96%	63%	64%
Per capita income	$14,124	$11,181	$13,319	$16,978
% living in poverty	40%	48%	37%	23%
% unemployed	8%	10%	10%	6%
% housing units that are vacant	20%	25%	20%	14%
% occupied units that are owner occupied	23%	14%	24%	50%

Source: 2000 U.S. Census

[10] Previous studies used rings of 500 to 2,000 feet, sometimes further defined by 500-foot gradients (for example, Galster, Tatian, and Smith, 1999; Santiago, Galster, and Tatian, 2001). Studies of place-based interventions generally used rings of 1,000 or 2,000 feet (for example, Ellen and Voicu, 2006; Holin et al., 2003). I chose the ring size based on the size of the development.

[11] The Baltimore City Mayor's Office of Neighborhoods and the Baltimore Neighborhood Indicator Alliance also use these boundaries to define neighborhoods. The Poppleton/Terraces neighborhood lies south of U.S. Route 40, while the Upton/Heritage neighborhood lies north of it, and the Seton Hill and UMD neighborhoods lie east of Martin Luther King Jr. Boulevard.

Timing

This methodology requires identifying periods before and after intervention. It would be ideal to examine prices and trends during the time up to the grant award announcement, between the announcement and demolition, between demolition and project completion, and after completion. Although these milestones could potentially affect property values in the surrounding neighborhood, insufficient observations are available to reliably capture trends during each of these phases. The study used the project completion date as the intervention date, expecting that the greatest effect would occur after the project was completed. Because it is possible that the physical removal of the highrise public housing projects encouraged investment in surrounding properties and thus increased property values, the study tested the sensitivity of the main results, using the demolition date as an alternate intervention date. The study did not test the HOPE VI grant announcement dates, because they occurred very early in the study period and too few sales were completed before the announcement to produce reliable estimates.[12] Results from JHU MPP (2003) show evidence of very limited spillover effects for the announcement dates of the three redevelopments included in this study.

This study used the date the first unit became available for occupancy as the project completion date. Several different sources—newspapers, HOPE VI developer websites, the HABC website, and other HABC sources—reported different dates of project completion. This inconsistency likely occurred because of alternative definitions of project completion, ranging from the date that major construction is completed to the date that the last construction task is completed. This study defined completion date as the date the first unit became available for occupancy, reasoning that this date should best reflect the time that the HOPE VI project would begin to have its full effect, even if minor structural tasks were still in progress. In all three cases, these three dates coincided closely with completion announcements in local newspapers.

Methodology

This study used a difference-in-differences approach to test for spillover effects of HOPE VI redevelopment on surrounding neighborhoods. It is based on the premise that the sales price of a property is a function of both its structural characteristics (for example, age and size) and its neighborhood characteristics (for example, crime rate and school quality) and therefore reflects neighborhood quality and desirability. This idea that both physical and neighborhood characteristics are capitalized in the price of a property is grounded in traditional hedonics pricing theory (Rosen, 1974). By controlling for physical characteristics, microneighborhood characteristics, and fixed effects of census tracts, this method attempts to isolate the part of the sales price that reflects the property's proximity to the HOPE VI redevelopment.

[12] Announcement effects happened early in the study period, and the number of sales before the announcement is limited. For example, although demolition for all five buildings was announced for FY 1995, one Lexington Terraces building was already empty in March 1993. At this time, HABC started publicly deliberating options ranging from an $8.2 million renovation to total demolition. Approximately 25 sales were completed in the microneighborhood before 1993.

Difference-in-differences methods have been used extensively to measure neighborhood spillover effects of subsidized housing. Briggs, Darden, and Aidala (1999) evaluated neighborhood effects of dispersed subsidized housing in Yonkers, New York, by comparing differences in sales prices between properties one-fourth of a mile from the subsidized housing and properties farther away but within the same census tract. Using larger data sets and more sophisticated extensions of this approach, Galster, Tatian, and Smith (1999) compared both the level and trend of property sales prices in the surrounding neighborhood before and after Section 8[13] occupancy, and Ellen et al. (2001) measured the spillover effects—and their trajectories—of a homeownership program in New York City.

The intuition behind the difference-in-differences approach is that it compares changes in property values close to the HOPE VI site to changes in property values farther away from the site but in the same neighborhood before and after completion. The validity of the estimate hinges on the extent to which the change in property values before and after the redevelopment of the properties farther away from the site represents what the change in property values would have been for the properties closer to the site in the absence of HOPE VI redevelopment. It is important to note the possibility that the redevelopment affected property values outside the microneighborhood as well. If this were the case, the true spillover effect would be underestimated. One would expect that properties immediately surrounding the redevelopment, however, would be affected more directly than properties farther away from the site and that this difference would be reflected in the estimate. Equation 1 expresses a basic difference-in-differences model.

$$\text{Impact} = (\text{avg price}_{\text{post,micro}} - \text{avg price}_{\text{post,macro}}) - (\text{avg price}_{\text{pre,micro}} - \text{avg price}_{\text{pre,macro}}) \quad (1)$$

where *post* represents postredevelopment, *pre* represents preredevelopment, *micro* represents property located in the surrounding (micro) neighborhood, and *macro* represents property located in the macroneighborhood but outside the microneighborhood. Finally, *impact* is the estimate of the spillover effect—that is, the effect of redevelopment on the average housing price. To obtain standard errors to test whether this estimate is statistically significantly different from zero, equation 2 uses ordinary least squares (OLS) regression to estimate the model.

$$\hat{Y} = \hat{\beta}_0 + \hat{\beta}_1 micro + \hat{\beta}_2 post + \hat{\beta}_3 post*micro + \varepsilon \quad (2)$$

where *micro* is a dummy variable that equals 1 if the sale occurred inside the microneighborhood and 0 otherwise, *post* is a dummy that equals 1 if the sale occurred after project completion and 0 otherwise, and *post*micro* is an interaction term between the two dummies. The variable *micro* serves as a control variable, and its coefficient can be interpreted as the baseline difference in price levels between the microneighborhood and outside-of-micro neighborhood. The impact variable in this model is *post*micro*. The coefficient on *post*micro* indicates any deviation from the overall difference in prices of the two time periods that the microneighborhood experienced. A statistically significant positive coefficient signals a positive effect of the HOPE VI project on sales prices of

[13] Section 8 is a federally funded rental assistance program for low-income households in which recipients use vouchers to choose privately owned rental housing. The program subsidizes the difference between 30 percent of the household's income and the total rent amount (determined by the public housing authority and the property owner based on Fair Market Rents).

surrounding property. *Y* is the property sales price, estimated in both linear and natural log form, adjusted for inflation to 2006 dollars using the Consumer Price Index. This model is referred to as the "basic difference-in-differences" model in the results section.

This basic model does not take into account any variation in the types of properties sold, either between those located in the microneighborhood and those located outside the microneighborhood, or over time. It also assumes that neighborhood characteristics—such as local crime and local services—do not differ between the microneighborhood and the macroneighborhood. The latter assumption seems plausible, given that each of the three analyses is limited to the larger neighborhood where the HOPE VI site is located, and property sales outside neighborhood boundaries (such as major roads and a highway ramp) are excluded from the analysis. Still, a second model, referred to as the "regression-adjusted difference-in-differences model," includes a dummy variable for each census tract to serve as localized fixed effects, which control for differences in unmeasured factors that affect the entire census tract, such as school quality, local amenities, crime levels, and demographics. It also includes property characteristics to control for the variation in the type and quality of properties sold in the microneighborhood compared with the rest of the macroneighborhoods and before and after completion of the project. Equation 3 expresses this model.

$$\hat{Y} = \hat{\beta}_0 + \hat{\beta}_1 micro + \hat{\beta}_2 post + \hat{\beta}_3 post*micro + \hat{\beta}_4 [tract] + \hat{\beta}_5 [structure] + \varepsilon \quad (3)$$

where *[tract]* is a series of dummy variables indicating the census tract in which the sale is located and *[structure]* is a vector of structural property characteristics that controls for structural and tenure characteristics, including the building's age, lot size, structure size, number of stories, presence or absence of a basement, construction type (brick, wood, or other), building type (rowhouse, detached, or semidetached), quality of construction, and previous housing tenure (rented or owner occupied).

Exhibit 7 shows that average sales prices vary from year to year. This variation could yield misleading results if the volume of sales were not constant over time. If, for example, there were more sales in the microneighborhood in the earliest years of the study period before project completion than there were in the following years just before completion and if prices in the entire macroneighborhood increased steadily over time, if this ratio were reversed for the rest of the macroneighborhood (that is, if there were fewer sales in the earlier years of the study period when prices were lower than they were in following years just before project completion), the impact would be underestimated. Equation 4 accounts for this variation.

$$\hat{Y} = \hat{\beta}_0 + \hat{\beta}_1 micro + \hat{\beta}_3 post*micro + \hat{\beta}_4 [tract] + \hat{\beta}_5 [structure] + \hat{\beta}_6 [year] + \varepsilon \quad (4)$$

where *[year]* is a vector of dummy variables representing the year of the sale. Results from this third model represent the most reliable estimates of HOPE VI spillover effects in each site. These *[year]* dummies after completion replace the *post* dummy, which captured the aggregate change in property values after project completion that would have increased property values even in the absence of HOPE VI redevelopment, and, in this third model, each year is captured separately.

For one site, Broadway Overlook, which showed evidence of positive spillover effects, this *post*micro* interaction was replaced with a series of *year*micro* dummies for each year after completion in a fourth model (equation 5), to examine whether the effect increased or decreased with time.

$$\hat{Y} = \hat{\beta}_0 + \hat{\beta}_1 micro + \hat{\beta}_3 [year*micro] + \hat{\beta}_4 [tract] + \hat{\beta}_5 [structure] + \hat{\beta}_6 [year] + \varepsilon \quad (5)$$

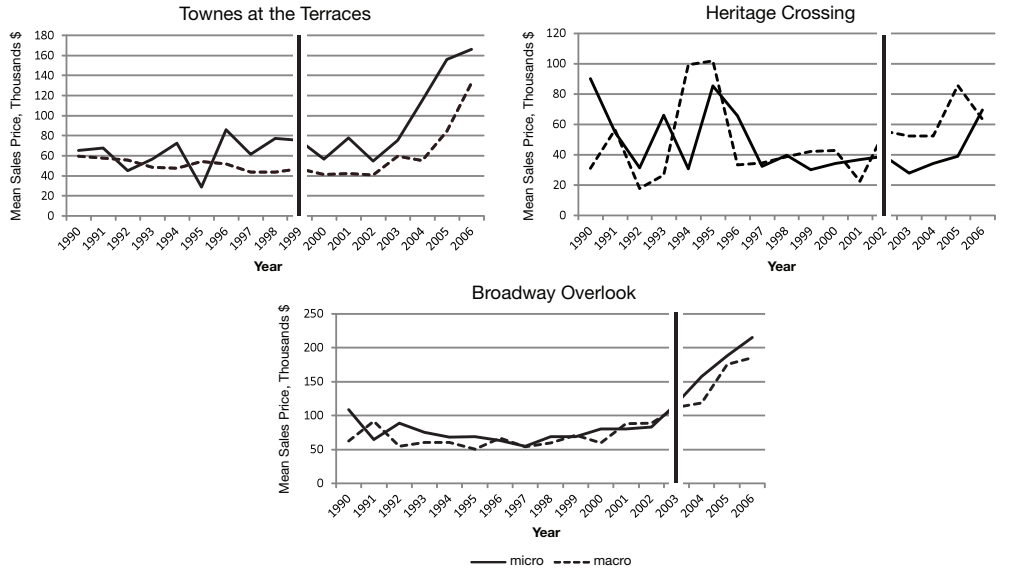
where *[year*micro]* is a series of interaction variables between each postcompletion year dummy variable and the *micro* dummy variable.

The credibility of these estimates relies on the assumption that sales prices followed the same trend over time in the microneighborhoods and macroneighborhoods before HOPE VI redevelopment. Spillover effects could be overestimated if prices in the microneighborhood were already rising at a faster rate than prices in the macroneighborhood, or underestimated if prices in the microneighborhood were increasing more slowly than prices in the rest of the macroneighborhood. Recent research measuring spillover effects of subsidized housing have used sophisticated methods to account for differing price trends of properties immediately surrounding subsidized housing compared with properties farther away. This method was first used in Galster, Tatian, and Smith (1999) to compare both the level and the trend of property sales prices in the surrounding neighborhood before and after Section 8 occupancy, and adapted in later studies that examined spillover effects of subsidized housing (for example, Santiago, Galster, and Tatian 2001).

In the context of the three Baltimore HOPE VI sites, the number of sales in each of the three samples is too few to reliably estimate different trends in each part of the neighborhoods separately, or to test the developments' impacts on trends. Estimating separate trends for the microneighborhood and macroneighborhood is important only if there are preexisting differences. Basing trend differences on the mean sales prices in exhibit 7, it seems very unlikely that these differences existed before HOPE VI redevelopment, because no difference in yearly sales price trajectories in the microneighborhoods and macroneighborhoods is evident before completion.

Exhibit 7

Mean Sales Price by Year, in Thousands of 2006 Dollars



Results and Discussion

The regression results of the three main models described in the previous section are shown in exhibit 8. The first pair of columns presents the results of the basic difference-in-differences model, the second pair presents the results of the difference-in-differences model controlling for structural characteristics and localized fixed effects, and the third pair presents the results of this model replacing the *post* variable with dummy variables for year fixed effects. Full results are presented by site in appendix exhibits B1 through B3.

The *micro* estimates represent baseline differences in price levels between the microneighborhood and the rest of the macroneighborhood. In the models using the linear form of sales price as the outcome, the coefficients on *micro* can be interpreted directly as estimates of this difference. In the models using the natural log of price as the outcome variable, where estimates are small (approximately 0.25 or less), the coefficients on *micro* multiplied by 100 can be interpreted approximately as the percent by which properties in the microneighborhood deviate from comparable properties

Exhibit 8

Estimates of HOPE VI Spillover Effects by Site

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
Townes at the Terraces						
micro	15,424	0.295	30,589	0.485	26,591	0.432***
	(7,303)	(0.117)	(8,674)	(0.138)	(7,897)	(0.131)
post	22,157***	0.350***	21,294***	0.326***		
	(3,807)	(0.061)	(3,673)	(0.06)		
post*micro	12,862	– 0.107	3,309	– 0.257	13,088	– 0.125
	(10,512)	(0.169)	(10,273)	(0.164)	(9,405)	(0.156)
Heritage Crossing						
micro	– 2,185	– 0.027	3,696	0.008	5,537	0.046
	(5,171)	(0.071)	(6,648)	(0.090)	(6,580)	(0.089)
post	17,860***	0.458***	12,167*	0.351***		
	(6,374)	(0.088)	(7,375)	(0.095)		
post*micro	– 16,532	– 0.223*	– 10,877	– 0.136	– 12,050	– 0.139
	(9,119)	(0.126)	(9,695)	(0.129)	(9,435)	(0.127)
Broadway Overlook						
micro	8,064	0.237***	– 21,838***	– 0.214***	– 23,498***	– 0.227***
	(5,212)	(0.058)	(5,133)	(0.054)	(4,926)	(0.053)
post	88,123***	0.870***	88,513***	0.860***		
	(4,759)	(0.053)	(4,251)	(0.044)		
post*micro	7,989	0.007	8,901	0.044	16,699**	0.099
	(9,415)	(0.105)	(8,312)	(0.087)	(7,842)	(0.082)
Sample size	1,126	1,126	1,156	1,156	1,644	1,644

*DID = difference-in-differences. * = p < 0.1, ** = p < 0.05, *** = p < 0.001.*

Notes: Standard errors are in parentheses. Model (2) includes structural charactarestics covariates and census tract fixed effects. Model (3) includes structural charactarestics covariates, census tract fixed effects, and year fixed effects.

outside the microneighborhood but within the same macroneighborhood.[14] The coefficients on the *post*micro* variables can be interpreted as the amount by which property values in the microneighborhood increased (if the coefficient is positive) or decreased (if the coefficient is negative) for the models using price as the outcome, and multiplying the coefficient by 100 for the models using the log of price as the outcome gives the percent of increase or decrease.

The evidence weakly supports the hypothesis that properties in the microneighborhood surrounding the Townes at the Terraces redevelopment significantly increased in value after the project's completion. The coefficients on *micro* indicate that properties within the microneighborhood were already of higher value than similar properties outside the microneighborhood. Property values increased overall by about $20,000 after HOPE VI completion (40 percent, according the model specification using the log of sales price, translated using the Halvorsen-Palmquist equation shown in footnote 14). None of the coefficients on the *post*micro* interaction are significant, and the large difference in magnitude between the basic difference-in-differences model and the second model controlling for physical characteristics and localized fixed effects suggests that the composition of properties sold in this neighborhood before and after the HOPE VI redevelopment is not similar. It is possible that properties sold after redevelopment were of higher quality because of competition from the new HOPE VI units, but no such definitive conclusions can be drawn from these results. Note that the Townes at the Terraces site had the smallest sample size, with only a handful of sales in some years. It is therefore unclear if the positive coefficients on *post*micro* should be interpreted as an indication of positive spillover effects, or if the observed differences in property values are due to chance.

Heritage Crossing, with a larger sample size, shows no indication of positive spillover effects. In fact, the coefficients on the *post-micro* variables in all three models are negative. Although the initial difference-in-differences estimate is negative and statistically significant, the estimate becomes smaller and less statistically significant when we control for property characteristics and tract fixed effects, suggesting that the initial estimate was biased by the changing composition of properties for sale. The second model, controlling for property characteristics and tract fixed effects, shows that overall property sales prices after completion were on average about $12,000 higher than prices before completion (an increase of 40 percent, which is the Halvorsen-Palmquist-translated coefficient in the model using the log of sales prices as the outcome), but the increase was smaller for similar properties close to the HOPE VI redevelopment. Including year fixed effects, the estimate is still negative but not statistically significant.

Broadway Overlook is the only HOPE VI project that shows convincing evidence of positive spillover effects. The graph in exhibit 7 shows that sales in the microneighborhood and outside it followed a similar pattern from about 1995 until 2003, the year of HOPE VI completion, where property values in the microneighborhood began to grow a bit faster. The impact estimate from the basic difference-in-differences model is about $8,000, and this estimate does not change when structural characteristics and census tract fixed effects are included in the model, suggesting little variation in structural characteristics of the properties being sold before and after completion across the macroneighborhood and little difference across census tracts within the macroneighbor-

[14] In a log-linear model, coefficients on dummy variables are not accurate estimates of the relative effects when they are large. To get a more accurate estimate of the baseline percentage difference between the microneighborhood and macroneighborhood, the coefficient c must be used in the formula 100 X {exp(c) – 1} (Halvorsen and Palmquist, 1980).

hood. The large coefficient on *post* shows a large overall increase in property values, reflecting the fact that this was an up-and-coming neighborhood during the study period. On average, a property in the macroneighborhood sold for $88,000 more after completion than it had sold for before completion, which makes it especially important to account for the upward trend in sales prices with the year fixed effects. Different volumes in sales per year or variations in the types and quality of housing for sale from year to year could bias the impact estimate. Results from the model including year fixed effects, where similar properties are compared to one another within years, show a larger and statistically significant estimate of spillover effects. Properties close to the HOPE VI redevelopment experienced an additional $17,000 (10 percent, according to the model using the log of sales price) increase after redevelopment compared with properties farther away but in the same macroneighborhood.

It is possible that the positive effect of the Broadway Overlook redevelopment on surrounding property values is understated by this analysis. Unlike the Townes at the Terraces and Heritage Crossing HOPE VI sites, the new Broadway Overlook development did not directly replace public housing; because of the property swap, the new development was built diagonally across the street from Broadway Homes highrises, the original public housing projects. The old projects were demolished and replaced by JHMI buildings, and the Broadway Overlook project replaced a lower rise, low-income housing development. Because the former Broadway Homes site is included in Broadway Overlook's microneighborhood, some of the properties immediately surrounding the former public housing project are included in the area outside Broadway Overlook's microneighborhood. If the removal of the highrise public housing projects had a positive effect on surrounding property values independent of any positive effect of the Broadway Overlook redevelopment, the effect of the removal would be captured in the sales prices of some properties outside the microneighborhood, thus understating any relative difference between price changes in each part of the neighborhood.

Exhibit 9 presents results of the model replacing the *post*micro* dummy variable with a series of interactions between *year* and *micro* for all years after completion (2003–06). Disaggregating

Exhibit 9

Broadway Overlook Spillover Effects by Year

	Regression-Adjusted DID With Year Fixed Effects	
	Price ($)	ln(price)
Micro	– 24,334***	– 0.241***
	(5,121)	(0.055)
2003*Micro	– 921	0.067
	(13,454)	(0.142)
2004*Micro	33,254***	0.314**
	(12,455)	(0.131)
2005*Micro	11,353	0.037
	(13,065)	(0.138)
2006*Micro	19,445	0.025
	(13,990)	(0.147)

*DID = difference-in-differences. * = p < 0.1, ** = p < 0.05, *** = p < 0.001.*

Notes: Standard errors are in parentheses. Includes structural charactarestics covariates, census tract fixed effects, and year fixed effects.

the postcompletion period allows for effects to vary by year after redevelopment. The results of this model do not give a strong indication that the positive spillover effects are either growing or shrinking over time. The model shows no effects in the year of completion (the project was not completed until August of 2003), a very large and statistically significant effect the year after completion, and estimates in the following 2 years that are smaller but still sizable, although the standard errors are larger relative to the effect size.

Timing of Impacts

This comparison of before and after completion measures any impact of completion on prices. Personal interviews with city and neighborhood experts, however, indicated that part of the impact may be attributable not to the redevelopment, but to the removal of highrise public housing projects—the main source of blight, drug activity, and crime in the neighborhood (Seipp, 2007; Shea, 2006). To test this theory, I applied the same models using the demolition date instead of the completion date. This method cannot isolate the effects of each stage in the development on surrounding property values and thus does not answer the question of how much of the impact can be attributed to the removal of the public housing projects and how much to the development of the new mixed-income projects. Seeing how replacing the completion date with the demolition date changes our estimates, however, can provide some general insight into the matter.

If the positive spillover effects are due to the removal of blight rather than the development of the HOPE VI projects, then the impact estimates in the model using the demolition date as the intervention point should be larger (and possibly more statistically significant) than those in the model using the completion date. In the latter model, any positive impact occurring before project completion would be incorporated into the precompletion price level, thus underestimating the true impact of the HOPE VI project.

The data from the model using demolition dates (including all controls and fixed effects) do not provide support for this theory, as shown in exhibit 10. The estimated impact of Townes at the Terraces is smaller, the negative coefficient for Heritage Crossing is a bit less negative, and the positive coefficient for Broadway Overlook is smaller and no longer significant. These results could suggest that, regardless of the long-term effects of the removal of the public highrises, the empty lots or unfinished construction sites that replaced them in the interim did not lead to immediate neighborhood improvements. Also, as mentioned above, because the demolition in the case of Broadway Overlook was that of the public housing project across the street, we would not expect to see much larger impacts using this intervention definition, regardless of actual spillover effects.

Exhibit 10

Full Model Using Demolition Date for Each Site

	Townes at the Terraces		Heritage Crossing		Broadway Overlook	
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
Micro	31,009***	0.452***	6,163	0.052	– 23,401 ***	– 0.255***
	(9,045)	(0.150)	(7,101)	(0.096)	(5,822)	(0.062)
Post*Micro	2,602	– 0.125	– 9,869	– 0.112	9,597	0.11
	(9,793)	(0.162)	(8,602)	(0.118)	(7,376)	(0.078)

** = p < 0.1, ** = p < 0.05, *** = p < 0.001.*

Conclusion

This study evaluates whether the three completed HOPE VI redevelopments in residential neighborhoods in Baltimore contributed to the improvement of their surrounding neighborhoods. Heritage Crossing did not show any evidence of positive spillover effects, suggesting that investors and homebuyers may not have ventured too close to the HOPE VI site. Although Townes at the Terraces showed a hint of a positive effect on surrounding property values, Broadway Overlook was the only project with significant positive effects. Qualitative evidence of HOPE VI's effect on surrounding neighborhoods is fairly consistent with these empirical estimates.

