

The Impact of Neighbors Who Use Section 8 Certificates on Property Values

George C. Galster
Wayne State University

Peter Tatian and Robin Smith
The Urban Institute

Abstract

This article statistically examines the sale prices of single-family homes surrounding Section 8 sites first occupied between 1991 and 1995 in Baltimore County. If only a few Section 8 sites were located within 500 feet, we found a strong positive impact on property values in higher-valued, real-appreciation, predominantly white census tracts. However, in low-valued or moderately valued census tracts experiencing real declines in values since 1990, Section 8 sites and units located in high densities had a substantial adverse effect on prices within 2,000 feet, with the effect attenuated past 500 feet. Focus groups with homeowners revealed that the negative impact was based on the units' imperfect correlation with badly managed and maintained properties.

We argue that policies should be devised to direct Section 8 households away from vulnerable neighborhoods, better regulate managers of Section 8 apartments, and more stringently screen and monitor Section 8 households.

Keywords: Low-income housing; Neighborhood; Prices

Introduction and policy background

Policy makers have long harbored concerns over the location of low-income households receiving housing assistance. Traditionally, these concerns have been articulated in several themes related to social problems. Some have worried that if subsidized and other low-income households are concentrated in a neighborhood, a variety of social maladies—violence, crime, substance abuse, alienation, out-of-wedlock childbearing—will be intensified (Coulton and Pandey 1992; Crane 1991; Polikoff 1994). Others believe that concentrating subsidized households facilitates their stigmatization and the withdrawal of private and public capital from their neighborhood (Leavitt and Loukaitou-Sideris 1995; Massey and Kanaiaupuni 1993; Rainwater