Baltimore's experience with these three HOPE VI redevelopments suggests that, even within the same city and under a single housing authority, implementation varies greatly. All HOPE VI projects have in common the removal of highrise public housing projects and their replacement with lowrise, mixed-income developments. But beyond these similarities, differences in design and management resulted in very different projects.[15] Townes at the Terraces and Heritage Crossing are physically isolated from their surrounding neighborhoods, but Broadway Overlook's design integrates the development into its surrounding neighborhood. Townes at the Terraces and Heritage Crossing both include two housing types—public housing units and low- to moderate-income homeownership units—whereas Broadway Overlook has a more diverse mix of public housing units, subsidized rental and homeownership units, and market-rate rental and homeownership units. Social and community services in Townes at the Terraces and Heritage Crossing were designed and managed by the city housing authority, but in Broadway Overlook these services were designed and managed by a partnership between the private developer and the tenant organization. The fact that Broadway Overlook had the strongest evidence of a positive spillover effect raises the possibility that adherence to the HOPE VI Program's main principles may influence a project's ability to improve surrounding neighborhoods.

This study cannot tease apart the influence of implementation on spillover effects from that of another potential influence: neighborhood conditions at the time of redevelopment. The Broadway Overlook redevelopment occurred in a neighborhood that was less distressed and more stable than the West Baltimore neighborhoods where the Townes at the Terraces and Heritage Crossing redevelopments occurred. Unlike the neighborhoods in West Baltimore, Broadway Overlook's neighborhood was already improving before HOPE VI redevelopment. The evidence of positive spillover effects indicates that the surrounding neighborhood experienced even greater improvement due to the HOPE VI redevelopment. This evidence raises the question of how HOPE VI funding can best be targeted. On the one hand, it seems logical to give priority to the most distressed public housing projects, because they are most in need of physical redevelopment and their residents suffer most from the consequences of concentrated poverty. In fact, the idea of HOPE VI originated in response to the question of how to deal with the country's most distressed and deteriorated public housing projects. On the other hand, because the HOPE VI model relies heavily on attracting private investment and tenants willing to pay market-rate housing prices, the most efficient use of

[15] See Brophy and Smith (1997) for a case-study analysis of characteristics of successful mixed-income developments. The authors found that design, management, and location are primary factors for success.

its funding may be to target projects in neighborhoods that do not have overwhelming barriers to revitalization, such as problems with drugs, crime, and poverty. This question is part of a broader debate in urban policy about whether investment should target the neediest, most distressed neighborhoods or those neighborhoods that show some sign of stability or social organization, and therefore may have a greater capacity to take advantage of additional resources.[16]

Another important question raised by these results is one of cost effectiveness. Do the estimated positive spillover effects justify the 20 to 30 million dollar investments in each HOPE VI project? Improving the surrounding neighborhoods of former public housing projects is not the only goal of HOPE VI, and any weighing of costs and benefits should take into account the full range of potential benefits, including the improvement of living conditions for public housing residents. Still, the lack of strong evidence of substantial positive effects on surrounding neighborhoods, particularly in Townes at the Terraces and Heritage Crossing, should serve to caution policymakers that even a major redevelopment that replaces a dominant source of blight in a neighborhood with better quality housing and lower concentrations of poor households may not be enough to turn around a distressed neighborhood. Although we see more evidence of spillover effects in the Broadway Overlook site, it is unclear how central the role of HOPE VI redevelopment was in the overall improvement of the neighborhood, where property values were already on the rise when redevelopment began. Therefore, the question in the case of Broadway Overlook is whether the additional neighborhood improvement caused by HOPE VI (reflected in the additional jump in property values), along with other benefits not measured in this study, was worth the major investment required to redevelop a public housing project.

Although Baltimore's HOPE VI experience reveals potential relationships between positive neighborhood spillover effects and the project's implementation and the neighborhood's stability, conclusions about the independent effects of these factors, or about whether these patterns occur in other HOPE VI projects in other locations, cannot be drawn from the results of this study alone. We need comparable analyses of the effects of the HOPE VI Program in other cities that carefully take into account these different aspects of the program if we are to understand what is most important in meeting the goal of improving surrounding neighborhoods. In addition to learning what makes a HOPE VI project most effective, it is also important to consider evidence of positive spillover effects within a larger context of program costs and relative improvements within the surrounding neighborhood.

[16] See Sviridoff (1994) for a more detailed discussion of this debate.

Appendix A
Missing Values

Appendix A describes how missing values in the Maryland Property View 2005 and Baltimore City property sales 2006 data sets were handled in this analysis.

Missing Values

The Maryland Property View 2005 and Baltimore City property sales 2006 data sets were missing values for several variables. The percent of the 12,280 total observations (in the three study sites combined) that were missing a value for each variable are listed in exhibit A-1.

Exhibit A-1

Missing Values

Variable	Percent Missing
Age	20.71
Structure area (square feet)	24.58
Lot size (square feet)	3.54
Construction type	14.31
Number of stories*	24.16
Basement*	24.16
Quality of construction	26.40
Housing type (detached, semidetached, or rowhouse)	0.00
Tenure (rented or owner occupied)	0.03

** The variables* number of stories *and* basement *were created using the same variable in the original data set.*

There was no apparent pattern in these missing values. The lot size, housing type, and tenure variables originated from the Baltimore City 2006 property sales data set, and the remaining variables originated from the Maryland Property View 2005 data set.

Multiple Imputation

Because the missing values were scattered among the different variables (for example, observations missing a value for age were not necessarily also missing a value for lot size, observations missing a value for lot size were not necessarily also missing a value for construction type), excluding each observation with a missing value for at least one variable would have omitted almost two-thirds of the observations in the regressions. Therefore, instead of running the models on only those observations with no missing values, I imputed values for each missing value. A few exceptions include the following:

- All observations missing a census tract value were excluded from the analysis. Because the study was limited to certain census tracts, it was not possible to determine which neighborhood these observations belonged to. Less than 2 percent of all property sales in Baltimore City were missing a value for the census tract variable; however, it is not possible to determine exactly which of these sales pertain to the study sites in this analysis.
- Four observations were missing a value for the tenure variable, and these four observations were excluded from the analysis because it did not seem appropriate to predict whether a property is occupied by an owner or a renter based on the other structural characteristics.

I used multiple imputation by chained equations (MICE) to impute the remaining missing values. MICE produces additional data sets that replace missing values with imputed values using a multivariate switching regression. Although the more traditional way to deal with incomplete data is to replace missing values with means, this method may distort estimates and falsely increase their precision by yielding smaller standard errors. The correlation matrix in exhibit A-2 shows that the probability of having a missing value is correlated with property characteristics, so failing to account for this relationship may bias estimates.[17] MICE, on the other hand, takes into account the uncertainty of missing data by imputing values according to the predictive distribution of the data (Van Buuren, 2007).

I used the ice program in Stata® software to perform this multiple imputation method. I selected OLS regression to impute missing values for age, structure area, lot size, and number of stories; logit regression to impute missing values for whether the property has a basement; and multinomial logit regression to impute missing values for the construction type and quality. I imputed five data sets. To avoid imputing extreme values, I chose the match option so the imputed value is drawn from existing values in the original data.

After creating the imputed data sets, I estimated models for each imputed data set separately, then pooled them to integrate the results from all three data sets into one set of estimates. The estimates from this combined analysis are reported in the text of this article.

[17] As a sensitivity test, I ran each model replacing missing values with mean values and included a series of dummy variables indicating a missing value for the corresponding covariate. Estimates from these models were slightly different, but, overall, there were no qualitative differences.

Exhibit A-2

Missing Dummy Correlation Matrix (1 of 2)

	price06_ln	age	age2	lotsize_ln	lotsize	sqrftstrct_ln	sqrftstrct	stories	quality	brick
price06_ln	1.00									
age	– 0.14	1.00								
	0.00									
age2	– 0.11	0.95	1.00							
	0.00	0.00								
lotsize_ln	0.10	– 0.16	– 0.17	1.00						
	0.00	0.00	0.00							
lotsize	0.09	– 0.13	– 0.15	0.93	1.00					
	0.00	0.00	0.00	0.00						
sqrftstrct_ln	0.25	0.00	– 0.01	0.53	0.46	1.00				
	0.00	0.97	0.21	0.00	0.00					
sqrftstrct	0.25	– 0.01	– 0.04	0.55	0.51	0.95	1.00			
	0.00	0.23	0.00	0.00	0.00	0.00				
stories	0.19	– 0.02	– 0.07	0.27	0.26	0.58	0.59	1.00		
	0.00	0.03	0.00	0.00	0.00	0.00	0.00			
quality	– 0.12	0.08	0.04	0.12	0.11	0.01	0.03	– 0.04	1.00	
	0.00	0.00	0.00	0.00	0.00	0.25	0.01	0.00		
brick	0.09	0.29	0.21	– 0.08	– 0.07	– 0.01	– 0.01	0.06	– 0.53	1.00
	0.00	0.00	0.00	0.00	0.00	0.21	0.61	0.00	0.00	
wood	– 0.11	0.00	0.00	0.08	0.07	0.00	0.00	.	0.56	– 0.97
	0.00	0.93	0.73	0.00	0.00	0.84	0.99	0.00	0.00	0.00
otherconst	0.04	– 0.29	– 0.22	– 0.01	0.00	0.01	0.01	– 0.06	– 0.05	– 0.23
	0.00	0.00	0.00	0.33	0.83	0.22	0.61	0.00	0.00	0.00
basement	– 0.05	– 0.03	– 0.06	0.19	0.14	0.17	0.14	0.08	0.09	0.03
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
detached	0.01	– 0.08	– 0.05	0.00	0.01	– 0.01	0.00	– 0.04	– 0.03	0.03
	0.11	0.00	0.00	0.89	0.31	0.49	0.94	0.00	0.02	0.00
semidetached	0.05	– 0.01	– 0.02	0.05	0.06	0.00	0.03	0.05	– 0.05	0.03
	0.00	0.41	0.08	0.00	0.00	0.77	0.00	0.00	0.00	0.00
row	– 0.04	0.05	0.04	– 0.04	– 0.06	0.01	– 0.03	– 0.02	0.05	– 0.04
	0.00	0.00	0.00	0.00	0.00	0.52	0.01	0.03	0.00	0.00
HOcode1	0.19	– 0.09	– 0.08	0.08	0.06	0.13	0.12	0.10	– 0.09	0.06
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
miss	– 0.14	– 0.31	– 0.32	0.17	0.15	– 0.22	– 0.13	0.18	0.60	– 0.79
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Exhibit A-2

Missing Dummy Correlation Matrix (2 of 2)

	wood	other-const	basement	detached	semi-detached	row	HOcode1	miss
price06_ln								
age								
age2								
lotsize_ln								
lotsize								
sqrftstrct_ln								
sqrftstrct								
stories								
quality								
brick								
wood	1.00							
otherconst	– 0.03 0.00	1.00						
basement	. 0.00	– 0.03 0.00	1.00					
detached	– 0.03 0.00	– 0.01 0.44	– 0.04 0.00	1.00				
semidetached	– 0.04 0.00	0.05 0.00	– 0.06 0.00	– 0.01 0.23	1.00			
row	0.05 0.00	– 0.03 0.00	0.07 0.00	– 0.64 0.00	– 0.76 0.00	1.00		
HOcode1	– 0.06 0.00	0.00 0.76	– 0.04 0.00	0.03 0.00	0.06 0.00	– 0.07 0.00	1.00	
miss	0.78 0.00	0.12 0.00	0.06 0.00	0.01 0.19	– 0.06 0.00	0.04 0.00	– 0.13 0.00	1.00

Appendix B. Full Results

Appendix B presents the full results for exhibit 8 by site.

Exhibit B-1

Full Results for Main Models, Townes at the Terraces (1 of 2)

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Outcome					
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
micro	15,423**	0.295**	30,588***	0.485***	26,591***	0.432***
	(7,302)	(0.117)	(8,673)	(0.138)	(7,896)	(0.131)
post	22,157***	0.350***	21,294***	0.326***		
	(3,806)	(0.061)	(3,673)	(0.059)		
post*micro	12,861	– 0.107	3,309	– 0.257	13,088	– 0.125
	(10,512)	(0.169)	(10,273)	(0.164)	(9,405)	(0.156)
_year_1991					– 2,102	– 0.127
					(9,041)	(0.150)
_year_1992					– 7,013	– 0.177
					(9,676)	(0.161)
_year_1993					– 12,118	– 0.239
					(9,719)	(0.161)
_year_1994					– 20,801*	– 0.320*
					(10,705)	(0.178)
_year_1995					– 11,332	– 0.275
					(10,125)	(0.168)
_year_1996					– 7,025	– 0.349**
					(10,265)	(0.171)
_year_1997					– 18,078**	– 0.422***
					(8,800)	(0.146)
_year_1998					– 20,739**	– 0.285**
					(8,331)	(0.138)
_year_1999					– 15,041*	– 0.083
					(8,443)	(0.140)
_year_2000					– 20,712**	– 0.243*
					(8,449)	(0.140)
_year_2001					– 24,251**	– 0.394**
					(9,884)	(0.162)
_year_2002					– 27,598***	– 0.469***
					(10,307)	(0.171)
_year_2003					– 11,553	– 0.341**
					(9,715)	(0.161)
_year_2004					– 5,534	– 0.064
					(8,280)	(0.137)
_year_2005					25,200***	0.394***
					(7,768)	(0.129)

Exhibit B-1

Full Results for Main Models, Townes at the Terraces (2 of 2)

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Outcome					
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
_year_2006					70,091***	0.817***
					(8,057)	(0.134)
_year_2007					66,292***	0.786***
					(17,423)	(0.290)
age			– 318	– 0.006	– 287	– 0.006
			(230.576)	(0.004)	(198)	(0.003)
age2			0	0.000	0	0.000
			(1)	(0.000)	(1)	(0.000)
sqrftstrct_ln			18,304*	0.218	13,471	0.167
			(9,477)	(0.159)	(8,601)	(0.164)
lotsize_ln			21,823***	0.332***	24,928***	0.367***
			(7,247)	(0.120)	(6,638)	(0.123)
stories			– 4,312	– 0.046	– 1,913	– 0.004
			(7,601)	(0.122)	(7,258)	(0.126)
quality			1,375	0.013	242	0.001
			(3,878)	(0.058)	(3,728)	(0.057)
brick			20,893*	0.281*	23,822**	0.333**
			(10,823)	(0.164)	(9,813)	(0.162)
basement			– 2,001	– 0.061	– 3,359	– 0.077
			(18,631)	(0.304)	(17,988)	(0.314)
detached			– 16,867	– 0.020	– 21,912	– 0.076
			(26,351)	(0.418)	(24,566)	(0.400)
semidetached			– 3,443	0.045	9,295	0.159
			(19,840)	(0.318)	(18,002)	(0.299)
HOcode1			16,043***	0.389***	12,550***	0.342***
			(4,100)	(0.066)	(3,768)	(0.062)
tract1801			0	0.000	0	0.000
			(0)	(0.000)	(0)	(0.000)
tract1802			36,358	0.237	39,942**	0.297
			(22,605)	(0.352)	(17,820)	(0.305)
tract1803			40,972***	0.530***	42,928***	0.559***
			(9,963)	(0.160)	(9,037)	(0.151)
Constant			– 252,774***	6.396***	– 235,747***	6.606***
			(54,653)	(0.856)	(48,509)	(0.808)
Observations			1,133	1,133	1,133	1,133
R-squared			0.153	0.143	0.320	0.258

*DID = difference-in-differences. * p < 0.1, ** p < 0.05, *** p < 0.01.*

Note: Standard errors are in parentheses.

Exhibit B-2

Full Results for Main Models, Heritage Crossing (1 of 2)

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Outcome					
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
micro	– 2,185	– 0.027	3,695	0.008	5,536	0.046
	(5,170)	(0.071)	(6,647)	(0.090)	(6,579)	(0.089)
post	17,860***	0.458***	12,167*	0.351***		
	(6,37)	(0.088)	(7,374)	(0.095)		
post*micro	– 16,532*	– 0.223*	– 10,877	– 0.136	– 12,050	– 0.139
	(9,118)	(0.126)	(9,695)	(0.129)	(9,435)	(0.127)
_year_1991					– 12,269	– 0.115
					(12,447)	(0.171)
_year_1992					– 41,659***	– 0.617***
					(14,187)	(0.196)
_year_1993					– 15,187	– 0.253
					(13,585)	(0.188)
_year_1994					13,909	0.271
					(12,313)	(0.169)
_year_1995					29,262**	– 0.004
					(13,173)	(0.182)
_year_1996					– 17,449	– 0.247
					(13,380)	(0.184)
_year_1997					– 32,943***	– 0.426**
					(12,424)	(0.171)
_year_1998					– 27,737**	– 0.144
					(11,497)	(0.159)
_year_1999					– 31,600**	– 0.177
					(12,743)	(0.176)
_year_2000					– 28,836**	– 0.221
					(13,505)	(0.186)
_year_2001					– 37,495***	– 0.490***
					(13,921)	(0.190)
_year_2002					– 17,338	– 0.155
					(15,170)	(0.209)
_year_2003					– 24,642	– 0.445**
					(16,069)	(0.218)
_year_2004					– 23,554	– 0.260
					(15,605)	(0.209)
_year_2005					– 1,075	0.274
					(14,244)	(0.179)
_year_2006					4,720	0.432**
					(12,438)	(0.169)

Exhibit B-2

Full Results for Main Models, Heritage Crossing (2 of 2)

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Outcome					
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
_year_2007					37,740	0.360
					(30,678)	(0.424)
age			182	– 0.001	120	– 0.002
			(575)	(0.007)	(546)	(0.006)
age2			0	0.000	0	0.000
			(2)	(0.000)	(2)	(0.000)
sqrftstrct_ln			9,482	0.102	6,985	0.073
			(24,865)	(0.252)	(26,325)	(0.283)
lotsize_ln			5,245	0.027	10,397	0.099
			(10,069)	(0.127)	(10,047)	(0.127)
stories			782	– 0.023	– 505	– 0.046
			(22,395)	(0.222)	(22,969)	(0.228)
quality			5,091	0.039	4,401	0.038
			(8,290)	(0.103)	(8,165)	(0.104)
brick			45,528	0.736*	44,930	0.716*
			(47,149)	(0.423)	(48,439)	(0.427)
basement			– 1,769	– 0.020	– 1,525	– 0.015
			(4,990)	(0.068)	(4,826)	(0.063)
detached			50,855	1.054	48,695	0.967
			(72,392)	(0.998)	(70,940)	(0.978)
semidetached			– 47,508	– 0.613	– 55,601	– 0.813
			(52,911)	(0.710)	(51,867)	(0.694)
HOcode1			4,409	0.223**	7,214	0.271***
			(6,495)	(0.089)	(6,413)	(0.088)
tract1402			14,392	0.126	12,899	0.092
			(42,272)	(0.555)	(47,208)	(0.629)
tract1601			30,636	0.425	20,752	0.254
			(41,049)	(0.363)	(45,292)	(0.393)
tract1702			– 18,948	– 0.103	– 16,724	– 0.054
			(32,973)	(0.285)	(31,891)	(0.270)
tract1703			– 21,477	– 0.215	– 25,336	– 0.276
			(38,323)	(0.346)	(38,329)	(0.353)
Constant			– 104,189	8.775***	– 94,961	8.830***
			(148,848)	(1.475)	(156,636)	(1.602)
Observations			1,147	1,147	1,147	1,147
R-squared			0.069	0.071	0.130	0.132

*DID = difference-in-differences. * p < 0.1, ** p < 0.05, *** p < 0.01.*

Note: Standard errors are in parentheses.

Exhibit B-3

Full Results For Main Models, Broadway Overlook (1 of 2)

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Outcome					
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
micro	8,064	0.237***	– 21,838***	– 0.214***	– 23,498***	– 0.227***
	(5,212)	(0.058)	(5,132)	(0.054)	(4,926)	(0.053)
post	88,122***	0.870***	88,512***	0.860***		
	(4,759)	(0.053)	(4,250)	(0.044)		
post*micro	7,989	0.007	8,900	0.044	16,699**	0.099
	(9,415)	(0.105)	(8,311)	(0.087)	(7,841)	(0.082)
_year_1991					13,584	– 0.219*
					(11,166)	(0.119)
_year_1992					– 8,171	– 0.164
					(11,354)	(0.119)
_year_1993					– 13,946	– 0.311**
					(11,826)	(0.123)
_year_1994					– 19,282*	– 0.419***
					(11,287)	(0.118)
_year_1995					– 26,012**	– 0.438***
					(10,969)	(0.115)
_year_1996					– 12,181	– 0.299***
					(11,083)	(0.116)
_year_1997					– 31,487***	– 0.549***
					(10,419)	(0.111)
_year_1998					– 19,174*	– 0.384***
					(9,999)	(0.104)
_year_1999					– 16,679*	– 0.228**
					(9,399)	(0.099)
_year_2000					– 12,389	– 0.285***
					(9,590)	(0.099)
_year_2001					– 92	– 0.079
					(9,884)	(0.104)
_year_2002					7,707	– 0.129
					(10,034)	(0.106)
_year_2003					27,879***	0.211**
					(9,492)	(0.100)
_year_2004					45,597***	0.376***
					(9,272)	(0.097)
_year_2005					97,488***	0.804***
					(9,104)	(0.095)
_year_2006					108,937***	0.803***
					(9,298)	(0.097)

Exhibit B-3

Full Results For Main Models, Broadway Overlook (2 of 2)

	Model (1)		Model (2)		Model (3)	
	Basic DID		Regression-Adjusted DID		Regression-Adjusted DID With Year Fixed Effects	
	Outcome					
	Price ($)	ln(price)	Price ($)	ln(price)	Price ($)	ln(price)
_year_2007					101,282***	0.671**
					(25,863)	(0.273)
age			– 1,577***	– 0.026***	– 1,660***	– 0.027***
			(237)	(0.003)	(228)	(0.003)
age2			7***	0.000***	7***	0.000***
			(1)	(0.000)	(1)	(0.000)
sqrftstrct_ln			47,729***	0.481***	50,856***	0.499***
			(7,322)	(0.074)	(7,058)	(0.072)
lotsize_ln			20,039***	0.326***	15,411**	0.297***
			(7,571)	(0.077)	(7,413)	(0.076)
stories			9,767*	0.146**	11,197**	0.164***
			(5,147)	(0.057)	(4,954)	(0.057)
quality			122	– 0.045	1,555	– 0.033
			(2,680)	(0.032)	(2,581)	(0.033)
brick			– 118,596**	– 0.753**	– 123,763**	– 0.827**
			(49,117)	(0.334)	(49,734)	(0.338)
basement			– 2,644	– 0.033	– 2,849	– 0.030
			(5,327)	(0.050)	(4,880)	(0.048)
detached			– 44,183	0.096	– 73,312	– 0.068
			(68,396)	(0.712)	(65,575)	(0.690)
semidetached			– 18,257	– 0.133	– 11,279	– 0.049
			(14,475)	(0.151)	(13,972)	(0.147)
HOcode1			21,492***	0.372***	21,197***	0.366***
			(3,734)	(0.040)	(3,614)	(0.039)
tract202			29,185***	0.386***	25,201***	0.348***
			(5,598)	(0.058)	(5,376)	(0.056)
tract301			0	0.000	0	0.000
			(0)	(0.000)	(0)	(0.000)
tract604			– 515	– 0.162**	– 3,211	– 0.191***
			(6,901)	(0.072)	(6,701)	(0.070)
Constant			– 249,748***	6.747***	– 222,772***	7.161***
			(63,500)	(0.505)	(62,876)	(0.495)
Observations			1,652	1,652	1,651	1,651
R-squared			0.405	0.460	0.460	0.500

*DID = difference-in-differences. * p < 0.1, ** p < 0.05, *** p < 0.01.*

Note: Standard errors are in parentheses.

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HOPE VI and Neighborhood Economic Development: The Importance of Local Market Dynamics

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Abstract

This study examines the extent to which HOPE VI redevelopments have had positive spillover effects on their surrounding neighborhoods. It examines four such redevelopments—two in Boston, Massachusetts, and two in Washington, D.C.—and documents the changes that have taken place in property values, violent crime patterns, and resident incomes in surrounding neighborhoods since the redevelopment began. The study assesses the extent to which those changes can be attributed to the public housing redevelopment.

The study finds that, for the most part, the HOPE VI redevelopments have had positive, statistically significant effects on economic conditions in their surrounding neighborhoods. The extent of the spillover neighborhood effects has depended, in part, on the location and market dynamics of the surrounding community. The economic effects of a HOPE VI redevelopment have tended to be greater in communities where there were other development pressures and existing, stable institutions. In the absence of these factors, the positive effects of HOPE VI have been less pronounced.

Introduction

This study examines the extent to which HOPE VI redevelopments have had positive spillover effects on their surrounding neighborhoods. An extensive literature documents the negative effects of many traditional public housing complexes on their surrounding neighborhoods, including low property values and high levels of crime (Massey and Kanaiaupuni, 1993). Research on the neighborhood effects of HOPE VI public housing redevelopment efforts, in contrast, frequently has shown much more positive effects.[1] These studies have shown that the neighborhoods surrounding HOPE VI properties are frequently characterized by lower crime, higher property values, and higher resident incomes than similar communities without such redevelopment. Yet none of the HOPE VI studies to date has comprehensively evaluated the extent to which the observed neighborhood improvements have resulted from the HOPE VI investment. Are the observed correlations the result of preexisting positive trends within the community, or was the HOPE VI investment a critical catalyst for change? What would have happened to the community in the absence of HOPE VI?

To address these questions, the study focuses on the economic spillover benefits of HOPE VI redevelopments in selected neighborhoods in Boston, Massachusetts, and in Washington, D.C.[2] It documents the changes that have taken place in local property values, violent crime patterns, and resident incomes before and after the redevelopments, and it assesses the extent to which the changes can be attributed to HOPE VI. It is important to note that the HOPE VI redevelopments do not take place in isolation. Most occur in conjunction with other efforts to improve the communities. It could easily be argued that existing neighborhood development activity drove the selection of certain HOPE VI sites and that the HOPE VI redevelopment in these cases has been more of an augmenting than a catalyzing factor for local change. The study does not attempt to distinguish the relative importance of each particular factor; rather, it assesses the role that HOPE VI and associated programs have played in bringing about local change.

The study finds that, for the most part, the HOPE VI redevelopments have had positive, statistically significant effects on economic conditions in their surrounding neighborhoods. The extent of the neighborhood spillover effects has depended, in part, on the location and market dynamics of the surrounding community. The economic effects of a HOPE VI redevelopment have tended to be greater in communities where there were other development pressures and existing, stable institutions. In the absence of these factors, the positive effects of HOPE VI are less pronounced.

[1] Zielenbach (2003a, 2003b), Bair and Fitzgerald (2005), Turbov and Piper (2005), and Levy and Gallagher (2006) all provide evidence of positive neighborhood spillover benefits associated with HOPE VI developments.

[2] This article is based on a six-city HOPE VI economic cost-benefit analysis sponsored by the John D. and Catherine T. MacArthur Foundation and the Council of Large Public Housing Authorities. Parts of it are adapted from a forthcoming article in *Housing Policy Debate*.

Approach, Methods, and Site Selection

Community development practitioners and policymakers have multiple reasons to expect HOPE VI redevelopments to have positive neighborhood effects. The sheer size of many of the targeted properties, along with the substantial amount of public and private money earmarked for their improvement, allow for creative, comprehensive planning and better integration with the surrounding areas. Redevelopment itself can lead to improved physical design of the properties, which can facilitate greater social interaction among residents of the properties and those in the surrounding neighborhood. Such interactions can help build greater trust and social capital, which contributes to greater collective action, reduced crime, and greater economic stability (Fukuyama, 1995; Morenoff, Sampson, and Raudenbush, 2001; Saegert, Winkel, and Swartz, 2002). HOPE VI communities are intended to be mixed-income developments, and the presence of higher income individuals tends to be associated with higher rates of homeownership, greater social organization, reduced crime, and general community stability (Joseph, 2006). The development and renovation of housing also tends to have positive effects on nearby property values.[3]

In examining neighborhood change, the study focuses on three key indicators: changes in residential property values, changes in crime rates, and changes in household incomes. Elements of the HOPE VI program are likely to affect each of these indicators. Although the price of a home reflects the characteristics of the property, it also partly reflects the value that individuals place on the surrounding neighborhood. To the extent that a neighborhood improves—or the perception of the neighborhood improves—that improvement should be reflected in higher sales prices for homes.

As noted previously, public housing developments have frequently been associated with high rates of crime and violence—problems that have frequently seeped into the surrounding neighborhoods, reduced the quality of life for local residents, and decreased the chance of additional investment in the area. In addition to redeveloping the properties in ways that are more conducive to public safety, the HOPE VI intervention provides an opportunity for local housing authorities to impose rigorous screening criteria on new or returning tenants. Such opportunities increase expectations for a noticeable reduction in violent crime in the areas surrounding the redeveloped properties. Finally, one goal of the original HOPE VI legislation was to reduce the concentrated poverty prevalent in most of the severely distressed public housing properties. Reducing the concentration of poverty, coupled with improving public safety, could attract more moderate- and middle-income residents to the surrounding neighborhoods. Such an income mix would be more likely to attract and sustain additional private investment and thus better integrate the neighborhood into the regional economy.

For each of the three key indicators (changes in residential property values, changes in crime rates, and changes in household incomes), we developed interrupted time series statistical models that allowed for changes in levels and trends in the outcome variables before and after the HOPE VI redevelopments. The models control for a variety of regional economic trends and thus measure how the HOPE VI neighborhoods performed relative to their surrounding communities both before

[3] Goetz, Lam, and Heitlinger (1996); Ding, Simons, and Baku (2000); Schill et al. (2002); and Galster, Tatian, and Accordino (2006) all found positive neighborhood spillover effects associated with renovation investment.

and after redevelopment. If the neighborhood's relative performance improved after HOPE VI redevelopment compared with its relative performance before HOPE VI, the study suggests that the HOPE VI intervention was a significant contributor to that improvement.

The quantitative analyses help identify the relationships between the HOPE VI redevelopments and specific measures of local change, but they provide relatively little insight into the process by which change occurred or the role of other, less easily quantifiable factors in bringing about that change. Because quantitative measures can only hint at the changes in perceptions that typically precede investment decisions, we augmented the quantitative analyses with site visits to the different properties and their neighborhoods and with interviews with individuals knowledgeable about the HOPE VI properties and local community dynamics. Those interviewed included administrators at the respective housing authorities; police officers assigned to the neighborhoods; leaders of neighborhood-based organizations; lenders active in the sampled communities; citywide community development organizations; elected public officials; and heads of relevant city agencies, such as the housing, planning, and economic development departments. We selected the individuals based on recommendations from local housing authority officials and from our own community development contacts in Boston and Washington. Appendix C provides a list of those interviewed.

Although no formal interview protocol was in place, we asked all those whom we interviewed roughly the same questions. We probed their recollections of neighborhood conditions before the HOPE VI redevelopments and asked them to draw comparisons between the dynamics then and now. We asked them to document as best they could the changes that had occurred in the targeted communities and to identify the factors that they thought had contributed to those changes. We asked specifically about the role of the local public housing complex in catalyzing or retarding change. How much of the change might have occurred without any improvement in public housing? What role (if any) did particular organizations and institutions play in changing neighborhood conditions? We also asked certain people to estimate the effects that a similar HOPE VI intervention would have on specific traditional public housing properties located elsewhere in the city.

The analysis examined changes in neighborhoods surrounding four HOPE VI redevelopments—two each in Boston and Washington. In each case, the public housing property in question had become badly deteriorated and functionally obsolete. The two major options were to continue trying to maintain the flawed property as public housing or to embark on a major redevelopment of the site through the HOPE VI Program. Our analysis assumes one of these two options.[4]

We chose two sites in each city to ensure some diversity of neighborhoods. We selected HOPE VI sites based on the recommendations of the Boston Housing Authority (BHA) and the District of Columbia Housing Authority (DCHA), with the assistance of the Council of Large Public Housing Authorities. We required that sites be family developments with at least 100 units and whose redevelopment had been largely completed by 2004, in the interest of selecting large enough properties to have meaningful spillover effects and to have some post-completion data with which to measure those effects. Because few sites met these criteria, we did not have the opportunity

[4] A third alternative might have been to sell the properties to private developers for them to use as they saw fit (with housing vouchers being given to the affected public housing residents). In light of the federal policy at the time to keep public housing units on the sites, this sale option was not realistic.

to try to control for neighborhood characteristics, except to avoid sites whose neighborhoods overlapped. We recognize the potential biases associated with this selection approach, but we note that the distribution of HOPE VI grants has itself often been biased in favor of communities whose characteristics enhance the likelihood of local revitalization.

The remainder of this article is structured as follows. The next section provides some background on each of the selected HOPE VI sites, situating them in their local context. The background is followed by more detailed discussions of our methodology and findings regarding effects on property values, crime rates, and resident incomes in the neighborhoods surrounding the HOPE VI sites. We seek to interpret the findings through more detailed contextual analyses and conclude with some recommendations for maximizing the neighborhood economic effects of future HOPE VI projects.

HOPE VI Sites

The analysis in this study focuses on selected public housing sites in Boston and Washington (exhibits 1 and 2), two cities that have ranked statistically among the strongest economies and have endured some of the tightest real estate markets in the country throughout much of the past 15 years. Even historically distressed communities in these cities experienced multiple years of double-digit gains in property values.

Boston: Mission Main

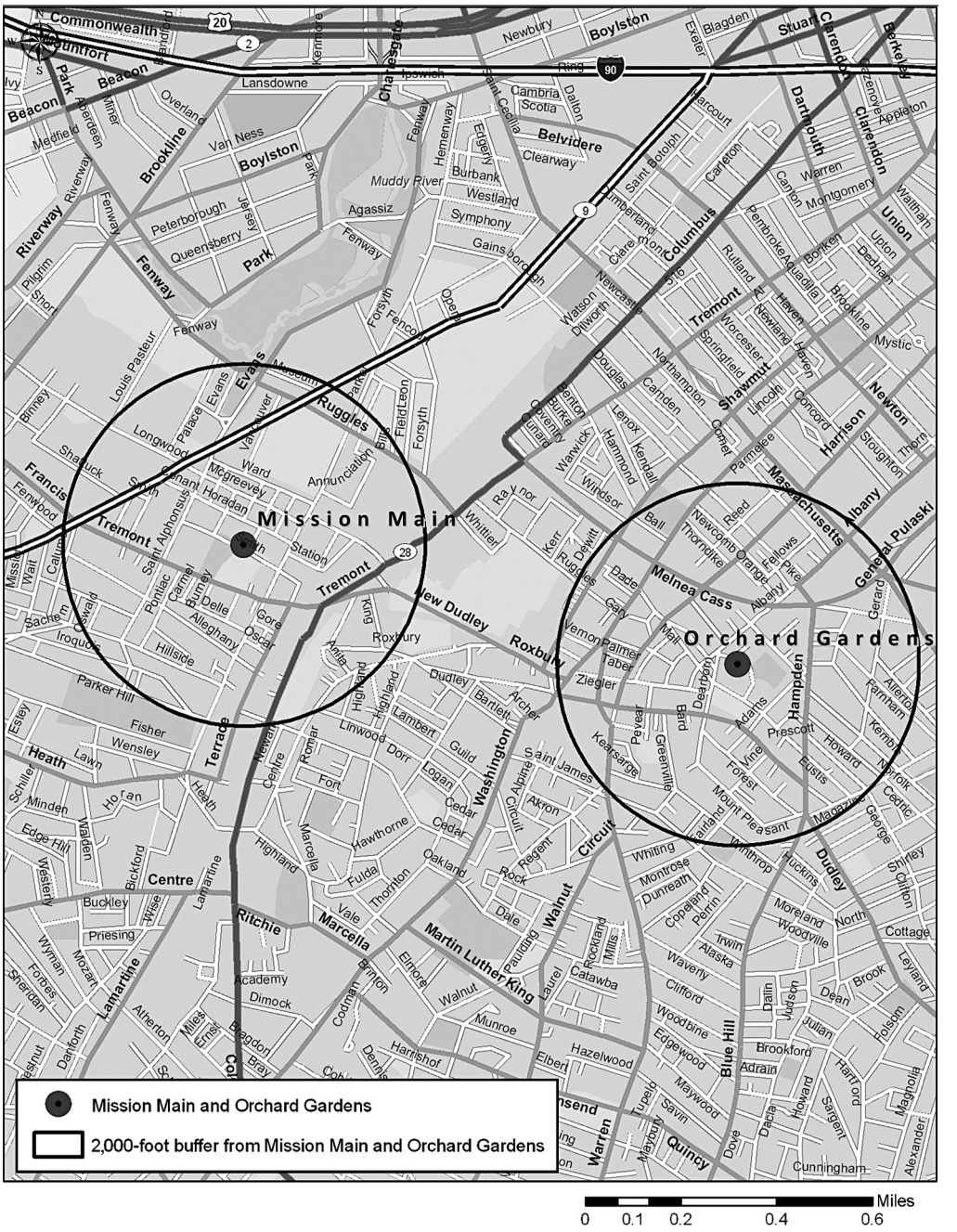
Built in 1940, Mission Main initially consisted of 1,023 units spread among 39 three-story buildings on 22 acres. By the early 1990s, Mission Main ranked as the most troubled property in the BHA portfolio. Fully 74 percent of people who were offered units in the complex refused them, and 93 percent of all new tenants moving into the property in 1992 were formerly homeless individuals. By 1993, only 680 of the complex's then 822 units were occupied, and 68 percent of resident households had no earned income. Drug dealers frequently operated out of the vacant units, and the property featured the largest open-air heroin market in New England. The BHA's 1993 property assessment found that 56 percent of the complex's buildings were in poor condition, and the site suffered from outdated drainage, sewer, plumbing, and electrical systems.[5]

At the same time, Mission Main occupied increasingly choice real estate. The Northeastern University and Wentworth University campuses are in the immediate area, and the Longwood Medical Center sits a couple of blocks to the north. Two streetcar and subway lines are within easy walking distance. To the south lies Mission Hill, a historically stable, middle-class community. Mission Main was the only part of the community that had not seen notable development, and its problems were hindering the future growth of the area. In 1993, the BHA applied for and received a $49.9 million HOPE VI grant to redevelop Mission Main in a way that would integrate it more with the surrounding area. By the time the three-stage project was finished in 2002, the site contained 535 apartments in a mix of midrise and garden-style apartments. Of these units, 444 (83 percent) are reserved for public housing residents. The BHA rents the remainder to the general public at market rates.

[5] These data are from the BHA's 1993 HOPE VI application and from interviews with BHA staff members.

Exhibit 1

Location of Selected Boston HOPE VI Sites



Boston: Orchard Gardens (Formerly Orchard Park)

The Orchard Park complex was located about 1 1/2 miles east of Mission Main, a few blocks from the once-thriving Dudley Square commercial center. Built in the 1940s, the property had been hit hard by the riots that followed the assassination of Martin Luther King, Jr. By the early 1990s, it was widely described as "God-awful," and it was the second-worst property in the BHA's portfolio. Darrell "God" Whiting, a vicious drug dealer, effectively controlled the complex. Conditions were so bad that 89 percent of the individuals offered a chance to move off the BHA waiting list, which then included 15,000 households, and into Orchard Park chose to move to the end of the waiting list rather than accept the Orchard Park placement.[6] BHA staff members noted that people preferred living in their cars to living in Orchard Park.

The Orchard Park Tenants Association had pressured the BHA for years to improve the complex, and the BHA finally began modernizing it in 1993. In 1996, the BHA received a $30 million HOPE VI grant for more comprehensive site redevelopment. The BHA kept the renovated buildings, but it demolished the rest and built new units in a series of garden-style apartments and rowhouses, renaming the property Orchard Gardens. The process involved decreasing the site's population density by reducing the total number of units from 711 to 446. All the onsite units are rentals, with 85 percent reserved for public housing tenants and the remainder designated as market-rate apartments. An additional 45 homeownership units have been completed off site, a few blocks away. The redevelopment also involved the construction of an elementary school at the edge of the property.

Washington: The Townhomes on Capitol Hill (Formerly Ellen Wilson Dwellings)

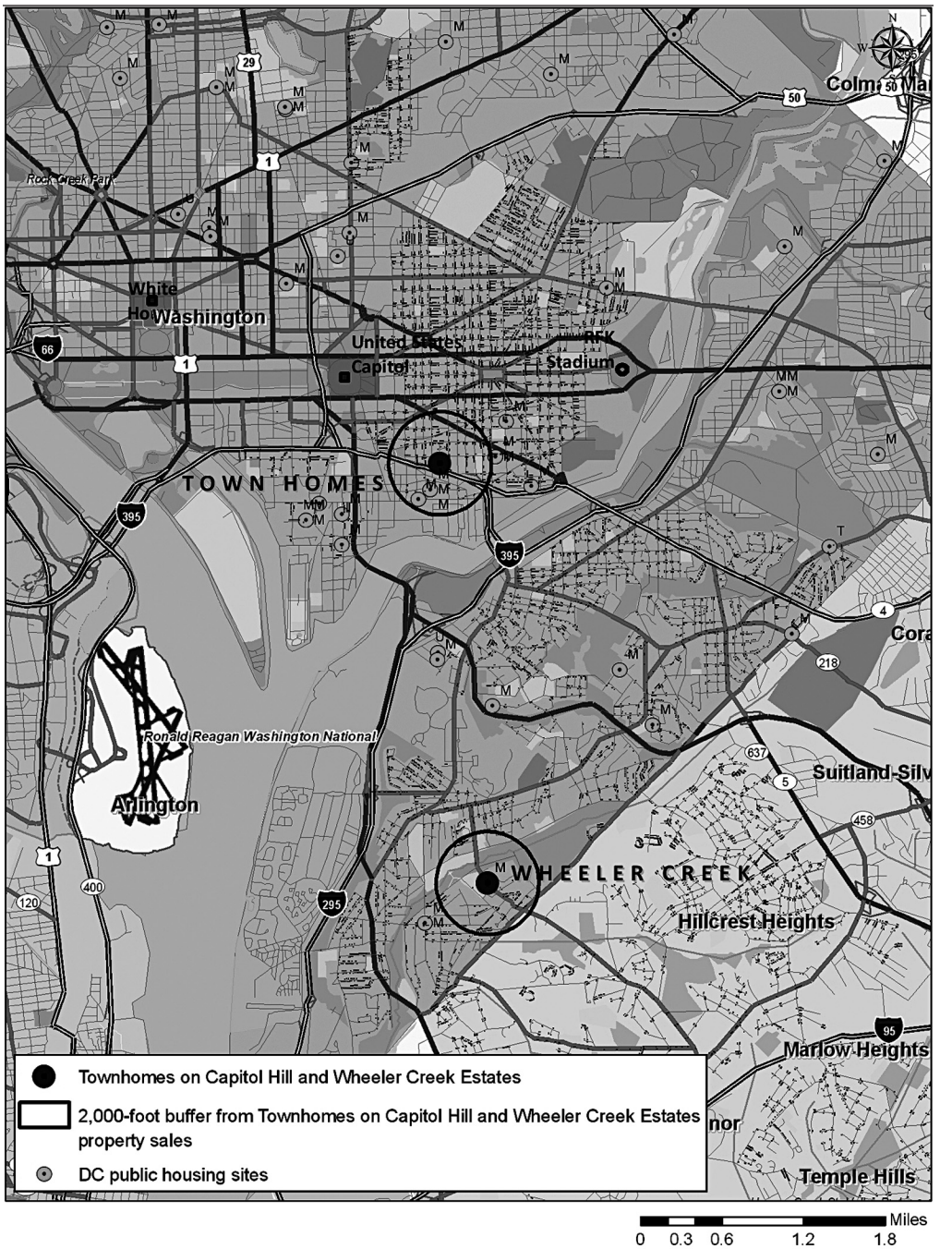
The Ellen Wilson Dwellings complex was built in 1941 on 5.3 acres on the southeast edge of the Capitol Hill neighborhood in Washington, D.C. The site contained 134 public housing units in two- and three-story, walkup apartment buildings that contrasted sharply with the neighborhood's brick townhouses. Conditions on the site deteriorated over time, and, by the mid-1980s, the area was distinctly separate—visually and economically—from the surrounding Capitol Hill community. Conditions at the Ellen Wilson were so bad that Don Denton, a local realtor, considered its residents "really hostages … living in hell on earth."

The District of Columbia Department of Public and Assisted Housing (DPAH), the predecessor of DCHA, designated the Ellen Wilson Dwellings for comprehensive modernization in the late 1980s and relocated all the residents in 1988. The estimated renovation costs exceeded available funding, however, and the city was unable to convince congressional appropriators to allocate the additional funds. As a result, the Ellen Wilson sat vacant for 8 years, attracting prostitutes, drug dealers, and squatters. Street robberies, car thefts, and panhandling became commonplace in the area surrounding the site (Wheeler, 1998). Exacerbating the problem was the deterioration of the Arthur Capper public housing complex across the nearby Southwest Freeway; by the early 1990s, that complex was about 60 percent vacant and largely boarded up. The reconstitution of DPAH as DCHA (under a court-appointed receiver), coupled with a $25 million HOPE VI grant due to the intervention of then U.S. Housing and Urban Development (HUD) Secretary Henry Cisneros, finally resulted in the demolition of the Ellen Wilson Dwellings in 1996.

[6] See the BHA's HOPE VI application for Orchard Park.

Exhibit 2

Location of Selected Washington HOPE VI Sites



The entire redeveloped site, named the Townhomes on Capitol Hill, has housing for owner occupants. Of the 147 units on the site, 134 are affordable cooperatives and 13 are market-rate homes. About one-third of the cooperative units are reserved for public housing residents, another one-third are set aside as affordable units (for households making 80 percent or less of the metropolitan area median income [AMI]), and the remaining one-third are for moderate-income households (those earning up to 115 percent of the AMI). The goal of the redevelopment, unique among its HOPE VI contemporaries, was that resident ownership would result in better property maintenance and thus fewer problems for the neighborhood. The Townhomes complex is entirely self-sufficient and does not require any ongoing government subsidies.

Washington: Wheeler Creek Estates (Formerly Skytower and Valley Green)

The Wheeler Creek Estates complex sits on the site of the former Skytower and Valley Green developments in the Washington Highlands neighborhood in southeast Washington. Both original properties consisted of three-story, walkup buildings that had been designed with the institutional starkness common in 1960s-era public facilities. The 312-unit Valley Green complex had been built in 1961 to house people displaced by slum clearance and highway construction projects elsewhere in the District of Columbia. Many of those individuals were then working at the nearby military installations but moved away when the bases closed later in the decade. With fewer working tenants, conditions at Valley Green began a steady decline. Vandalism plagued the site throughout the 1980s, and maintenance orders overwhelmed management. Eventually, DPAH decided to board up damaged units when tenants moved out. The vacancies offered havens for criminals, however; by the late 1980s, Valley Green had become a major drug market, riddled with violent crime. Conditions worsened so much that, by 1994, only eight families remained at the property (Loeb, 1997; Knox, 2007).

The adjacent Skytower property, developed at roughly the same time as Valley Green, was privately owned and managed. Containing 91 units, Skytower had received federal subsidies during its construction, housed only Section 8 voucher recipients, and continued to be insured by HUD. Unfortunately, the property suffered from very poor management. Property upkeep was minimal, at best. By 1994, the complex had widespread internal water damage, had no emergency lighting or fire extinguishing systems, and was infested with rats. Crime was as bad at Valley Green, if not worse. In a single month in 1993, 16 people were killed and 22 were assaulted in the immediate vicinity of Skytower. HUD foreclosed on the property a few years later, and DCHA acquired it as part of a broader strategy to redevelop Valley Green.

DCHA obtained a $20.3 million HOPE VI grant in 1997, demolished both the Skytower and Valley Green complexes, and created the 314-unit Wheeler Creek Estates. The redeveloped site contains 148 public housing units (48 for families and 100 for seniors), 32 market-rate rental units, and 134 homeownership units. It also features a 13,000-square-foot community center and a daycare center. Of the 134 homeownership units, 30 were set up as lease-to-purchase homes for former public housing residents and 11 were purchased outright (for $115,000 each) by other public housing households under an arrangement in which the household was responsible for a first mortgage of $45,000 and DCHA paid a second mortgage of $70,000 if the owner resided in the home for 20 years. The remaining 93 homes were sold at market rates to the general public. The development, which was completed in 2000 and fully occupied in 2001, earned HUD's Best Practices Award in 2000 and an award from the National Association of Home Builders in 2002.

HOPE VI Effects on Residential Property Values

What effects have these redevelopments had on their surrounding communities? This section examines differences in local property values before and after the redevelopments and the extent to which the changes can be attributed to the HOPE VI investments.

Residential Property Data

To evaluate the effects of the HOPE VI investments on neighborhood property values, the study used First American Real Estate Solutions transaction data on single-family home sales from 1990 to 2006. In addition to sales prices and dates, the data include the addresses and sizes of the homes. We defined the surrounding neighborhood as the area within 2,000 feet of the HOPE VI property. Because city blocks typically are 500 feet long, the 2,000-foot distance captures effects within a four-block radius—the likely limit of any single development's impact. In actuality, natural and manmade barriers, such as rivers, hills, highways, and boulevards, can limit the potential impact area for particular properties. In three of the four cases (Orchard Gardens being the exception), we revised the impact area after visiting the sites and consulting aerial and census tract maps. In the two Washington cases, we also truncated the impact area to minimize the influence of nearby public housing sites on property values. The panels in exhibit 3 show the four impact areas.

For the two Boston sites, the study used data from 28,235 residential sales. More than 400 of these sales occurred within the Mission Main ring, and nearly 200 occurred within 2,000 feet of Orchard Gardens. For the Washington sites, the study used data on 39,788 residential sales. More than 640 of these sales occurred within 2,000 feet of the Townhomes on Capitol Hill, and more than 350 sales took place within 2,000 feet of Wheeler Creek Estates. The remaining sales took place in ZIP Codes adjacent to the designated HOPE VI impact areas; we segmented these data into two categories: sales within 2,000 feet of a "traditional" (that is, not a HOPE VI) public housing property and those outside of such a radius.

Exhibit 3

HOPE VI Neighborhood Impact Areas (1 of 2)

Mission Main

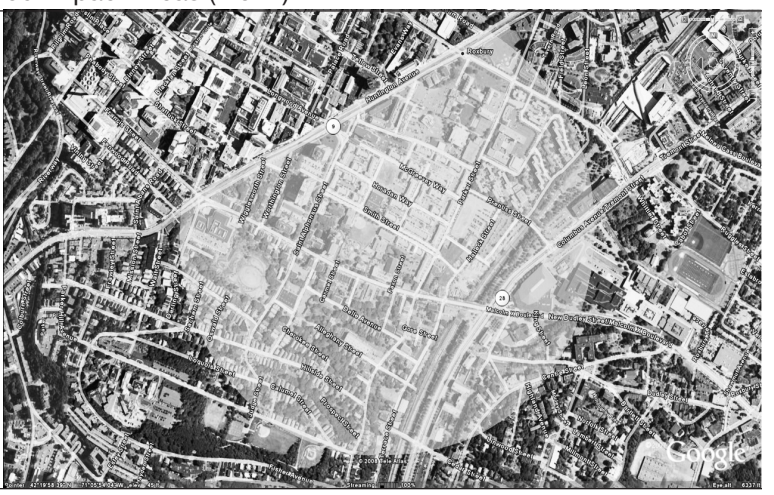


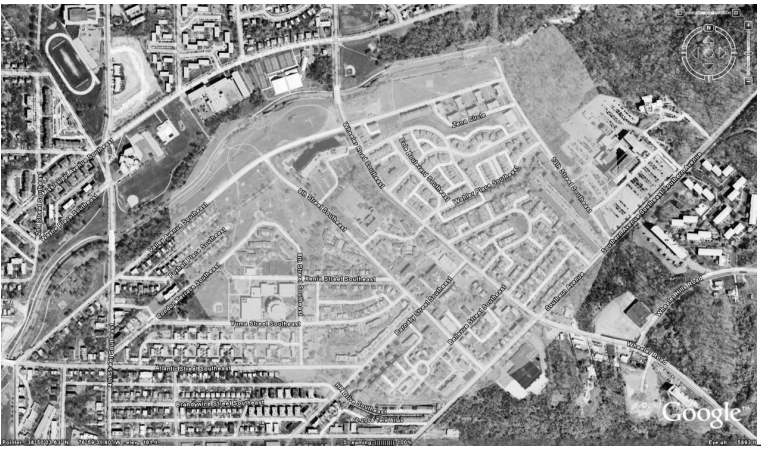
Exhibit 3

HOPE VI Neighborhood Impact Areas (2 of 2)

Orchard Gardens

Townhomes on Capitol Hill

Wheeler Creek Estates



Property Effects Estimation Methods

To measure the effects of HOPE VI redevelopment on neighborhood home prices, we employed a hedonic interrupted time series model similar to that used by Galster, Tatian, and Smith (1999). The empirical specification allows for identifying price levels and trends in the impact areas of both HOPE VI and traditional public housing, relative to those in areas with no public housing. The specification further allows the price levels and trends in HOPE VI neighborhoods to diverge before and after the HOPE VI investment. In this context, we assumed that the counterfactual—what would have happened with no HOPE VI redevelopment—is the continued deviation in price trends in the HOPE VI area from those in the overall sample.

Our multivariate regression model controls for the year a home was sold, its size, its distance to the central business district, its location relative to the HOPE VI site and to traditional public housing (within or outside of a 2,000-foot radius of each), and the housing price trends in the HOPE VI and surrounding ZIP Codes both before and after the HOPE VI intervention.[7] The specification included indicator variables for each year and year indicators that interacted with a variable indicating the presence of traditional public housing in the neighborhood. These variables allowed us to trace the overall house price trends and measure the difference between the overall price trend and the trend in areas with traditional public housing. We also included a variable that indicated whether the sale was in a HOPE VI neighborhood before redevelopment began, and its interaction with a linear time trend to trace pre-HOPE VI trends. Similarly, we included a post-HOPE VI variable and tracked its interaction with time to capture the changes in price levels and trend from the pre-HOPE VI period.

One challenge is determining the appropriate intervention point, the moment at which investors perceived a change in the neighborhood. In theory, that tipping point could be when the redevelopment was announced, when demolition of the former property began, when tenants began reoccupying the redeveloped site, or when the redevelopment was completed. Reasonable arguments can be made for choosing any of these times, and no moment stands out as the most likely tipping point. Thus for each development, we therefore assessed change in appreciation trends around each development, using as intervention points the years marking the start of demolition, first occupancy, and project completion, and then focused on the model that best fit the data.[8]

Estimated Property Value Effects

Exhibit 4 shows the key estimated parameters for the four HOPE VI sites.[9] The dummy coefficients represent the Y-intercept for the trend lines before and after redevelopment, and the trend coefficients represent the slope of those lines. The neighborhoods encompassing both Mission Main and Orchard Gardens experienced positive, statistically significant differences in price trends subsequent to the HOPE VI redevelopment. Before the demolition of the former public housing

[7] Appendix A includes the model and its empirical specifications.

[8] We explored, but generally were unable to distinguish, separate effects for the redevelopments' announcement, demolition, move-in, and completion dates.

[9] Appendix B shows full regressions.

Exhibit 4

Estimated Pre- and Post-HOPE VI Property Value Coefficients

	Mission Main	Orchard Gardens	Townhomes on Capitol Hill	Wheeler Creek Estates
Pre-HOPE VI dummy	– 0.005	– 0.313*	0.243*	0.145
	(– 0.04)	(– 2.12)	(2.47)	(1.32)
Pre-HOPE VI trend	– 0.082*	– 0.092*	0.018	– 0.023
	(– 3.10)	(– 2.52)	(0.64)	(– 0.91)
Post-HOPE VI dummy	– 0.64*	– 1.278*	0.184	0.512*
	(– 3.76)	(– 5.62)	(1.55)	(2.37)
Post-HOPE VI trend	0.054*	0.062*	0.016	– 0.037*
	(4.26)	(– 3.76)	(1.69)	(– 2.22)

** Statistically significant at the .05 level.*

Note: t-statistics are in parentheses.

properties, surrounding property values were decreasing at rates of 8.2 and 9.2 percent, respectively, relative to the whole sample. After demolition, values surrounding the two sites increased at rates of 5.4 and 6.2 percent, respectively.

The story in Washington is more complicated. Residential sales prices in the area surrounding the Townhomes on Capitol Hill rose continuously during the sample period, and home prices near the HOPE VI property tended to rise more quickly than prices elsewhere in the area. Yet the price trends showed neither a sustained difference before and after the HOPE VI investment (as evidenced by the similar pre- and post-HOPE VI trend coefficients) nor any significant change in the underlying price level.[10] In contrast, we found Wheeler Creek to have had a positive effect on neighborhood property prices, as evidenced by the post-HOPE VI dummy coefficient of 0.512—a statistically significant increase (at the .10 level) from the pre-HOPE VI level. No significant difference occurred in the price trends before and after redevelopment, however; both rates were slightly more negative after the HOPE VI investment. The increase in price levels in the Wheeler Creek neighborhood more than offset the slightly increased negative price trend.

The coefficients displayed in exhibit 4 can be used to simulate the effects of the HOPE VI interventions and thus estimate the effects of the redevelopments on property values. Exhibit 5 shows the model's estimate of price trends in each of the four neighborhoods, with and without the redevelopment. The estimated trend without redevelopment assumes that the neighborhood's prices would have maintained their same rate of appreciation relative to the parts of the selected ZIP Codes with no public housing. We estimate that the HOPE VI interventions contributed to an average property appreciation of more than $365,000 in the area surrounding Mission Main and of nearly $198,000 in the Dudley Square area. These gains translated into aggregate property value increases of $107 million and $58 million, respectively. The initial jump in prices associated with Wheeler Creek's redevelopment translated into an average gain of slightly more than $30,000 per

[10] We used demolition as the intervention point for the Townhomes redevelopment. The findings did not change when we used other intervention points or smaller radii to define the impact area.

home, as of 2006, relative to the estimated prices in the absence of redevelopment. The aggregate impact of the Wheeler Creek redevelopment on property values in the surrounding Washington Highlands area was $14 million. Because there was no statistically significant difference in Capitol Hill price amounts or trends before and after the redevelopment of the Townhomes, we cannot attribute any property value changes to that HOPE VI intervention.

Exhibit 5

Estimated Property Value Impacts of HOPE VI Redevelopments (1 of 2)

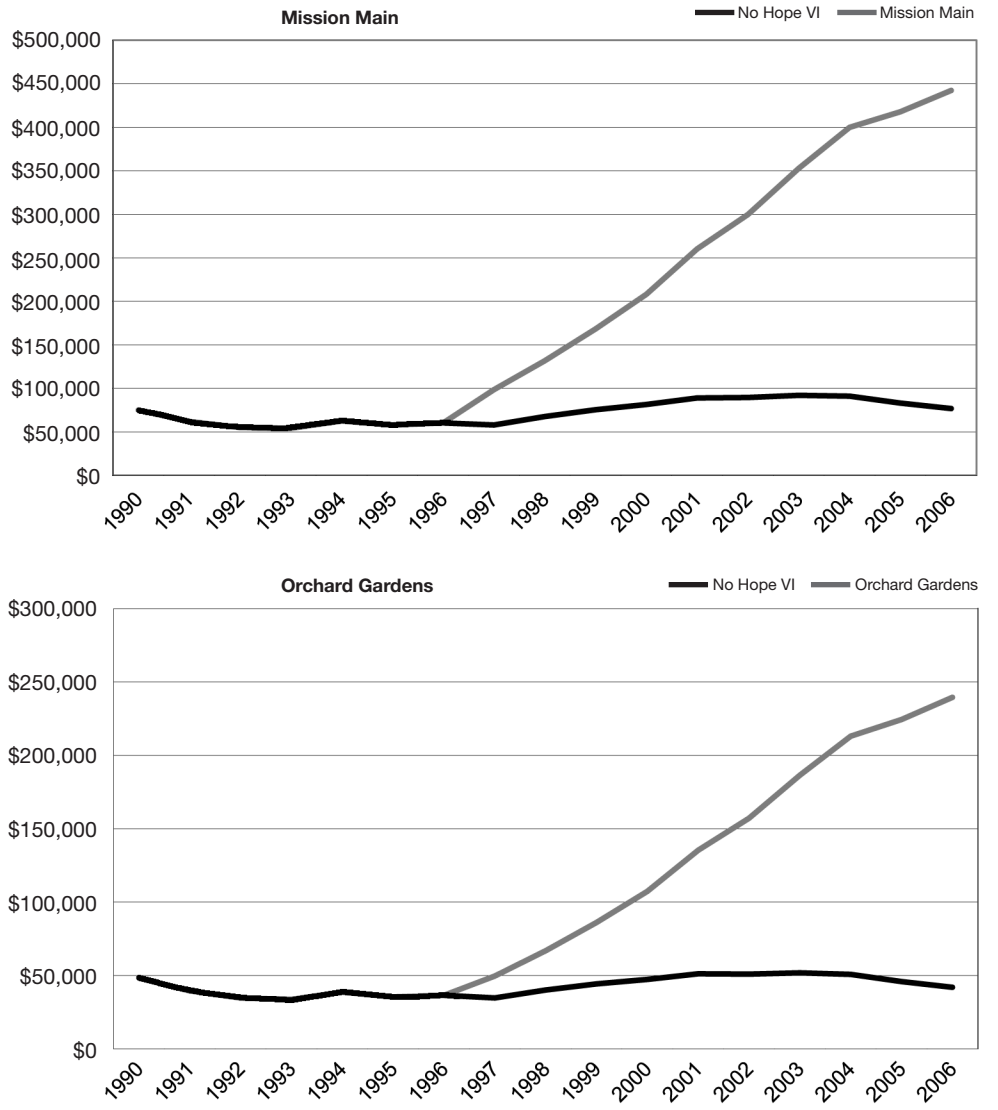
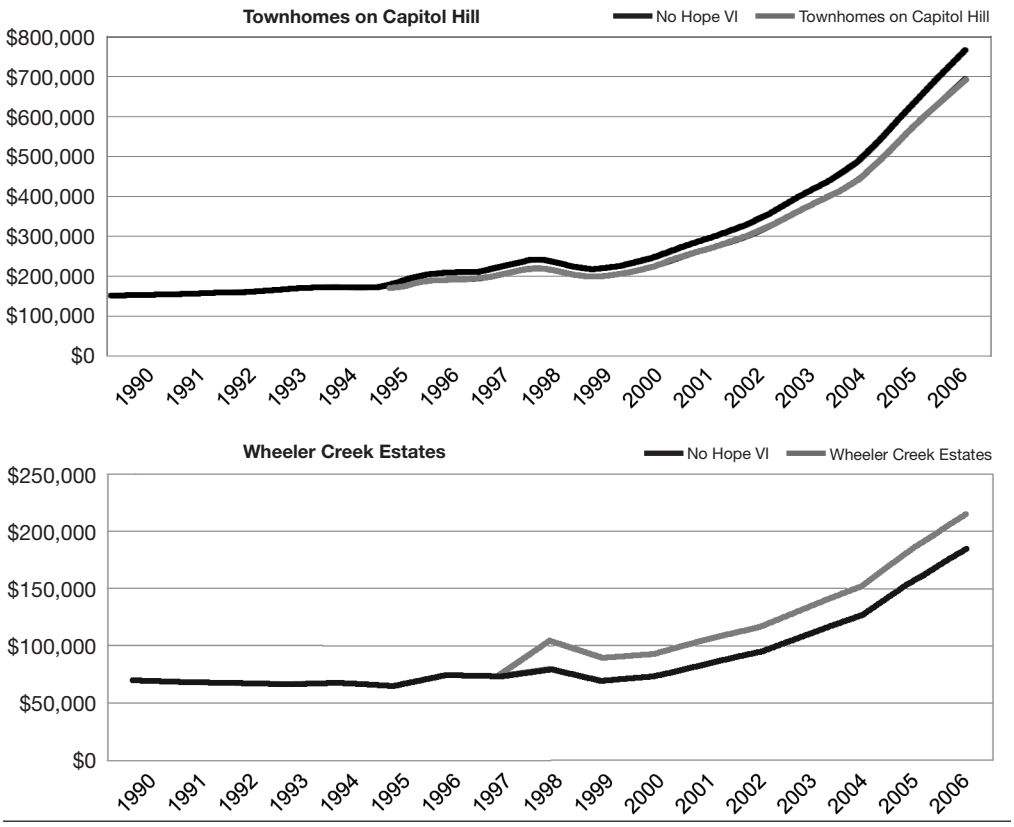


Exhibit 5

Estimated Property Value Impacts of HOPE VI Redevelopments (2 of 2)



HOPE VI Effects on Crime

The HOPE VI redevelopment process involved physically redesigning the properties to make them more conducive to public safety. The housing authorities also committed to improved policing of the sites and stricter screening of potential residents for past criminal behavior. We would expect these changes to contribute to reductions in crime rates both on site and in the surrounding neighborhoods. This section explores that hypothesis.

Crime Data

We obtained data on Part I crimes (homicides, rapes, aggravated assaults, robberies, burglaries, larcenies, motor vehicle thefts, and arson) from the Boston and District of Columbia police departments. Boston's data were available at the police reporting area level back to 1990. We compared crime trends in the areas containing and closely surrounding the redeveloped sites with trends in the areas surrounding traditional public housing as well as in the city as a whole. The District of Columbia Metropolitan Police Department (MPD), however, had data going back only to 1998,

and it had changed the boundaries of crime-reporting districts in the early 2000s. We therefore relied on data from DCHA[11] specific to individual public housing complexes in the city, which we were able to piece together from 1995 to 2005. Although the data for Washington are not as complete as those for Boston, they nonetheless provide a reasonable sense of the extent of change that has taken place in the selected areas.

Crime Effect Estimation Methods

As with the property value analysis, we are ultimately interested in the difference between the observed crime rates around the HOPE VI redevelopments and the rates that would have occurred in the absence of HOPE VI investment. In both cities, we estimated the counterfactual by assuming that violent crime rates in the HOPE VI areas would have tracked those in other traditional public housing neighborhoods had the redevelopments not taken place. We therefore calculated crime rates for traditional public housing areas before and after demolition of the HOPE VI sites and applied the post-demolition rate in those areas to the pre-development rate at the HOPE VI property to establish the counterfactual.

Estimated Crime Effects

Exhibit 6 displays the actual numbers of Part I crimes committed near traditional public housing sites and at HOPE VI sites in Boston and Washington in the years before the HOPE VI interventions and also shows the actual numbers at the sites in the years following re-occupancy. It compares the actual figures with the estimated numbers of violent crimes that would have taken place at the HOPE VI sites in the absence of redevelopment.

Crime rates in three of the four HOPE VI sites declined. In Boston, violent crime in the Mission Main and Orchard Gardens neighborhoods declined by 51.5 and 66.2 percent, respectively. In Washington, violent crime in the Townhomes area fell by 75 percent. In each of these cases, the decline in the HOPE VI neighborhoods far exceeded the drop in violent crime in the neighborhoods with traditional public housing sites. Our interrupted time series model indicates that for these three areas a decline of at least 48 percent occurred in violent crime relative to the estimated crimes that would have occurred in the absence of the HOPE VI redevelopments. Only in the Wheeler Creek area did we observe higher crime rates after redevelopment than we would have expected in its absence. Although the number of crimes in the Wheeler area after redevelopment was lower than the number before, the decline was not as great as that for other public housing sites in the District of Columbia during the study period.

It is quite possible that larger declines in crimes occurred than we have estimated in the areas surrounding both Washington developments. Whereas the average pre-HOPE VI crime figures for Boston included figures from 1993 to the year of demolition, crime data for the Washington sites

[11] Unfortunately, these data do not contain a breakdown of the types of crimes committed except at the aggregate level (all public housing sites); we therefore estimated the types of crime committed at the individual site level based on the proportion of those committed at the aggregate level.

Exhibit 6

Expected and Actual Neighborhood Violent Crime Reductions

	Average Annual Crimes in Years Before HOPE VI	Estimated Subsequent Average Annual Crimes in the Absence of HOPE VI	Actual Average Annual Crimes After Redevelopment	Percent Change Before and After Redevelopment	Estimated Percent Change Resulting From HOPE VI Redevelopment
Mission Main	441	414	214	– 51.5	– 48.3
Traditional public housing—Boston	66	NA	62	– 6.1	NA
Orchard Gardens	287	265	97	– 66.2	– 63.4
Traditional public housing—Boston	67	NA	62	– 7.5	NA
Townhomes on Capitol Hill	44	27	11	– 75.0	– 59.3
Traditional public housing—Washington	67	NA	41	– 38.8	NA
Wheeler Creek Estates	27	19	20	– 25.9	5.3
Traditional public housing—Washington	57	NA	40	– 29.8	NA

NA = not applicable.

were available only back to 1997. We therefore averaged the number of crimes in the Townhomes and Wheeler Creek areas from 1997 to 1999 and from 1997 to 2000, respectively. These times coincided with the HOPE VI construction periods when few, if any, residents were on site. We would therefore expect the averages for these periods to be lower at the HOPE VI sites than at traditional public housing sites with large numbers of residents.

To what extent did the observed declines in Part I crimes around the selected HOPE VI sites simply reflect a displacement of crime from these areas to other parts of the cities? BHA Chief of Police Steve Melia recalled that some of the raids designed to clear what he called the "bad elements" out of the old Mission Main and Orchard Park projects led to complaints of vandalism and property damage from residents along different transit lines spreading out from the public housing sites. Yet the number of such complaints decreased with subsequent raids, and the police's efforts received widespread public plaudits. DCHA officials could not remember any similarly localized complaints associated with the Ellen Wilson Dwellings or Skytower-Valley Green projects.

Short of comprehensive, indepth analyses of police reports, arrest records, and crime patterns over time in communities throughout both the Boston and Washington areas, no good way has been found either to prove or to disprove the crime displacement hypothesis. Such analyses were beyond the scope of our study, but we welcome any followup examinations of these issues. The lack of ongoing complaints from particular Boston or Washington communities charging that such HOPE VI-related crime displacement had occurred, coupled with the general decline in crime in the HOPE VI areas and the two cities overall during our study period, leads us to infer that any such displacement was relatively minimal.

HOPE VI Effects on Neighborhood Income

Neighborhood Income Data

Data on resident incomes—particularly at the neighborhood level—are somewhat limited. As a proxy, we have used information on the incomes of individual mortgage applicants in the two cities. The federal Home Mortgage Disclosure Act (HMDA) requires such data to be reported, along with information on the date of the application, the race and ethnicity of the applicant, and the census tract of the subject property. Our analysis focused on applicants hoping to finance properties in the census tracts corresponding to the ZIP Codes for which we obtained property sales data.

From 1992 through 2006, there were 397,222 mortgage applications in the sampled Boston tracts. Of these applications, 84,280 were for properties in census tracts containing traditional public housing, and 686 were for homes in the census tract containing the Orchard Garden HOPE VI site. The limited number of owner-occupied homes in the census tract containing the Mission Main site resulted in very few mortgage applications from that area; we therefore have not attempted to evaluate income changes near that site. During the same period, homebuyers in the selected Washington tracts received 353,309 mortgages—including 55,922 for properties in neighborhoods with traditional public housing and 5,851 for homes in the tracts containing the Townhomes on Capitol Hill and Wheeler Creek Estates. In each of the sampled HOPE VI tracts, the aggregate number of mortgage applications in the study period equaled nearly three-fifths of the number of households

living in the area. Thus the changes in applicants' average incomes are reasonably good proxies for changes in the neighborhoods' average incomes overall.[12]

Neighborhood Income Effects Estimation Methods

Our statistical analysis of HOPE VI impacts on neighborhood income closely mirrors that of our property value analysis, in that we have used interrupted time series methods to estimate trends in resident incomes in neighborhoods with and without HOPE VI redevelopments. The differences in income levels and trends before and after the HOPE VI investment represent the conceivable influence of HOPE VI.

Estimated Neighborhood Income Effects

Exhibit 7 displays the key parameters of the neighborhood income models.[13] The estimated effects on income levels and trends are similar for the Boston and Washington sites, with both cities reporting significantly more favorable trends in income levels after redevelopment. The level coefficient was significantly higher for the period before redevelopment, but the trend coefficient was significantly lower. Thus the average mortgage applicant's income was declining before the HOPE VI intervention but rising afterward. As the trend increases over time, the positive effects on incomes could increase significantly.

Exhibits 8, 9, and 10 display the implied path of income change for the neighborhoods encompassing Orchard Gardens, the Townhomes on Capitol Hill, and Wheeler Creek Estates. We compared the implied path with the estimated income path in the absence of the HOPE VI redevelopments. Because the trend in the relative mortgage applicant's income was very negative before the HOPE VI

Exhibit 7

Estimated Pre- and Post-HOPE VI Neighborhood Income Coefficients

	Orchard Gardens	Townhomes on Capitol Hill	Wheeler Creek Estates
Pre-HOPE VI dummy	– .05	0.087	0.055
	(– .45)	(1.36)	(– .58)
Pre-HOPE VI trend	– .041	– 0.029	– 0.043*
	(– 1.47)	(– 1.36)	(– 2.10)
Post-HOPE VI dummy	– 0.42*	– 0.89	– 0.60*
	(– 3.51)	(– 1.34)	(– 5.93)
Post-HOPE VI trend	.022*	.013*	.014**
	(– 2.32)	(2.34)	(1.87)

**Significant at the .05 level. **Significant at the .10 level.*
Note: t-statistics are in parentheses.

[12] In estimating the effects on aggregate income, we took into account the number of mortgage applications relative to the number of households. We assumed that the greater the number of loans, the greater the likelihood that the HMDA incomes reflected the broader socioeconomic character of the neighborhood.

[13] The dependent variable is the log of applicant income/1,000. Appendix B shows full regression estimates.

Exhibit 8

Estimated Mortgage Applicants' Incomes Before and After Redevelopment in the Orchard Gardens Area

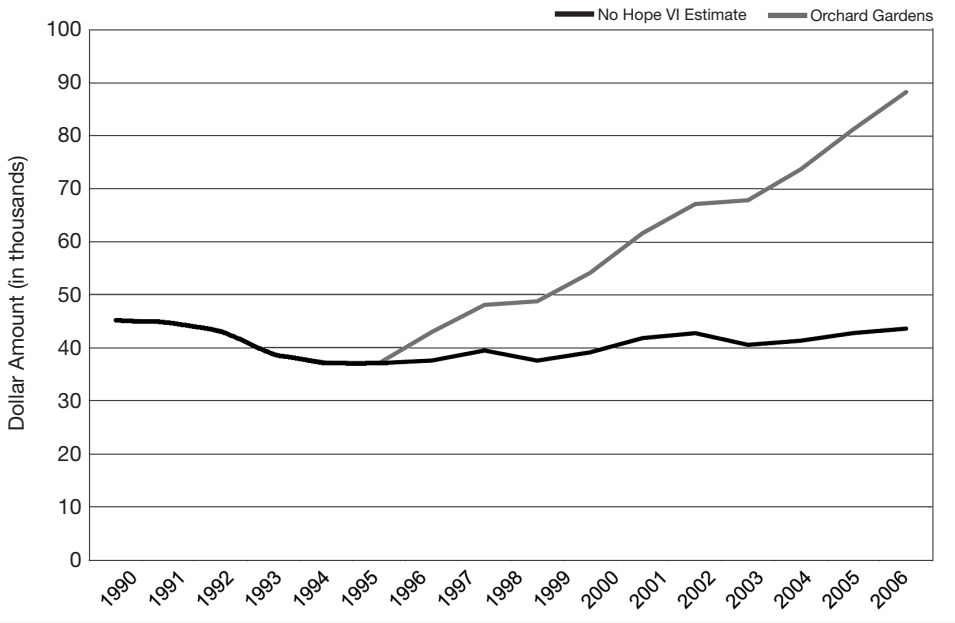


Exhibit 9

Estimated Mortgage Applicants' Incomes Before and After Redevelopment in the Area Surrounding the Townhomes on Capitol Hill

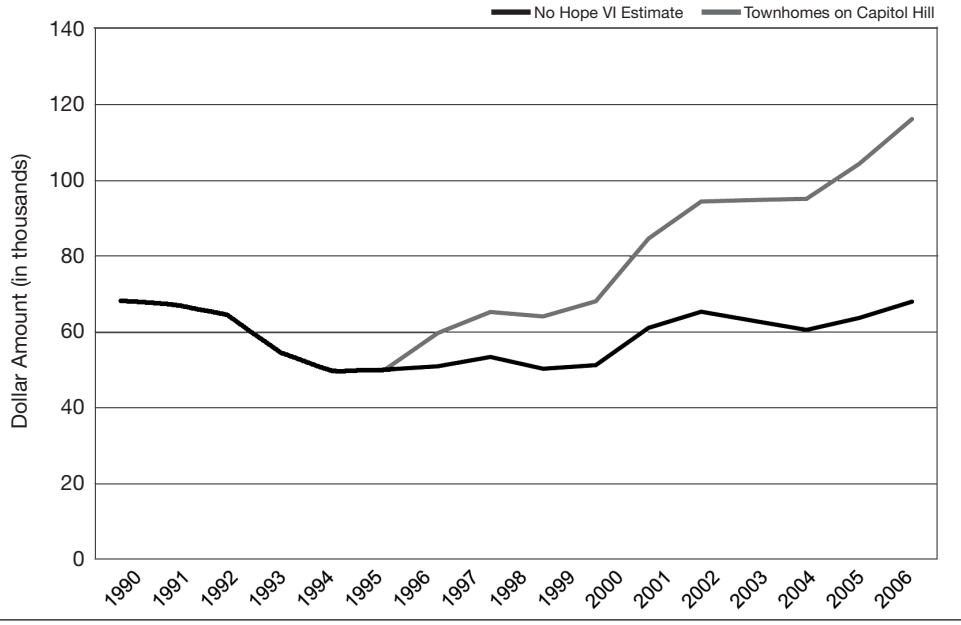
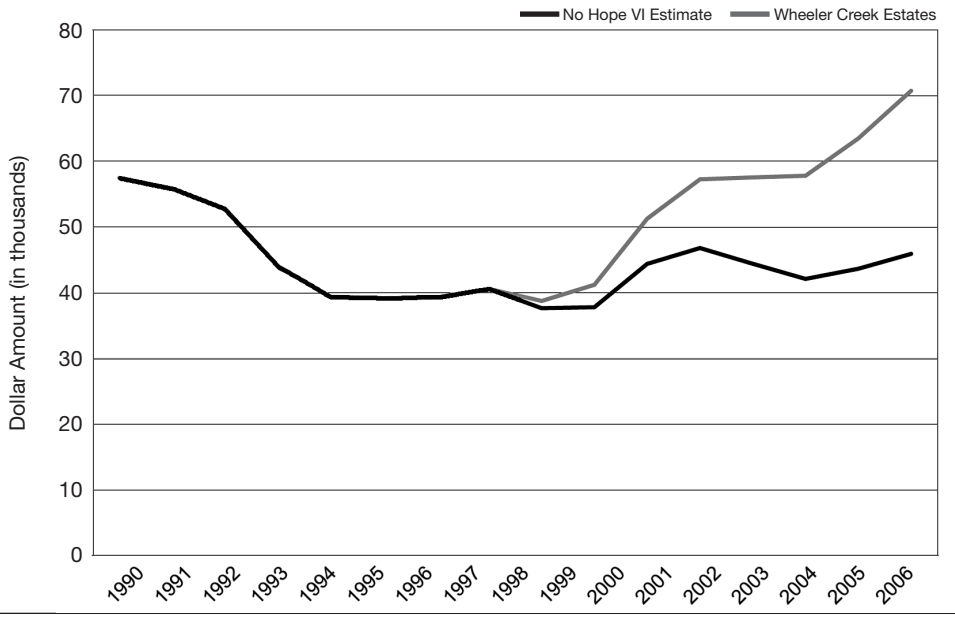


Exhibit 10

Estimated Mortgage Applicants' Incomes Before and After Redevelopment in the Wheeler Creek Estates Area



investments, the net effect on the applicant's income was very large following redevelopment. As of 2006, average annual incomes were estimated to be about $40,000 higher in the Orchard Gardens area, $48,000 higher in the Townhomes area, and about $25,000 higher in the Wheeler Creek area than they would have been in the absence of the HOPE VI redevelopments.

The analyses of crime and neighborhood incomes provide evidence that is generally consistent with the finding that the HOPE VI redevelopments resulted in increased residential property values in three of the four sampled neighborhoods. These findings suggest that gentrification has been a factor in these communities, regardless of whether it was an outcome of the HOPE VI redevelopment. One criticism that has been leveled against HOPE VI is that its emphasis on reducing the concentration of poverty to create more mixed-income communities ultimately promotes gentrification and the displacement of poor people. Our study explicitly did not address those issues. It could easily be argued, at least in the selected Washington communities, that the HOPE VI investments actually resulted in a net increase of housing available to very low-income people, given that the HOPE VI properties were largely vacant before redevelopment. Even if HOPE VI did contribute to gentrification and displacement in the selected Boston communities, our qualitative analysis identified multiple factors independent of HOPE VI that contributed to the communities' economic improvement.

Interpreting the Findings

It is important to keep in mind that the HOPE VI redevelopments did not take place in a vacuum; numerous other factors affected the surrounding neighborhoods before, during, and after the redevelopment process. This section adds a qualitative analysis to the quantitative findings in order to understand the relative importance of the HOPE VI interventions in catalyzing neighborhood change.

Mission Main

The neighborhood encompassing Mission Main experienced dramatic increases in home sale prices, reductions in crime, and increases in average resident incomes almost immediately after the demolition of the distressed public housing property. The improvement is reflected by the fact that a waiting list exists for the market-rate apartments at Mission Main.[14] To what extent would this improvement have taken place without the overhaul of Mission Main?

Pam McKinney, a local real estate appraiser, contends that Mission Main's redevelopment has helped unlock the potential of the area. She thinks that Northeastern and Wentworth Universities would not have expanded across Huntington Avenue had Mission Main not been redeveloped, and that the HOPE VI project made it possible to think of the site as an extension of the Fenway and Longwood neighborhoods to the north and west. BHA officials disagree somewhat with her assessment, believing that the hospitals, universities, and medical centers in the area would have ultimately expanded anyway. Esther Schlorholtz, who worked for the city government before becoming senior vice president for Community Reinvestment at Boston Private Bank, emphasizes that, although the redevelopment of Mission Main was important to the community, it was one of multiple local revitalization efforts at the time. She notes that other subsidized housing properties in the area had expiring affordability restrictions and that developers were rehabilitating a number of them.

Orchard Gardens

The Dudley Square area experienced significant increases in property values and reductions in crime after the demolition of Orchard Park and the development of Orchard Gardens. These positive changes were less substantial than those in the Mission Main area, however. Dudley Square also saw improvements in its commercial conditions. By 2007, local retail vacancies had fallen to less than 3 percent. New construction and major renovation projects were under way throughout the community. Commercial rents had increased from about $15 per square foot to about $24.50. Nightlife had started to return to the area, as evidenced by increased use of the ballroom at Hibernian Hall, a longstanding local landmark completely renovated by Madison Park Community Development Corporation (CDC), and by the creation of a 10,000-square-foot establishment that included a restaurant, sports bar, and jazz club. Although Dudley Square's economic and social conditions are far better than they were a decade ago, the community's real estate market remains weak. Many of the area's commercial tenants are social service agencies. Dudley Square has not

[14] Although conditions are much better, Mission Main still has problems. A gang is based at the property, and the BHA is concerned about onsite security.

yet attracted a critical mass of middle-income tenants, in part because Section 8 voucher holders occupy most of the "market-rate rental" apartments in the area.

The importance of the Orchard Gardens redevelopment to Dudley Square's improvement is somewhat unclear. Although the neighborhood does not have the large institutional presence of the Mission Main area, it has been a major focus of city revitalization efforts. As part of his initial mayoral campaign in 1993, Thomas Menino promised to restore Dudley Square as a major commercial area, and the city of Boston injected considerable public resources into the area in the mid-1990s. The area was designated as both a Boston Main Street district and a federal Enhanced Enterprise Community, and it was a centerpiece of the city's Empowerment Zone application. Boston made major improvements to the area's physical infrastructure, including upgrades to local streets, sidewalks, parks, and lighting. Some existing buildings were renovated, and city and state officials moved government agencies (the Boston Water and Sewer headquarters, for example) to the area. The various public incentives made possible the creation of a new post office, a major bus transfer center, and a local manufacturing plant, among other facilities. Area nonprofit organizations also embarked on revitalization projects. The Dudley Street Neighborhood Initiative developed a 30-acre plot to the southwest of Orchard Gardens into a mix of residential units. The local Madison Park CDC developed and rehabilitated several affordable housing properties in the area.

Patrick Lee, a for-profit developer who, along with the Madison Park CDC, redeveloped Orchard Gardens with HOPE VI funds, believes the project achieved its goal of getting people to think differently about housing in the area. He contends that retailers such as Payless and Footlocker would not have located in Dudley Square if Orchard Park had not been redeveloped. Madison Park's General Counsel, David Price, contends that the development of Orchard Gardens made other investments in the area possible. He argues that it would have been very difficult to renovate Hibernian Hall without the improvements on the public housing site, and Next Street Financial (a for-profit financial firm) would not have located its offices in the Hall had the Orchard Park complex remained in its previous condition. Reggie Nunnally, a staff member at the Dudley-based Boston Connects (part of the city's Department of Neighborhood Development), asserts that the area really had a different feel after the HOPE VI intervention. He believes that the property now has a much better mix of tenants, with many of the "undesirables" having been evicted: "It looks like a whole new development. … If Orchard Gardens had remained Orchard Park, [Dudley Square] would be a much tougher sell." Dudley Square's rebound "would have happened eventually—maybe—but Orchard's redevelopment makes things a whole lot easier," he claims. Pam McKinney reaches a similar conclusion: "Would [the area's improvement] have happened without Orchard? Maybe—the Empowerment Zone incentives were huge."

Townhomes on Capitol Hill

The Townhomes on Capitol Hill development has received widespread praise throughout the District of Columbia and has been touted in Congress as proof of the success of the HOPE VI model. Minimal turnover has occurred since the property's opening in 1999. The developer, Marilyn Melkonian, describes the site as "great housing in a great location, with very affordable costs." Within a few blocks of the site, developers have converted abandoned schools into higher end condominiums. Just a block and a half to the east, 8th Street has become a vibrant commercial

and retail strip, with an abundance of restaurants that cater to the entire Capitol Hill area. The dilapidated Barracks Row area on the same street north of Interstate 295 has been renovated as an entertainment district. Townhouses in the area now routinely sell for up to $1 million.

Our quantitative analysis indicates that the redevelopment of Ellen Wilson Dwellings had no statistically significant effects on surrounding property values, however. The explanation behind this seemingly incongruous finding lies in the fact that Ellen Wilson Dwellings was essentially a pocket of distress in an otherwise stable community that was beginning to experience gentrification even before the public housing redevelopment. In 1990, the census tract containing the public housing property had a median household income of $74,381 (adjusted for inflation to 2006 dollars), an unemployment rate of only 1.5 percent, and a poverty rate of only 7 percent. Home values around Ellen Wilson Dwellings had been declining, but values to the north and west had generally held steady or increased slightly. The redevelopment of the Ellen Wilson Dwellings coincided with a significant expansion of the Capitol Hill neighborhood, as developers and homebuyers sought to take advantage of the underdeveloped areas to the north, east, and south. In effect, the public housing development was part of the overall gentrification of the area. Whereas Ellen Wilson Dwellings was initially at the edge of the neighborhood, the redeveloped Townhomes complex is now in the heart of the community. As Capitol Hill has become more desirable, it has attracted a greater number of higher income residents.

Those familiar with the area contend that the HOPE VI redevelopment certainly helped improve the southern part of Capitol Hill. The demolition of the Ellen Wilson Dwellings eliminated the primary source of blight in the area. Melkonian claims that its redevelopment led to improvements on the border streets, noting that every dilapidated building has been renovated. She credits the Townhomes with sparking the development of new market-rate townhouses a block away. The finished Townhomes complex, with its brick homes and connecting streets, blends easily into the existing neighborhood architecture. Don Denton, a local realtor, notes that "everything from the landscaping to the roofs is still in tip-top shape," and the development is "a pleasure to look at." He contrasts the redeveloped Ellen Wilson Dwellings site with the traditional Potomac Gardens public housing complex a few blocks away. Denton claims that he could take 200 buyers to see a good property across from the Townhomes on Capitol Hill, and all of them would be willing to buy it. Were he to take the same people to a similar property across from Potomac Gardens, "half wouldn't even consider it, and the other half would likely say no."

The redevelopment of Ellen Wilson Dwellings also had important political ramifications. According to Bob Moore, the executive director of the Development Corporation of Columbia Heights and a former director of housing for the District of Columbia, the HOPE VI project was "really important as a strategic move." The redevelopment of the vacant public housing property proved not only that conditions in the surrounding residential area could improve, but also that very low-income people could be integrated into a gentrifying community. He contends that "Ellen Wilson changed the perception" of public housing in Washington.

Wheeler Creek Estates

Wheeler Creek Estates experienced modest increases in property values and neighborhood income but no relative change in crime rates. The positive effects are impressive because Washington

Highlands, the neighborhood in which Wheeler Creek is located, has long been one of the city's poorest neighborhoods. According to the 1990 Census, the area had a poverty rate of 37 percent, an unemployment rate of 18.2 percent, and a median household income that was less than 40 percent of the metropolitan AMI. Nearly one-third of area residents received public assistance income, food stamps, or both. Section 8 properties were some of the few economically viable rental properties in the neighborhood. Because the prevailing Fair Market Rent (FMR) paid to landlords for the Section 8 units was about 43 percent higher than the rent that landlords could obtain for market-rate units in the area, the community had perhaps the largest concentration of subsidized housing in the District of Columbia, with roughly 700 public housing units and another 1,500 Section 8 apartments.[15]

Bob Moore contends that the razing of Valley Green signaled to people that something positive was happening in the neighborhood and that the area could be a potential destination for those looking for a place to live. Oramenta Newsome, the Washington program director for the Local Initiatives Support Corporation (LISC), believes that the blight of the Skytower-Valley Green site was "something that no developer could see past." The William C. Smith Company has developed a series of townhouses along Mississippi Avenue, about one-fourth of a mile north of Wheeler Creek Estates, on the north side of Oxon Run Park. One set of homes sold for between $99,000 and $134,000 in the 1999-to-2000 period and is now reselling for between $300,000 and $325,000. Steve Green, a developer at the company, believes that they "probably couldn't market [these and other nearby townhouses] at all without the clean-up of Valley Green. … There's no question that Wheeler Creek was pretty bad and is now pretty successful. It was probably the worst property in a bad neighborhood." The company's chairman and CEO, Chris Smith, is even more laudatory: "I haven't heard one negative thing from anybody about Wheeler Creek, and that's unheard of."

At the same time, the underlying economic dynamics of Washington Highlands have been slow to change. Newsome describes Wheeler Creek Estates as "an oasis in the desert, no question." Smith acknowledges that the neighborhood is still pretty troubled, but he believes conditions are slowly improving. The deteriorated Highland Addition public housing complex is slowly being redeveloped, and the historically problematic Wheeler Terrace property and a few others in the neighborhood are now under the control of locally based owners.

Conclusions and Recommendations

Since its inception, the HOPE VI Program has had multiple, sometimes conflicting, goals. Among them have been improving living conditions for very low-income individuals, facilitating tenant self-sufficiency, reducing the concentration of poverty, and sparking the revitalization of economically distressed neighborhoods. This study has focused solely on the last of these goals,

[15] See Kovaleski (1994) and Dance (1993). FMRs traditionally have been set for a comparatively large region—frequently a metropolitan area—usually at the 40th percentile of rents in the area. Because of the variety of micromarkets within the area, gaps frequently exist between the FMR and the actual market rent in a community. Areas where the FMR significantly exceeds the market rate tend to attract large numbers of Section 8 properties. Without diligent enforcement of housing-quality standards, the properties can become increasingly deteriorated and contribute to neighborhood blight. See Zielenbach (2006).

documenting the economic effects that HOPE VI redevelopments have had in four different communities located within two economically strong cities. We have focused our attention principally at the community level, not at the individual one; we have not considered in this analysis the range of potential economic and social benefits accruing to the public housing tenants as a result of the HOPE VI redevelopment.

The HOPE VI redevelopments have had mostly positive, statistically significant effects on economic conditions in their surrounding neighborhoods. In three of the four cases we studied, the redevelopments contributed to substantial increases in residential property values and notable declines in rates of violent crime. In the other case, the effects were positive but not statistically significant. In the surrounding neighborhoods for which sufficient data were available, the public housing redevelopment resulted in an aggregate increase in residents' incomes.

The extent of the neighborhood spillover effects depended in large part on the location and market dynamics of the surrounding community. The economic effects of a HOPE VI redevelopment tended to be greater in communities where other development pressures and existing, stable institutions were in place. In this study, the redevelopment of Mission Main had the greatest local effects, in large part because of the presence of local universities, a stable residential neighborhood, and transportation lines in the area. Similarly, the Orchard Gardens redevelopment augmented existing redevelopment efforts and helped catalyze new ones in the Dudley Square area, but it had less significant spillover effect than Mission Main's redevelopment because of Dudley Square's relative economic weakness. In contrast, the relative dearth of development activity and institutional presence in the Washington Highlands area has limited the effects of the Wheeler Creek Estates development; while unquestionably positive and significant, the spillover effects of Wheeler Creek Estates have not been as great as those of the Boston HOPE VI sites. At the other extreme, the strength of the Capitol Hill market before the redevelopment of the Ellen Wilson Dwellings and the gentrification that was already taking place in the community minimized the spillover economic effect of the Townhomes on Capitol Hill. Ellen Wilson Dwellings was chosen for a HOPE VI grant in no small part because of the surrounding neighborhood's strength and the political desire to achieve high-profile redevelopment successes.

To the extent that practitioners and policymakers try to maximize the community economic development benefits of a HOPE VI or similar major housing redevelopment, we recommend focusing resources on the redevelopment of properties in neighborhoods with neither particularly strong nor particularly weak markets. Such communities should have certain features—such as a location near a job center, transportation infrastructure, and local retail or other amenities—that make them potentially desirable areas for moderate- and middle-income households. They should have some institutional or other organizational anchors that are committed to the area over the long term. They also should have some development and investment activities already in process, indicating that the neighborhood is a potentially profitable place in which to invest and would benefit from improvements associated with the major redevelopment of a public housing site. The market should not be too strong, however; low prices reduce the barriers to new development, which enables an investment such as HOPE VI to have large, positive spillover effects. Communities with already strong markets (Capitol Hill in Washington, for instance) tend to have enough of a development buzz to overcome any negative influences that might be associated with a traditional public housing site.

Appendix A
Interrupted Time Series Model for Residential Property Values

$$Ln(P_{ijt}) = XB + \sum_{t-1}^{T} \alpha_t Y_t + \sum_{t-1}^{T} \delta_t Y_t E_j + \gamma_1 preH6 + \gamma_2 preH6 * T + \gamma_3 postH6 + \gamma_4 postH6 * T + \varepsilon_{ijt}$$

Where:

$Ln(P_{ijt})$	is the log of the price of house i in neighborhood j at time t
B	is a vector of coefficients reflecting the value of housing traits
X	is a vector of housing traits
Y_t	is a vector of dummy variables for year
α_t	is a vector of parameters measuring sample yearly increases
E_j	is a dummy variable for existing public housing development j
T	is a linear time trend
δ_t	is a vector of parameters measuring the difference in trend in house prices in traditional public housing from the whole sample
preH6	is a dummy variable indicating a HOPE VI development area prior to completion
postH6	is a dummy variable indicating a HOPE VI development area after completion
γ_1	is a parameter measuring the price level in the HOPE VI development area prior to completion
γ_2	is a parameter measuring the price trend relative to the sample prior to completion
γ_3	is a parameter measuring the price level in the HOPE VI development area after completion
γ_4	is a parameter measuring the price trend relative to the sample after completion

The γ parameters are the key parameters in evaluating the pre- and post-impacts of HOPE VI investments.

Where possible, similar specifications were estimated for crime changes.

Exhibit A-1

Regression for Property Value Calculations (1 of 2)

Variable	Boston		Washington	
	Estimate	Standard Error	Estimate	Standard Error
Intercept	12.84278	0.0271805	11.44865	0.020005
House square feet	0.00052	0.0000076	0.00025	0.000009
House square feet squared	0.00000	0.0000000	0.00000	0.000000
Lot square feet	NA	NA	0.00001	0.000001
Lot square feet squared	NA	NA	0.00000	0.000000
Miles to central business district	– 0.00025	0.0000026	– 0.00007	0.000001
Miles to central business district squared	0.00000	0.0000000	0.00000	0.000000
Spring seasonal dummy	NA	NA	0.04034	0.007597
Summer seasonal dummy	NA	NA	0.04595	0.007633
Autumn seasonal dummy	NA	NA	0.08222	0.008937
1991 year dummy	– 0.10861	0.0301694	– 0.00132	0.018857

Exhibit A-1

Regression for Property Value Calculations (2 of 2)

Variable	Boston		Washington	
	Estimate	Standard Error	Estimate	Standard Error
1992 year dummy	– 0.14753	0.0275243	0.00855	0.019432
1993 year dummy	– 0.08273	0.0275767	0.02439	0.019357
1994 year dummy	0.14493	0.0311009	0.06032	0.019272
1995 year dummy	0.14984	0.0350093	0.04290	0.019412
1996 year dummy	0.27133	0.0331294	0.19736	0.020016
1997 year dummy	0.31347	0.0324168	0.21326	0.020369
1998 year dummy	0.54994	0.0304002	0.31993	0.022248
1999 year dummy	0.74119	0.0299713	0.20313	0.019073
2000 year dummy	0.89965	0.0266247	0.27447	0.018249
2001 year dummy	1.06957	0.0280433	0.43726	0.018265
2002 year dummy	1.15716	0.0271698	0.57219	0.018005
2003 year dummy	1.26616	0.0286526	0.75591	0.017862
2004 year dummy	1.33762	0.0259279	0.91793	0.017145
2005 year dummy	1.32763	0.0258596	1.15499	0.017609
2006 year dummy	1.33081	0.0265896	1.33665	0.018808
1990 year dummy for traditional project home	– 0.37832	0.0316321	– 0.03757	0.030056
1991 year dummy for traditional project home	– 0.31567	0.0334751	– 0.02799	0.033723
1992 year dummy for traditional project home	– 0.37355	0.0278977	– 0.04837	0.036097
1993 year dummy for traditional project home	– 0.36428	0.0285262	– 0.13090	0.036061
1994 year dummy for traditional project home	– 0.34346	0.0343460	– 0.09565	0.033212
1995 year dummy for traditional project home	– 0.23984	0.0405821	– 0.06712	0.035141
1996 year dummy for traditional project home	– 0.27698	0.0358782	– 0.19329	0.036333
1997 year dummy for traditional project home	– 0.26721	0.0338241	– 0.22712	0.034412
1998 year dummy for traditional project home	– 0.23242	0.0321911	– 0.16814	0.044247
1999 year dummy for traditional project home	– 0.25909	0.0306615	– 0.02632	0.030605
2000 year dummy for traditional project home	– 0.18088	0.0237687	– 0.04102	0.027347
2001 year dummy for traditional project home	– 0.18756	0.0261590	– 0.04447	0.027116
2002 year dummy for traditional project home	– 0.14063	0.0243304	0.01513	0.026086
2003 year dummy for traditional project home	– 0.13893	0.0271879	0.01230	0.026739
2004 year dummy for traditional project home	– 0.12702	0.0207549	0.07739	0.025797
2005 year dummy for traditional project home	– 0.14472	0.0202123	0.11390	0.026305
2006 year dummy for traditional project home	– 0.20261	0.0217626	0.10025	0.030941
Pre-HOPE VI dummy for Orchard Gardens or Townhomes	– 0.31338	0.1478208	0.24322	0.098470
Pre-HOPE VI trend for Orchard Gardens or Townhomes	– 0.09194	0.0364841	0.01765	0.027578
Post-HOPE VI dummy for Orchard Gardens or Townhomes	– 1.27836	0.2274662	0.18449	0.119026
Post-HOPE VI trend for Orchard Gardens or Townhomes	0.06195	0.0164761	0.01640	0.009704
Pre-HOPE VI dummy for Mission Main or Wheeler Creek	– 0.00457	0.1142500	0.14527	0.110053
Pre-HOPE VI trend for Mission Main or Wheeler Creek	– 0.08171	0.0263581	– 0.02292	0.025187
Post-HOPE VI dummy for Mission Main or Wheeler Creek	– 0.63931	0.1700293	0.51536	0.217451
Post-HOPE VI trend for Mission Main or Wheeler Creek	0.05383	0.0126362	– 0.03709	0.016707

NA = data are not available.

Appendix B

Exhibit B-1

Income Regression for Selected Boston and Washington Areas (1 of 2)

Variable	Boston		Washington	
	Estimate	Standard Error	Estimate	Standard Error
Asian	– 0.0949746	0.0053148	– 0.0449818	0.008584313
Black	– 0.2563271	0.0028045	– 0.4769017	0.002435284
Hispanic	– 0.1208426	0.0053565	– 0.280972	0.009257727
Native American	– 0.0843469	0.0172842	– 0.2297153	0.019255264
Traditional project home dummy	0.018265	0.0202944	– 0.174086	0.025676401
Other HOPE VI development dummy	NA	NA	– 0.387089	0.014723811
1991 year dummy	0.0021654	0.0127376	0.1686778	0.013229631
1992 year dummy	0.0347289	0.0112756	0.1831678	0.011894013
1993 year dummy	0.0394396	0.0104893	0.1702232	0.011370955
1994 year dummy	– 0.0284158	0.0108457	0.0331242	0.01174617
1995 year dummy	– 0.0262953	0.0111421	– 0.0359553	0.011827401
1996 year dummy	0.0128637	0.010544	0.0020906	0.011614444
1997 year dummy	0.0676794	0.0104444	0.0480683	0.011417648
1998 year dummy	0.1582779	0.0098924	0.1239432	0.010900897
1999 year dummy	0.1505513	0.0099308	0.0924398	0.01092669
2000 year dummy	0.2325924	0.0100864	0.1397898	0.011138629
2001 year dummy	0.3408861	0.0096514	0.3439671	0.010860976
2002 year dummy	0.404479	0.0095441	0.4401673	0.010712273
2003 year dummy	0.3933559	0.0094127	0.4310633	0.010442425
2004 year dummy	0.4539948	0.0095962	0.4211173	0.010623544
2005 year dummy	0.5298981	0.0096118	0.5005478	0.010548953
2006 year dummy	0.5909303	0.009651	0.5943877	0.01059137
1991 year dummy for traditional project home	– 0.0378343	0.0288811	0.0080374	0.036533636
1992 year dummy for traditional project home	– 0.0406001	0.0263637	0.0057837	0.032131667
1993 year dummy for traditional project home	– 0.0653758	0.024394	– 0.0498621	0.030590245
1994 year dummy for traditional project home	– 0.0400181	0.024856	– 0.0056135	0.031186111
1995 year dummy for traditional project home	– 0.0636263	0.0249515	0.0204143	0.030930758
1996 year dummy for traditional project home	– 0.0435175	0.0239107	– 0.0152161	0.0304322
1997 year dummy for traditional project home	– 0.038595	0.0236779	0.0089934	0.029978
1998 year dummy for traditional project home	– 0.0440033	0.0224507	– 0.0358829	0.02870632
1999 year dummy for traditional project home	– 0.0156908	0.0224154	– 0.0011345	0.0283625
2000 year dummy for traditional project home	– 0.0364011	0.0228938	0.0248098	0.028848605
2001 year dummy for traditional project home	0.005785	0.02225	0.0012433	0.0310825
2002 year dummy for traditional project home	– 0.007231	0.0219121	– 0.0146623	0.028196731
2003 year dummy for traditional project home	– 0.008552	0.02138	0.0224125	0.027332317
2004 year dummy for traditional project home	– 0.0269356	0.0215485	0.0524162	0.027443037
2005 year dummy for traditional project home	– 0.0104374	0.0217446	0.0567468	0.027151579
2006 year dummy for traditional project home	– 0.0203958	0.0214693	0.0295397	0.027351574
Pre–HOPE VI dummy for Mission Main or Wheeler Creek	– 0.5648838	0.3508595	– 0.0546095	0.09415431
Pre–HOPE VI trend for Mission Main or Wheeler Creek	0.1562071	0.107729	– 0.0433571	0.020646238
Post–HOPE VI dummy for Mission Main or Wheeler Creek	0.2649572	0.4817404	– 0.6018431	0.101491248

Exhibit B-1

Income Regression for Selected Boston and Washington Areas (2 of 2)

Variable	Boston		Washington	
	Estimate	Standard Error	Estimate	Standard Error
Post–HOPE VI trend for Mission Main or Wheeler Creek	– 0.0294537	0.0398023	0.0142449	0.007617594
Pre–HOPE VI dummy for Orchard Gardens or Townhomes	– 0.0496719	0.110382	0.0870702	0.064022206
Pre–HOPE VI trend for Orchard Gardens or Townhomes	– 0.041651	0.028334	– 0.0285971	0.021027279
Post–HOPE VI dummy for Orchard Gardens or Townhomes	– 0.4229794	0.120507	– 0.0891649	0.06654097
Post–HOPE VI trend for Orchard Gardens or Townhomes	0.0217218	0.0093628	0.0132929	0.005680726
Constant	3.988418	0.0089206	4.200086	0.009814661

NA = data are not available.

Appendix C
Individuals Interviewed

Boston

Kate Bennett	Boston Housing Authority (BHA)
Sandra Henriquez	BHA
Patrick Lee	Trinity Financial LLC
Bill McGonagle	BHA
Pam McKinney	Byrne McKinney and Associates
Steve Melia	BHA
Deb Morse	BHA
Reggie Nunnally	Boston Department of Neighborhood Development
Vince O'Donnell	Local Initiatives Support Corporation (LISC)
David Price	Madison Park Community Development Corporation (CDC)
Shirley Ransom	BHA
Esther Schlorholtz	Boston Private Bank
Peter Woodford	South Boston CDC

Washington

Don Denton	Coldwell Banker
Meghan Glasheen	Reno and Cavanaugh
Steve Green	William C. Smith Company
Michael Kelly	District of Columbia Housing Authority (DCHA)
Bill Knox	DCHA
Marilyn Melkonian	Telesis Corporation

Washington (continued)

Bob Moore	Development Corporation of Columbia Heights
Oramenta Newsome	Washington, DC LISC
William Pittman	DCHA
Laurie Putscher	DCHA
Chris Smith	William C. Smith Company
Bernie Tetrault	DCHA

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Moving Toward a Shrinking Cities Metric: Analyzing Land Use Changes Associated With Depopulation in Flint, Michigan

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Abstract

Cities around the globe have experienced depopulation or population shrinkage at an acute level in the last half century. Conventional community development and planning responses have looked to reverse the process of depopulation almost universally, with little attention paid to how neighborhoods physically change when they lose population. This article presents an approach to study the physical changes of depopulating neighborhoods in a novel way. The approach considers how population decline creates different physical impacts (more or less housing abandonment, for example) across different neighborhoods. Data presented from a detailed case study of Flint, Michigan, illustrate that population decline can be more painful in some neighborhoods than in others, suggesting that this article's proposed approach may be useful in implementing smart decline.

Introduction

Many modern cities throughout the world are facing population declines at an unprecedented scale. Over the past 50 years, 370 cities throughout the world with populations of more than 100,000 have reported a decline in population of at least 10 percent (Oswalt and Rieniets, 2007). Wide swaths of the United States, Canada, Europe, and Japan are projecting double-digit declines in population in the coming decades. Internationally, scholars and practitioners of the built environment have responded to this crisis by reconceptualizing decline as shrinkage and have begun to explore creative and innovative ways for cities to successfully shrink (Hollander and Popper, 2007; Stohr, 2004; Swope, 2006).

Popper and Popper (2002) define smart decline as "planning for less—fewer people, fewer buildings, fewer land uses" (Popper and Popper, 2002: 23). The clearest practical example of smart decline is their proposal to establish a "Buffalo Commons" in severely shrinking parts of the Great Plains (Matthews, 1992). The Poppers' research (1987) found that the preservation of a large portion of the Great Plains as "somewhere between traditional agriculture and pure wilderness" offered "ecologically and economically restorative possibilities" (Popper and Popper, 2004: 4). Vergara (1999) proposes an "American Acropolis" in downtown Detroit to preserve the scores of abandoned skyscrapers. He sees cultural benefit in establishing a park at the site to attract visitors to walk the crumbling streets. Also, Clark (1989) encourages preservation of declining areas as vacant, arguing that these areas can be converted to "parkland and recreational spaces" (Clark, 1989: 143)—a suggestion echoed recently by Schilling and Logan (2008). Armborst, D'Oca, and Theodore (2005) introduced the idea of widespread sideyard acquisitions of vacant lots as a means for reducing housing density, a process they described as "blotting." They found that the urban fabric of Detroit was changing daily, not by city plan or regulation, but by the actions of individual landowners in expanding their lots to more closely mirror density patterns seen in suburbia.

In Youngstown, Ohio, a city that has lost one-half of its population since 1950, community leaders adopted this smart decline approach with a new master plan to address its remaining population of 74,000 (U.S. Census Bureau, 2008). In the plan, the city came to terms with its ongoing population loss and called for a "better, smaller Youngstown," focusing on improving the quality of life for existing residents rather than attempting to repopulate the city (City of Youngstown, 2005; Hollander, 2009).[1]

Before the community development and planning fields move too far forward in "shrinking" these depopulating places through smart decline, practitioners need a clearer understanding of how neighborhoods physically change when they depopulate. A smart decline plan that ignores the projected quantitative change in structures or the qualitative change in use associated with depopulation will be hamstrung from the start.

A major stumbling block for scholars and practitioners is that current theory offers no widely accepted and intuitive measurement tool for studying the past and projected physical changes that occur in neighborhoods—the movement from active uses of land (such as homes and apartments) to successor land uses (such as vacant lots and abandoned buildings). The way we presently operationalize physical decline is by way of counting the number of vacant lots and abandoned buildings, a very labor-intensive approach that can make time series or longitudinal analysis challenging.

This article presents a thorough overview of how occupied-housing-unit density may be used as a metric to analyze changes in physical land use associated with population decline in urban neighborhoods. Such analysis can help local government officials and community leaders devise new plans and policies to respond to their problems resulting from fewer occupants and fewer occupied housing units. This article shows how a close examination of Flint, Michigan, through

[1] *The New York Times Magazine* recognized the city's plan as one of the most creative ideas in 2006 (Lanks, 2006).

census data analysis, data collected from direct observation of neighborhood conditions, and data from interviews of residents demonstrates the value of the metric and begins to address some limitations of conventional methods of studying depopulation.

In the study, I calculated changing housing-unit density for three Flint neighborhoods and then validated the results through field research. Validation showed that some neighborhoods experience depopulation differently than others. The physical form of some neighborhoods changed to accommodate a smaller population and a smaller number of occupied housing units; other neighborhoods did not change, resulting in lower quality neighborhoods for the residents left behind. This finding initiates a new type of thought process for neighborhood-based community development that may be able to customize land use strategies to right-size the physical features of a neighborhood to match its smaller population. The remainder of this article presents relevant research on population decline, describes the data and methods used in the empirical study and the results, and concludes with a discussion about the implications of these results for federal and state policymakers, as well as local community development and planning practitioners.

Studying the Physical Form of Shrinking Neighborhoods

Bowman and Pagano (2004) conducted an exhaustive study on this topic of shrinking neighborhoods, seeking to understand the extent of the vacancy problem in the United States. They administered written surveys to local officials and assembled a database of the number of abandoned buildings and the number of vacant lots across more than 100 cities in the United States. This survey-based method unfortunately has proved unreliable when cross-checked against housing-unit counts from the U.S. Decennial Census (Hollander, 2009). Local officials use very different strategies to account for vacancy and abandonment, making the use of locally distinct administrative data sources challenging. Hillier et al. (2003) examined Philadelphia's housing databases to track vacancy and abandonment data, but their systems are not interoperable,[2] making comparative analysis practically impossible. Wilson and Margulis (1994) developed a similar localized analysis in Cleveland. Ryznar and Wagner (2001) attempted to study the effects of population decline, using Geographic Information Systems and remote sensing techniques, but could measure only net change in forested and agricultural land, extrapolating their findings to housing and commercial land use changes.

One possible solution to this problem is to reconsider some of the data that are widely available from the Decennial Census. Data from the census provide total counts of occupied housing units for neighborhood-level census tracts every 10 years. Each housing unit in the United States is classified as either occupied or vacant. If vacant, the Census Bureau has devised several possible classifications to reflect different reasons for vacancy, including the house is for sale, it is a seasonal home, or it falls into a catch-all category—other vacant—that has been used by researchers to indicate abandoned homes (Hollander, 2009; HUD PD&R, 2004).[3]

[2] Data cannot be viewed and manipulated from one system to another.

[3] The U.S. Census Bureau only collects vacancy data for residential properties and not on commercial properties.

It seems then that total numbers of vacant lots and abandoned buildings are not being generated through the census counts. A closer consideration reveals otherwise: if a given census tract comprising 5 acres has 250 units of occupied housing units in 1990 and then has only 150 units of occupied housing units in 2000, a major physical change has occurred in this neighborhood (going from 50 to 30 occupied housing units per acre).

Four possible pitfalls with this approach are listed below, along with possible solutions for avoiding or addressing them.

1. Census tract boundaries change over time. One solution for avoiding this pitfall is the Geolytics Neighborhood Change Database, which features 1970–2000 census tract level data—all available at fixed 2000 tract boundaries—allowing for time series analysis.

2. The factors affecting the decrease in the number of occupied housing units may be unrelated to neighborhood decline; rather, they may reflect the construction of a new civic center or a highway. A solution for addressing this pitfall is to validate some of this quantitative data through direct observation of neighborhood conditions and interviews with long-term residents and community development and planning professionals.

3. Land use change conceptually is not interchangeable with housing density change; measuring one is problematic when planning for the other. The two terms are conceptually distinct, yet have much in common in terms of examining depopulation. For depopulating neighborhoods, a decrease in occupied-housing-unit density may indicate something other than vacant lots and abandoned buildings; it could mean a change in land use from multifamily homes into single-family homes, a conversion of homes into offices, or perhaps a consolidation of apartments within an apartment building. The problem might be that this single measure conflates changes in the number of structures, the number of units, and the land use. Fortunately, when used along with other census data (such as number of multifamily housing structures or number of business establishments), the occupied-housing-unit density variable can be dissected for meaning.

4. Household size and composition change over time, blurring the value of understanding housing-unit density. Some critics might suggest that looking at occupied-housing-unit density masks the changes at work within households. I defend this approach on the basis that it simply does not matter what changes happen within households from a physical planning perspective—what matters is how many structures remain when a neighborhood depopulates. Conflating, in studying land use change, can actually be a good thing and aid in understanding broader changes occurring in a neighborhood. When considering an appropriate measure of physical change in depopulating neighborhoods, it is important to be aware of changing household compositions and the social dynamics at work. Those dynamics, however, are being captured by the occupied-housing-unit density measure, and this single measure reflects all the social, physical, environmental, and economic forces at work in a neighborhood that are generating a lower occupied-housing-unit density over time.[4]

[4] The most important caveat here is that the measure reflects only residential housing conditions, excluding other major land uses such as commercial, industrial, or institutional. The results presented here can only be generalized to neighborhoods that are predominantly residential, where mixed-use or primarily commercial neighborhoods would be expected to function differently.

The value of a metric based on readily available national data is immense, but it is worth noting that some local governments already regularly collect their own land use, housing, and abandonment data. For such communities, the occupied-housing-unit metric could be useful as a check against their own data sources. For communities without the resources to collect local data, a metric based on free federal data sources is quite valuable.

How Neighborhoods Physically Change When They Lose Population

Much is known within the urban geography and economics literature about how neighborhoods physically change when they lose population. When speaking of population decline, no single rationale explains why a place depopulates. Depopulation has been explained by everything from natural disasters (Vale and Campanella, 2005) to deindustrialization (Bluestone and Harrison, 1982), suburbanization (Clark, 1989; Jackson, 1985), globalization (Hall, 1997; Sassen, 1991), and, of course, the natural economic cycle of boom and bust (Rust, 1975). This article gives no attention to explaining why a place loses population, instead it focuses on the usefulness of one measure of loss—occupied-housing-unit density. This section of the article presents a cursory review of the extant literature that addresses how places physically change.

When employment declines in a territory, some people who lose their jobs might need to leave that territory and relocate to a place where new employment exists. The consequences for those who stay behind is that, just because some of their neighbors have departed (without being replaced by new neighbors), the physical form of the city does not naturally shrink. Glaeser and Gyourko (2005) studied the durability of housing in their time series sample of 321 U.S. cities and towns with at least 30,000 residents in 1970, showing how housing prices declined at a faster rate in depopulating cities than prices grew in growing cities. Their research suggests that the durability of housing poses a long-term threat to neighborhood stability. Others come to the same conclusion: if housing does not disappear as quickly as people do, then those abandoned structures may drag down neighborhoods by serving as a haven for criminal activity (Wallace, 1989). People losing their jobs and refusing to relocate for new employment can have huge implications for neighborhood conditions. Without income, a resident is less capable of caring for his or her home, which can lead to the deterioration of a neighborhood's housing stock. When a bank forecloses on a resident's home, the home, because of its unoccupied status, may bring further drag on the neighborhood's quality.

Another problem resulting from population decline is that urban residents with means to relocate leave behind the poorest and most destitute residents. When fewer middle- and upper-income residents live in a neighborhood, fewer role models are available to youth, dimming prospects toward upward mobility (Sugrue, 1996; Wilson, 1987).

Over time, widespread racial discrimination, seen in hiring and in housing market trends, has systematically limited relocation options for African Americans (Massey and Denton, 1993; Sugrue, 1996). When a neighborhood loses jobs, African Americans have fewer housing choices, further increasing racial concentrations in ghettos.

As demand declines in depopulating residential neighborhoods, the housing demographic shifts from affluent residents paying higher rents to less affluent residents paying lower rents. Poor economic conditions decrease demand for housing through "filtering" economic classes of owners or renters (Hoyt, 1933; Temkin and Rohe, 1996). When demand ultimately sinks to certain threshold levels, owners tend to abandon their structures (Keenan and Spencer, 1999). Many abandoned structures become derelict over time and may become subject to arson. Thus, in a depopulating neighborhood, occupied housing units are replaced by unoccupied housing units, derelict structures, and, where fire consumed the unit(s), vacant lots. This process suggests it is appropriate to analyze physical change through the lens of occupied-housing-unit density.[5] Occupied-housing-unit density offers a clear picture of how a neighborhood's physical form is changing and provides essential data to generate community development and planning strategies that respond directly to those changes. Flint, Michigan, is a true "poster child" for these very kinds of neighborhood changes, most notably through its depictions in Michael Moore's infamous 1989 documentary, *Roger and Me*. As a place widely recognized as a victim of depopulation, Flint is an ideal location to test the usefulness of occupied-housing-unit density as a metric to be used in planning and policy practice. Field observations and interviews provide a check to the results of a quantitative calculation of occupied-housing-unit density in three of Flint's depopulating neighborhoods.

Example of Using Occupied-Housing-Unit Density in Flint, Michigan

First settled in 1818, Flint, Michigan, is located 60 miles northwest of Detroit along the Flint River. The city was largely dependent on the timber industry until General Motors (GM) was founded there in 1908, turning the city into a world capital of the automobile industry in just three decades (Edsforth, 1982; Matthews, 1997; May, 1965). As GM and the American automobile industry shrank its workforce in the 1970s, so went Flint's fortunes. Unemployment and reduced taxes translated to a reduction in city services—firefighters and police officers were laid off (Matthews, 1997). City officials responded with hundreds of millions of dollars in tax abatements and redevelopment financing in the 1980s and 1990s to encourage new industrial development and bolster the city's central business district and to market the city as a tourist center (Matthews, 1997). At the same time, the United States government and the Michigan state government invested tens of millions of dollars in grants and loans while local philanthropists pushed vast sums of money into rebuilding downtown (Gilman, 1997). In his review of 14 redevelopment projects executed in Flint from 1970 to 1992, costing $568.5 million, Gilman (1997) found that 13 of these initiatives were explicitly intended to foster greater economic growth.

Although some benefits accrued to the city and its residents through these projects, the overwhelming evidence available shows that these efforts largely failed to reverse the city's continuing

[5] At a regional level, the causal order is clear: fewer people will decrease demand for housing, resulting in fewer housing units. At the local level, Myers (1992) has argued that housing causes population because without the actual units there is no way for people to live in an area. This reverse causal order can be valuable in studying growing local areas, but offers little in helping to measure the physical effects of depopulation. Therefore, the more standard causal order of population causing housing will be used here.

economic decline (Gilman, 1997; Matthews, 1997). Flint's total employment has gone down from 69,995 in 1970 to 40,213 in 2006 (42 percent) (U.S. Census Bureau, 2008). Although not all who cared to leave did, Flint's population fell by almost one-third in the past half century, declining from 163,143 in 1950 to 112,524 in 2000 (U.S. Census Bureau, 2008). The city's changing racial composition is harder to pin down because of the differing ways in which the Census Bureau characterized race and ethnicity between 1960 and 1980. From 1980 to 2006, when the definitions were being used consistently, the percentage of non-Hispanic African Americans in Flint increased from 41.1 to 56.3 percent.

Data and Methods for Flint, Michigan, Case Study

For this study, I downloaded census data for Flint using the Geolytics software program for census tracts in Flint for 1970, 1980, 1990, and 2000.[6] The key variables that I examined from the census were population loss and occupied-housing-unit density. I also examined socioeconomic variables, including income, poverty levels, race, and age.

I narrowed my analysis to three neighborhoods, each of which experienced severe drops in population and occupied-housing-unit density over the preceding three decades.[7] Each of the three neighborhoods has a unique history, active community development organizations, and active residents groups. Carriage Town and Grand Traverse, which are in the city's downtown area, are contiguous. Max Brandon Park is several miles outside the downtown core in a primarily residential section of town.

Working with a research assistant, I conducted background research on each neighborhood through electronic database searches.[8] After completing the searches, we consulted with local experts to begin generating a list of potential interviewees.

From April through August of 2008, we conducted between two and four semistructured, in-person or telephone interviews with individuals in each of the following two categories for all three neighborhoods: (1) long-time residents and (2) professionals who work in the development, redevelopment, or planning fields in each neighborhood. In addition, we also conducted three interviews with individuals who are professionally involved in neighborhood development, redevelopment, or planning citywide but not necessarily in one of the study area neighborhoods. Finally, I conducted onsite visits at each of the three neighborhoods in June 2008 and directly observed and recorded my observations about current land use and signs of historic land use.

[6] I used the census tract as a unit of analysis because the Geolytics software has a special feature that normalizes the data to boundaries for the year 2000 across all four time periods, supporting time series analysis.

[7] I also chose these neighborhoods for close study based on preliminary interviews with local community leaders who assured access to further interviewees.

[8] We conducted searches in the following databases: Thomson Gale Expanded Academic ASAP and Academic OneFile, LexisNexis, ISI Web of Knowledge, ProQuest, Social Sciences Citation Index, Journal of Planning Literature, and CSA Illumina. We also conducted Google searches to identify relevant planning reports or news items for each neighborhood. We limited articles to those printed from 1980 to the present. We present the results of the searches as background information for each neighborhood profile.

Results of Flint, Michigan, Case Study

As its population has fallen, Flint has changed dramatically. In some parts of the city, the rapid departure of people has resulted in a new pastoral landscape where houses once sat. In others, the derelict structures that once housed people now serve as a deterrent to investment and a haven for criminals. In each neighborhood, a certain percentage (often large) of the population has no place else to go. Many of the desperately poor huddle together and are stuck in an economic ghetto. In some parts of Flint, the ghetto is not just economic but also racial.

Putting socioeconomic and racial considerations aside, the analysis reveals that the Flint landscape has changed dramatically. The aim of this article is to probe the utility of using occupied-housing density as an indicator of residential land use change in shrinking cities. The following summary sketches the ways that residential land use changed in three of Flint's neighborhoods[9] as each faced significant population loss over the past three decades. For each neighborhood, the summary describes occupied-housing-unit density[10] and then contrasts it against results from field investigations and interviews.

Grand Traverse: Open Spaces and Group Homes

Grand Traverse has experienced a dramatic decline in occupied-housing-unit density and population levels from 1970 to 2000. Since then, according to U.S. Census and county estimates, population levels have continued to drop, along with occupied-housing-unit density (Genesee County, 2007; U.S. Census, 2008). In 1970, the one census tract containing both Grand Traverse and Carriage Town, had 5,100 residents and 2,446 occupied housing units in its 614 acres, for a density of 3.6 occupied housing units per acre (exhibit 1). By 2000, the occupied-housing-unit density fell sharply to only 1.4 units per acre with a population of 2,562.

Exhibit 1

Carriage Town and Grand Traverse Neighborhoods, Flint, Michigan

Variable	1970	1980	1990	2000	% Δ '70–'80	% Δ '80–'90	% Δ '90–'00
Population	5,100	3,536	3,203	2,562	– 30.7	– 9.4	– 20.0
Total number of households	2,200	1,601	1,197	889	– 27.2	– 25.2	– 25.7
Percent African American	11.4	18.4	41.5	49.0	61.4	125.3	18.2
Percent over 65 years old	17.1	16.7	8.6	3.4	– 2.4	– 48.7	– 60.8
Percent living in poverty	22.4	31.8	48.8	45.0	42.0	53.5	– 7.8
Total housing units	2,446	1,770	1,536	1,264	– 27.6	– 13.2	– 17.7
Total occupied housing units	2,199	1,550	1,235	849	– 29.5	– 20.3	– 31.3
Occupied housing units per acre	3.6	2.5	2.0	1.4	– 29.5	– 20.3	– 31.3

Data source: U.S. Census Bureau

[9] I selected the three neighborhoods because each had experienced high levels of depopulation since 1970. Preliminary investigation showed that each had some level of formal community engagement in place, either through active neighborhood associations or professional community development agencies.

[10] Two of the neighborhoods studied, Carriage Town and Grand Traverse, share a single census tract.

For the Grand Traverse neighborhood, I validated the land use changes discovered through the census data analysis, through interviews, and by direct observation of current housing conditions. Hundreds of housing units throughout the neighborhood underwent a process described in the housing literature as "filtering," but with a unique twist. As "white flight" and employment cuts reduced demand for housing in Grand Traverse since the 1960s, single-family homes (which accounted for a vast majority of the neighborhood's housing stock historically) were divided into multifamily homes and rented. This phenomenon, in fact, would be expected to increase the occupied-housing-unit density of the neighborhood, but the period of multifamily use was often quite limited. According to interviews with long-time residents, many of these multifamily homes did not receive care and maintenance from their owners, leading to accidental fires and alleged arson (exhibit 2). Over time, the neighborhood association, working closely with foundation and city resources, arranged for the demolition of many (if not all) of these fire-damaged structures, which led to a further decline in occupied-housing-unit density and to the emergence of a more open, pastoral landscape in the city (exhibit 3). One long-time resident, active in the neighborhood association, celebrated the new feel of his neighborhood, expressing an idea similar to the blotting process described by Armborst, D'Oca, and Theodore (2005):

> We've been able to sell a lot of side lots to homeowners, so it's expanded the size of their properties and they have nice big green space on the side…. They use it for gardens and bigger yards.

Exhibit 2

This home was partially damaged by an accidental fire in the Carriage Town neighborhood. (Photo credit: Justin B. Hollander)

Exhibit 3

A pastoral landscape graces the Grand Traverse neighborhood. (Photo credit: Justin B. Hollander)

Other researchers have examined blotting or sideyard acquisitions as vacant-land management approaches; in this article, I tie that action to a measurable change in housing density. In Grand Traverse, because some residential parcels are more than 2 acres, the neighborhood feels more rural than suburban (the blotting has been part of how the neighborhood moved from a suburban-quality 3.6 units per acre in 1970 to a very rural 1.4 units per acre in 2000). Perhaps more important, the active control and management of vacant land and abandoned buildings have contributed to a sense in the neighborhood that it is safe from crime. One long-time resident commented on the issue of crime and safety in the neighborhood:

> The main social change is, I think, that crime is way, way down. It used to be scary to go out at night and it just isn't anymore. There are a lot more people active and aware; a lot more eyes on the streets. I think that has been a real improvement and I attribute that to the removal of the worst of the housing. There are just very few places for criminals to hang out anymore.

Two other factors that influenced land use change in Grand Traverse during this time period are the conversion of homes to offices and the conversion of homes to group living quarters. Grand Traverse is strategically located in close walking distance to city, county, and federal courthouses and, during the 1960s and 1970s, several dozen homes in close proximity to the courts were converted into office use for local attorneys. At the same time, local and regional social service agencies orchestrated the conversion of dozens of owner-occupied and rental housing into group living

quarters for mentally disabled adults throughout the Grand Traverse neighborhood. Although these new uses can have a range of effects on the neighborhood, ultimately, they bear little overall effect on the broader shift toward lower occupied-housing-unit density in Grand Traverse. In sum, the quantitative results in exhibit 1 accurately reflect the widespread change in the physical form of Grand Traverse, with dramatically fewer homes and new vast stretches of open space.

Carriage Town: The Historic Preservation Conundrum

The Carriage Town neighborhood is located within a city-designated historic district. The benefits that accrue to the neighborhood due to that designation are accompanied by restrictions placed on the demolition of derelict structures. As a result, Carriage Town has an inordinate number of derelict, historic structures in contrast with Grand Traverse. Direct observation of neighborhood conditions, as well as interviews, validated the quantitative evidence presented in exhibit 1 that Carriage Town has experienced a dramatic fall in occupied-housing density over the past several decades. Unlike the Grand Traverse neighborhood, where that change was accompanied by demolition and the creation of wide-open spaces, the Carriage Town neighborhood has experienced that same change with restrictions on demolishing historic structures, which means that far fewer derelict (or even partially burned-down) structures have been razed.

As with the homes in Grand Traverse, single-family homes in Carriage Town have historically accounted for most of the neighborhood housing stock, and as with the homes in Grand Traverse, scores of these homes in Carriage Town have gone through a process whereby owners convert them into multifamily rentals; then, because of owner neglect, the homes are (partially) consumed by fire. Also, like Grand Traverse, the Carriage Town neighborhood has seen a major influx of group homes. Despite restrictions on demolishing historic homes, Carriage Town has still experienced massive population and housing unit decline over the study period. "There are now half the homes in our neighborhood as there were 30 years ago," said one long-time resident. Both new and long-time residents agreed that, as demand for living in Carriage Town dropped precipitously, the neighborhood halved its supply of housing over the past three or four decades.

Although the rural feel of Grand Traverse is absent in Carriage Town, the remaining residents are comfortably spread out on large lots with ample green space, providing somewhat of a suburban quality to the neighborhood form (exhibit 4). Just as happened in Grand Traverse, homeowners in Carriage Town bought abutting parcels after the homes were demolished to add additional yard space or room for more parking, blotting the physical form of their neighborhood. By reclaiming these abandoned spaces, residents leave no space untamed, no place in which to hide, and few structures for turning into criminal havens. The residents that I interviewed in Carriage Town did not perceive crime to be a serious issue in their neighborhood. One resident recounted what happened when he invited friends from the suburbs over for dinner: "They can't believe how beautiful my home is. 'We don't feel like we're in Flint,' they always say. Which on the one hand feels good, but on the other it's like 'what do you mean it doesn't feel like Flint?' 'Why is Flint a bad thing?'" These friends from the suburbs were accustomed to the idea that Flint was a dangerous place; in fact, neighborhoods such as Carriage Town, although they have depopulated and have lost huge numbers of housing units, have become quite attractive places to live.

Exhibit 4

The Carriage Town neighborhood reflects a distinctive suburban quality. (Photo credit: Justin B. Hollander)

Max Brandon Park: Lack of Community, Lack of Commitment

Max Brandon Park, the final neighborhood studied, was different in four main ways from Grand Traverse and Carriage Town: (1) its location is outside of walking distance to downtown, (2) its racial composition (exhibit 5) is not diverse, (3) it lacks a vital neighborhood association or even large numbers of homeowners, and (4) its population is almost twice that of the other two neighborhoods combined. In the three census tracts that make up Max Brandon Park, the occupied-housing-unit density fell by 27 percent from 1970 to 2000 and the population dropped 40 percent.

Unlike the Grand Traverse and Carriage Town neighborhoods, which are diverse racially and in terms of housing tenure, the residents of the Max Brandon Park neighborhood are primarily African American and their housing tenure is primarily rental. Houses throughout the neighborhood have been demolished, but many derelict structures remain. Unlike the unimproved lots in Grand Traverse and Carriage Town, which are adopted by neighbors or used for park space, the lots are mostly left fallow in Max Brandon Park (exhibit 6). Large tracts of vacant land are untamed and uncared for. These wild, vacant lots provide habitat for vermin, hiding spots for criminals, and dumping grounds for others.

In Max Brandon Park, when owners of single-family homes left the neighborhood, the homes were most often reused for single-family rentals, thus keeping the occupied-housing density constant. Because of the same kind of lack of care and responsibility that occurred in other parts of Flint, many of these rentals were also victims of arson. When I asked a long-time resident about other uses in the neighborhood, beside residential, she said, "The only other use is a drug house." The quantitative results show how occupied-housing-unit density has fallen in Max Brandon Park over the past several decades, but the qualitative investigation has highlighted the successor land uses to housing units: drug houses and vacant lots have validated the overall finding that the physical form of the neighborhood has shifted with its depopulation.

Exhibit 5

Max Brandon Park, neighborhood, Flint, Michigan

Variable	1970	1980	1990	2000	% Δ '70–'80	% Δ '80–'90	% Δ '90–'00
Population	16,189	14,426	11,432	9,831	– 10.9	– 20.8	– 14.0
Total number of households	4,745	4,372	4,119	3,459	– 7.9	– 5.8	– 16.0
Percent African American	60.2	87.1	93.5	95.9	44.6	7.4	2.6
Percent over 65 years old	8.2	6.0	8.8	9.8	– 26.6	45.9	11.6
Percent living in poverty	16.6	20.5	41.4	38.8	23.5	102.0	– 6.3
Total housing units	4,981	4,657	4,473	4,106	– 6.5	– 4.0	– 8.2
Total occupied housing units	4,744	4,378	4,055	3,463	– 7.7	– 7.4	– 14.6
Occupied housing units per acre	5.0	4.6	4.3	3.6	– 7.7	– 7.4	– 14.6

Data source: U.S. Census Bureau

Exhibit 6

As with most empty lots in the Max Brandon Park neighborhood, this lot is overgrown with weeds and appears unattended. (Photo credit: Justin B. Hollander)

Discussion

The inability of the city or the neighborhood association to effectively reuse or demolish abandoned buildings makes Carriage Town susceptible to higher levels of criminal activity than Grand Traverse. For example, one neighborhood leader in Grand Traverse said she could count on a single hand how many drug houses were in the neighborhood. In Carriage Town, however, the squatters, who occupy the vast supply of abandoned and semiabandoned structures, are more commonplace. Interviews with long-time residents revealed that homeowners in Carriage Town hold the neighborhood as beloved because of its historic charm, but property owners' ability to demolish or rehabilitate derelict structures is limited.

Both in Grand Traverse and Carriage Town, local residents and community development professionals have successfully used the blotting process to change their urban appearance, while moving from high-density to low-density neighborhoods. From the Max Brandon Park case, we learn that the lack of strong community organizing and low levels of homeownership may have played a role in a different outcome. There, few examples of blotting are apparent and what typically succeeds a demolished home is perhaps qualitatively worse than a derelict structure with the presence of dumping and overt criminal activity. Where both Grand Traverse and Carriage Town have recoded their neighborhood physical form to be more rural and suburban, respectively, after decades of declining occupied-housing density, Max Brandon Park remains a high-crime, predominantly rental, and an unstable community. Both Grand Traverse and Carriage Town have evolved into a rural-to-suburban density level (1.4 units per acre), signaling perhaps a slowdown in their continued depopulation. Max Brandon Park, however, was still a somewhat urban neighborhood, with 3.6 units per acre in 2000; it likely will experience more shrinkage in the near future.

By closely investigating three Flint, Michigan, neighborhoods, I successfully confirmed the results pertaining to occupied-housing-unit density analysis: substantial change has occurred in the physical form of each neighborhood. The occupied-housing-unit density metric masks the different outcomes from each neighborhood because shrinkage has affected each differently.

Conclusion

The case study of Flint shows the value of using occupied-housing-unit density to study depopulating neighborhoods. By examining census data, ground observations of neighborhood conditions, and interviews with local officials, residents, and community leaders, I can make some conclusions about the value of using occupied-housing-unit density in studying and planning for shrinking cities.

Although each neighborhood witnessed change, the change was most painful in the Max Brandon Park neighborhood. This finding suggests that depopulation, physical neighborhood deterioration, and decline in quality of life are not all perfectly correlated but, rather, are subject to variation. As a neighborhood's occupied-housing-unit density declines, quality of life does not necessarily fall concomitantly. By focusing on the value of the single occupied-housing-unit density measurement, it is possible to capture all the social, physical, environmental, and economic forces at work in a neighborhood that are shaping its physical form, while allowing for varying outcomes in quality of

life. Some places will shrink well, while others will not—community development and planning interventions can potentially make the difference.

This study has two important limitations. First, by looking at only the neighborhoods that experienced heavy population decline, the results can be generalized only to other such neighborhoods. Second, by looking at only a single city and only three neighborhoods in it, my ability to understand what other new uses replaced the decreased number of previously occupied housing units in general is limited. The assumption that much of what replaced occupied housing units was unoccupied housing units or vacant lots, an assumption that was supported by the case study, was hardly proven. Future research could address these weaknesses and also explore how neighborhoods with higher or lower density housing might change differently. Does occupied-housing-unit density work as an effective measure in depopulating suburban areas? How does this measurement work in regions outside the industrial Rustbelt of the United States?

Community development and planning practice has traditionally been geared toward issues of growth and development. Community development strategies that assume decline are only beginning to emerge as alternatives. Communities currently lack the skills and resources to respond to decline in an effective and positive way. Community development plans and design strategies for shrinkage need to be built on sound empirical evidence about the ways cities decline. This article introduces a potentially valuable metric for studying the land use effects of population decline and lays a potential foundation for developing planning and urban design tools that respond to the unique needs and characteristics of shrinking cities. Leadership at the federal level through the new Sustainable Communities Initiative at the U.S. Department of Housing and Urban Development could be valuable here to provide incentives and support to communities that plan for their anticipated smaller populations. With or without federal or state support, cities and towns that are losing population should use the occupied-housing-unit density measure in their own planning to monitor land use changes in a systematic way. Flint recently hosted a series of open meetings to debate the future of the city; shrinking was part of the discussion. The findings here demonstrate that occupied-housing-unit density is a valuable metric for approaching shrinkage and aiding Flint's leaders and residents in devising strategies and approaches. For example, blotting and sideyard acquisitions could be encouraged explicitly by local planning and zoning ordinance in support of changing densities in depopulating neighborhoods.

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Graphic Detail

Geographic Information Systems organize and clarify the patterns of human activities on the earth's surface and their interaction with each other. GIS data, in the form of maps, can quickly and powerfully convey relationships to policymakers and the public. This department of Cityscape *includes maps that convey important housing or community development policy issues or solutions. If you have made such a map and are willing to share it in a future issue of* Cityscape*, please contact david.e.chase@hud.gov.*

Combining Data on Residential Vacancy Rates and Mortgage Foreclosures Provides a Picture of Neighborhood Change

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The U.S. Department of Housing and Urban Development's (HUD's) Office of Policy Development and Research recently acquired a product from Lender Processing Services Applied Analytics[1], which contains proprietary individual-loan–level data covering approximately 75 percent of the entire mortgage loan market. This product is a robust data source of 40 million mortgage loans[2] with ZIP Code geographic detail. It includes more than 70 loan attributes, credit scores, and foreclosure status. The ability to identify and track loans in foreclosure and calculate foreclosure rates at various geographic levels can lead to powerful knowledge for all parties involved in community development and housing policy. To illustrate the geographic concentration and extent of social and economic distress resulting from the current housing crisis in the map of the Las Vegas, Nevada metropolitan area in exhibit 1, we connect this mortgage data with U.S. Postal Service (USPS)[3] data on vacant addresses.

The ZIP Codes on the map are shaded from light to dark based on the foreclosure rate as of August 2009. One-half of the ZIP Codes in the area have a foreclosure rate of 10 percent or higher, with

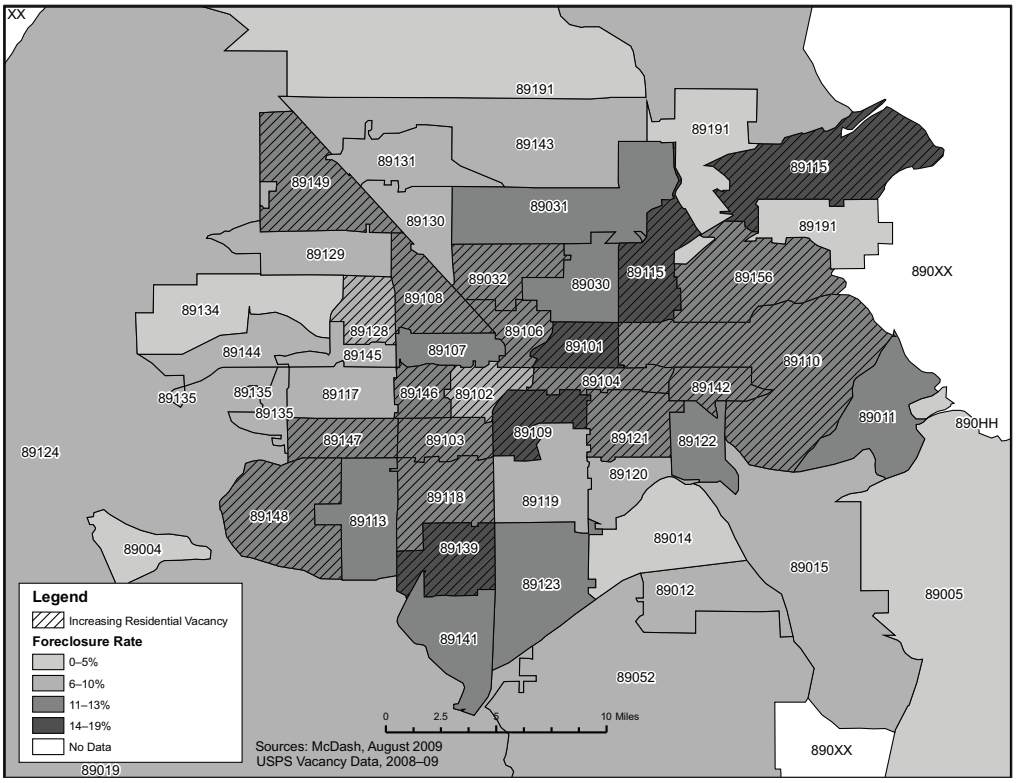
[1] Formerly McDash Analytics.

[2] Includes first and second mortgages.

[3] USPS vacancy data are available through HUD USER (http://www.huduser.org/datasets/usps.html).

Exhibit 1

Foreclosures and Increasing Residential Vacancy
Las Vegas and Surrounding Communities



USPS = U.S. Postal Service.

ZIP Code 89109, located in the center of the map, approaching 20 percent. The hatched areas on the map are ZIP Codes that have had increases in residential vacancy above the mean change for all ZIP Codes in Las Vegas and its surrounding communities from September 2008 to September 2009. The mean change in ZIP Code residential vacancy rate during this period is 1.25 percent. The average increase in residential vacancy rate in the hatched ZIP Codes is 2.66 percent, which is more than twice the mean. The average residential vacancy rate for these ZIP Codes has increased from 3.8 to 6.5 percent during this period.

In general, increasing vacancy rates occur where home foreclosure rates are high. Some exceptions occur, most notably in Las Vegas, North Las Vegas, and Whitney, where the foreclosure rate is high but the residential vacancy rate is still comparatively low. Also of interest and warranting further examination are the concentrations of vacancies and foreclosures around Nellis Air Force Base. A military base is often a source of both employment and housing for a community (be it on-base or off-base housing). Any changes to or fluctuations in that military installation can have compounding effects on a community's housing stock and exacerbate a housing crisis in terms of foreclosures and vacancies, as is occurring in Las Vegas.

The mapping of foreclosure rates and vacancy rates can provide a starting point for studying the interrelationship between vacancy and foreclosure. More in-depth analysis is needed to understand the direct relationship between foreclosure rates and vacancy rates, which leads or lags the other, and the unique determinants of distress in Las Vegas.

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 economically significant rules of the U.S. Department of Housing and Urban Development. 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.

The Impact of Formula Allocation Discretion in the Housing Trust Fund

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This article reflects the views of the authors and does not necessarily reflect the views of the U.S. Department of Housing and Urban Development.

Abstract

The federal Housing Trust Fund (HTF) was created through the Housing and Economic Recovery Act of 2008, which also required the U.S. Department of Housing and Urban Development (HUD) to establish a formula for allocating housing subsidies to states and Insular Areas (American Samoa, Guam, the Northern Marianas Islands, and the Virgin Islands) on the basis of need. HUD's Office of Policy Development and Research conducted a regulatory impact analysis of the Department's proposed formula rule, assuming a hypothetical congressional appropriation of $1 billion for the HTF. The analysis summarized the Department's approach to weighting various statutory factors of housing need and recognized distributional implications for states. The primary impact was determined to be a transfer from the federal government to states in an amount equal to the appropriation. A number of economic factors are not considered in this determination, but it is not clear that the data or capacity exists to examine such factors. This article updates the impact analysis using recent data and incorporates several corrections.

Summary of the Housing Trust Fund

The Housing and Economic Recovery Act (HERA) of 2008 authorized the Housing Trust Fund (HTF) by adding Section 1338 to the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (12 U.S.C. 4501 et seq.) (FHEFSSA). The law provides that the purpose of the HTF is to provide grants to states for two uses: (1) to increase and preserve the supply of rental housing for extremely low-income (ELI) and very low-income (VLI) families, including homeless families; and (2) to increase homeownership for ELI and VLI families. A beneficial feature of the HTF program comes from the attention its authors paid to a common critique of construction subsidy programs—that the subsidies merely crowd out unsubsidized affordable housing and thus fail in some measure to reduce housing need (see Khadduri, Burnett, and Rodda, 2003, for literature review).

One way to read the legislation is that the law effectively directs the Department of Housing and Urban Development (HUD) to target the HTF to those places where crowding out is least likely to occur. Section 1338(c) directs HUD to establish by regulation a formula for allocating affordable housing funds by state to ELI and VLI households.

The statute provides that the HTF primarily should assist ELI households; that is, households with incomes that do not exceed 30 percent of the Area Median Income (AMI), with adjustments for family size. The law states that not less than 75 percent of the funds must be used to increase or preserve rental housing for ELI households or those living below the poverty line. The remaining 25 percent must serve VLI households; that is, households with incomes that do not exceed 50 percent of the AMI. No more than 10 percent of the funds may be used to increase homeownership and up to 10 percent of the funds may be used to pay for administrative costs.

Although Congress has not appropriated funds for the HTF to date, FHEFSSA requires HUD to issue regulations for allocating the funds according to the statutory formula within 12 months of its enactment, which occurred on July 30, 2008. HUD published the proposed regulations for formula allocation in the *Federal Register* on December 4, 2009.[1]

The economic impact of the HTF consists of a transfer from the taxpayer, through state governments, to ELI and VLI families. By expanding and preserving the supply of housing and lowering financial barriers to homeownership, the HTF will reduce the housing costs of ELI and VLI families and thus raise the consumer surplus of the program's beneficiaries.

Proposed Allocation Formula of the Housing Trust Fund

The HTF formula is based on Sec. 1338(c)(3) of FHEFSSA, as amended by HERA. The law provides that allocations for the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, and the Insular Areas are to be based on four housing needs factors and a construction cost adjustment factor. The data from readily available standardized data sources for the Insular Areas,

[1] http://www.thefederalregister.com/d.p/2009-12-04-E9-28984 (accessed January 27, 2010).

however, differ from those available from those sources for the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia. Therefore, a separate allocation process for Insular Areas had to be proposed and is explained below. Except for the Insular Areas, each of the four factors is expressed as a ratio of the state relative to the nation. A statutory minimum of $3,000,000 is allocated to each of the 50 states and the District of Columbia.

HUD announced that it would allocate HTF moneys using the following process.

(i) Determine allocations to Insular Areas based on the proportion of renters who reside in those areas relative to the sum of all renters in Insular Areas, the United States, and the Commonwealth of Puerto Rico.

(ii) Determine allocations to the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico, using the statutory formula, with these steps:

(1) Estimate the relative level of housing needs using the statutory housing needs factors as interpreted by HUD:

Factor 1: Shortage of ELI rental units. The ratio of the shortage of standard rental units that are both affordable and available to ELI renter households in each state compared with the aggregate shortage of standard rental units that are both affordable and available to ELI renter households in all the states.

HUD measured the shortage as the mathematical difference between the number of ELI renter households and the number of ELI-affordable rental units that either are currently occupied by ELI households or are vacant and available at affordable rents.[2] (*Affordable rent* refers to rent that is not in excess of 30 percent of household income.)

Factor 2: Shortage of VLI rental units. The ratio of the shortage of standard rental units that are both affordable and available to VLI renter households in each state to the aggregate shortage of standard rental units that are both affordable and available to VLI renter households in all the states.

For this factor as well, HUD calculated the shortage as the mathematical difference between the number of renter households with the specified income and the number of affordable rental units that either are currently occupied by households in this income range or are vacant and available at rents affordable at this income range. To avoid double counting the ELI shortages measured by Factor 1, HUD restricted the households covered by this factor to those with incomes of 30 to 50 percent of AMI, the upper end of the VLI range.[3]

[2] Note that HUD conceivably could have interpreted "shortage" as the ratio, rather than the difference, between the estimated numbers of households and of units. No evidence exists indicating that this was Congress's intent. Factors 1 and 2 would have become ratios of ratios under this method.

[3] Factor 2 also excludes vacant units that are offered at rents affordable to ELI households, even though such units are available and would be affordable to those with incomes within 30 to 50 percent of AMI. The exclusion prevents these units from being double-counted toward reducing shortages both for the ELI in Factor 1 and the VLI in Factor 2.

Factor 3: Housing problems of ELI renters. The ratio of the ELI renter households in the state living with any of these three problems: (1) having an incomplete kitchen or plumbing facilities, (2) having more than one person per room, or (3) paying more than 50 percent of income for housing costs, to the aggregate number of ELI renter households having those respective characteristics in the United States.

Factor 4: Severe cost burdens of VLI renters. The ratio of the VLI renter households in the state paying more than 50 percent of income on rent relative to the aggregate number of VLI renter households paying more than 50 percent of income on rent in all states.

(2) Weight the four housing needs factors, assigning a weight of 50.0 percent to Factor 1, 12.5 percent to Factor 2, 25.0 percent to Factor 3, and 12.5 percent to Factor 4. The two factors addressing needs of ELI households, Factors 1 and 3, thus have a combined weight of 75 percent in keeping with statutory targeting of funds.

(3) Determine initial allocations by multiplying the amount of appropriation remaining after the Insular Areas' allocation by the weighted factors.

(4) Determine cost-adjusted initial allocations by multiplying initial allocations by a construction cost adjustment factor that is developed as follows:

(a) Use RSMeans Reed Construction Data®, which are available for selected cities in each state.

(b) Calculate a weighted average construction cost for each state, where the weight for each sampled city is proportional to the city's share of the state's population.

(c) Calculate relative construction cost estimates for each state by dividing the state's average cost by the overall average of state average costs.[4]

(iii) Determine final state allocations by increasing cost-adjusted initial allocations to a statutory minimum of $3,000,000, where necessary, and reallocating the remaining funds in proportion to cost-adjusted initial allocations.

We have used a special tabulation of American Community Survey (ACS) data[5] to develop sample HTF allocations for states and Insular Areas, based on the above method and assuming a hypothetical $1 billion appropriation (exhibit 1). In addition to using more current data, the estimates

[4] Construction cost adjustments in this article are calculated relative to the mean of the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico. Puerto Rico was excluded in the official impact analysis.

[5] The special tabulation is called the Comprehensive Housing Affordability Strategy (CHAS) data; it was created to help HUD's community development grantees comply with the analytical requirements of creating their Consolidated Plans. The new CHAS uses ACS data averaged across 2005-through-2007 surveys. See http://www.huduser.org/portal/datasets/cp.html (accessed January 29, 2010).

in this article vary from the preliminary estimates in HUD's formally submitted impact analysis because of both changes in measured housing needs and corrections in procedures.[6, 7]

Exhibit 1

Sample Housing Trust Fund Allocations for States and Insular Areas Under a Hypothetical $1 Billion Appropriation

State	HTF Allocation ($)	State	HTF Allocation ($)
Alabama	9,950,004	Nevada	9,282,184
Alaska	3,000,000	New Hampshire	3,248,241
Arizona	15,626,837	New Jersey	34,396,197
Arkansas	6,434,774	New Mexico	4,739,355
California	183,026,963	New York	121,739,879
Colorado	14,446,312	North Carolina	21,852,307
Connecticut	12,084,937	North Dakota	3,000,000
Delaware	3,000,000	Ohio	32,440,617
District of Columbia	3,838,659	Oklahoma	7,535,120
Florida	51,313,186	Oregon	15,234,816
Georgia	22,083,671	Pennsylvania	36,206,487
Hawaii	5,455,946	Rhode Island	4,454,100
Idaho	3,105,977	South Carolina	9,199,909
Illinois	45,913,332	South Dakota	3,000,000
Indiana	15,081,777	Tennessee	13,003,854
Iowa	6,326,828	Texas	57,483,952
Kansas	5,839,164	Utah	4,239,213
Kentucky	9,264,851	Vermont	3,000,000
Louisiana	11,911,344	Virginia	19,727,831
Maine	3,288,198	Washington	23,575,177
Maryland	13,514,007	West Virginia	4,089,213
Massachusetts	26,477,040	Wisconsin	16,405,257
Michigan	27,563,834	Wyoming	3,000,000
Minnesota	13,991,926	Puerto Rico	6,784,995
Mississippi	6,557,272	American Samoa	59,069
Missouri	15,039,196	Guam	555,248
Montana	3,000,000	Northern Marianas	263,620
Nebraska	3,738,054	Virgin Islands	609,270

HTF = Housing Trust Fund.

Source: Authors' estimates for states are based on housing needs factors in Comprehensive Housing Affordability Strategy tabulations of American Community Survey data for 2005 through 2007; estimates for Insular Areas are based on the proportion of renters residing in those areas based on the 2000 Census

[6] The regulatory impact analysis that HUD originally submitted to the Office of Management and Budget used a CHAS tabulation of 2000 Census data. In the course of updating the analysis with the new CHAS data, the authors discovered that several components of housing need were inadvertently omitted from Factor 2 in the official submission. The omission (variables a10c19r, a10c20r, a10c21r) caused the estimated state shortages of very low-income units to be biased upward because VLI renter households were counted toward the shortage even if their rents were affordable to households with incomes of 30 to 50 percent of AMI.

[7] In addition, the updated estimates in this article incorporate a correction in the calculation process, whereby estimates of affordable housing shortages are reset to zero if states have negative values (that is, have available units exceeding renters). The authors judged that this adjustment would comply with the statute's rules of construction (subsections (f)(3)(b), (f)(4)(b)), which provide that negative shortages imply "no shortage." The adjustment had a small effect on Factor 2 values, as it applied to two states when using the 2000 CHAS data and one state when using the new CHAS data.

Data Inadequacy and Insular Areas Allocations

HERA provides that the HTF will provide allocations to the Insular Areas: American Samoa, Guam, the Northern Marianas Islands, and the Virgin Islands. HUD determined, however, that the data needed to make allocations to these areas using the four formula factors do not exist in detail comparable to the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico. In particular, neither the long-form decennial census nor the American Community Survey data would enable HUD to determine the number of households in ELI and VLI categories and the number of housing units affordable to these households in these income categories.[8]

HUD resolved the data limitation by adopting a more basic assessment of housing need in Insular Areas compared with the entire country: the percentage of renters residing in Insular Areas relative to the sum of all renters in Insular Areas, the United States, and the Commonwealth of Puerto Rico.

The small shares of renters residing in Insular Areas (0.01 percent in American Samoa, 0.06 percent in Guam, 0.03 percent in the Northern Marianas, and 0.06 percent in the Virgin Islands) make the Insular Area allocations insignificant for the purposes of this rule. Aggregate allocations for Insular Areas total $1.487 million for a hypothetical $1.0 billion appropriation. For comparison purposes, the Insular Areas receive $3.65 million out of the $1.825 billion fiscal year (FY) 2009 HOME Investment Partnerships Program appropriation.

Assessing Effects of HUD's Discretionary Choices in Defining the Allocation Formula

In developing the HTF allocation formula, HUD tested several alternatives to determine to what extent the resulting economic outcomes are sensitive to modest discretionary choices. None of the discretionary choices have any effect on Insular Areas.

We showed previously that HUD gave 50 percent of the total weight to shortage of ELI rental units, and a 25-percent weight to housing problems of ELI renters, corresponding with the law's requirement for targeting 75 percent of rental housing funds to ELI households. HUD then gave equal weights of 12.5 percent for shortage of VLI units and for severe cost burdens of VLI renters.

To examine the importance of this weighting for allocation outcomes, HUD also ran the allocation formula with alternative weight structures. The first alternative was to retain the 50-percent priority weight for Factor 1 but remove the overweighting of Factor 3 so that it equals Factors 2 and 4, resulting in a 50-16.7-16.7-16.7 structure. HUD also tested two additional levels of preference for Factor 1, one applying a weight 10 percentage points below and the other 10 points above the proposed 50-percent value. Both alternatives provide equal weights for the other factors.

[8] The Government Accountability Office (GAO) recently examined the adequacy of the two major data sources that potentially could address Insular Areas—the Current Population Survey (CPS) and the American Community Survey (ACS)—in a review of data adequacy for the Medicaid program. GAO concluded that CPS and ACS data are not available for the Insular Areas, except for the Commonwealth of Puerto Rico. Like HERA, the Medicaid statute defines states to include insular Areas, of which Puerto Rico is one. HUD's decision to treat Puerto Rico like the 50 states and District of Columbia in allocating HTF therefore hews more closely to HERA than other federal programs have done when faced with similar statutory definitions and data limitations. (GAO, 2009).

Alternative 1: 50-16.7-16.7-16.7 weights.[9] Relative to the proposed formula's 50-12.5-25-12.5 weighting, removing the additional preference for Factor 3 has distributional effects. Under a $1 billion total appropriation and using 2005-to-2007 ACS data, the alternative 50-16.7-16.7-16.7 formula structure would provide additional benefits exceeding $500,000 to the states of California, Florida, Nevada, New Jersey, and New York. Reductions of $500,000 or more would occur for Illinois, Indiana, Kentucky, Michigan, Minnesota, Missouri, Ohio, Pennsylvania, Texas, and Wisconsin. Relative to the proposed allocation formula, 10 states would receive more under this option and 35 would receive less, although, for 20 states, the change would be less than 1 percent from the proposed allocation.

Alternative 2: 40-20-20-20 weights. Without the overweighting of Factor 3, the two weighting alternatives for Factor 1—10 points higher or 10 points lower—do not produce the roughly symmetrical gains or losses that might be anticipated for any given state. Notably, California and Florida would benefit relative to the proposed rule whether the Factor 1 prioritization were stronger or weaker. Overall, reducing the weight of Factor 1 through the 40-20-20-20 structure has a result similar to that of eliminating the Factor 3 overweight, but with slightly more concentrated effects. The number of gainers (11) and losers (34) relative to the proposed allocation is similar, but the average gain and average loss both are greater, primarily because of large gains by California and Florida and larger losses by the same states affected by alternative 1.

Alternative 3: 60-13.3-13.3-13.3 weights. Compared with the first and second alternatives, increasing the weight of Factor 1 to 60 percent in the 60-13.3-13.3-13.3 structure produces smaller changes in allocations relative to the proposed formula. The 14 states that gain would receive an average of $312,000 more in their allocations, while the 31 states that lose would average $141,000 less. A significant gain by California makes it the single major outlier under this alternative.

Selection of Alternative for Proposed Rule

In eliminating the alternatives discussed previously, HUD's decision is complicated by the fact that increasing the weight on the VLI factors (2 and 4) might have the effect of shifting funding from states with relatively softer rental housing markets, such as Alabama, Ohio, Pennsylvania, and Michigan, to housing markets that in the 2005-to-2007 period had very high rental costs relative to income, such as California, Florida, Nevada, and New York. It is worth noting that the appropriate use of HTF funds might vary by the type of housing shortage. State and local housing markets that have the highest shortages of housing for both ELI households and VLI households might have the greatest need for new units. Those markets with a shortage primarily in ELI units have a greater need for funds to reduce operating costs and renovate affordable housing so that decent affordable housing will be available to ELI renters.

HUD's analysis of the sensitivity of state allocations to various prioritizations of the needs of ELI renters under Factor 1 and Factor 3 revealed that approximately one-half of the states are not

[9] Although the weights are rounded to facilitate presentation, those in the calculation process use repeating decimals so as to sum to 100 percent.

affected greatly by any of the weighting alternatives, because 20 to 29 states experienced changes of less than 1 percent. For larger states, effects tend to be more pronounced, yet only rarely exceed 3 percent relative to HUD's proposed formula. HUD concluded that providing priority weighting for both ELI factors in the proposed 50-12.5-25-12.5 structure accommodates states for which ELI needs take different forms, while responding as closely as feasible to the statutory requirement that 75 percent of rental assistance funds provided by the HTF should serve ELI households.

Summary of Impacts

As noted previously, the statute is very specific about the factors to be used in the formula and different weighting schemes have only a modest effect on allocation grants. The largest effect on allocation grants is the amount made available for the program. Under current statute, the HTF would be funded through profits from the government-sponsored enterprises Fannie Mae and Freddie Mac. Because those agencies currently do not have profits, for the FY 2010 HUD budget request to Congress, President Obama requested that $1 billion be appropriated for the program as a transfer from the federal government to state governments. The direct federal cost of the program will be the amount eventually provided by Congress.

HTF grants will be used to support the development of primarily rental housing affordable to ELI households. Under the formula described here, this program provides funding to add affordable housing supply to markets in which strong evidence indicates an inadequate supply. This program represents a strong complement to HUD's demand-side program, the Housing Choice Voucher Program (HCVP), which provides a tenant-based subsidy for primarily ELI households to afford existing privately owned rental housing. A limitation of the HCVP is that tenants are less likely to use their vouchers successfully in tight markets (Finkel and Buron, 2001), a problem that the careful targeting of HTF dollars in this rule to markets with inadequate supply is intended to address.

The primary benefits of the HTF are expected to be similar to the HCVP. The large-scale random assignment evaluation of the voucher program by Mills et al. (2006) reports that a primary benefit of housing assistance programs is reducing homelessness and the doubling up tendency among ELI families.[10] Thus, the primary benefit of the program against no funding or funding without targeting will be to reduce the number of homeless families and individuals in relatively tight housing markets.

The economic effect of the HTF formula rule was classified in HUD's submission to the Office of Management and Budget as a transfer from the federal government to states in the amount of the appropriation. More explicitly, and perhaps more accurately, the transfer is from taxpayers to direct beneficiaries of housing assistance, thus increasing the beneficiaries' consumer surplus.

Despite the simple transactional implication of a transfer, the economic costs and benefits are in reality far more complex. Even ignoring the state-level distributional effects of the discretionary design of a formula, the evaluations cited previously hint at the indirect benefits and effects of the

[10] Mills et al. (2006) also report various other effects of relatively modest size, both positive (for example, deconcentration of poverty) and negative (for example, lower earnings).

housing subsidy. Increasing the supply of affordable housing would mitigate the severe shortage of affordable housing units and the current crowding out of households with greater needs.[11] Greater affordable housing supply would produce external benefits arising from reduction of homelessness and improved housing consumption by low-income households.

HUD is not in a position to assess a number of economic effects. An incomplete list of such factors might include the deadweight losses that result from higher federal taxes and borrowing, the discount value that HTF beneficiaries place on housing subsidies compared with cash grants—offset by possible increases in their labor supply compared with cash grants, and increases in resources used by developers or program applicants in competing for HTF grants. The current lack of data and analytic capacity has prevented HUD from addressing these issues, although such analysis would be of great interest.

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[11] In 2005, only 39.9 affordable rental units were available for every 100 ELI households and 76.8 units for every 100 VLI households (HUD, 2007). Further, about 2.76 million households with incomes above the ELI threshold were occupying ELI-affordable units in 2005 (HUD, 2007).

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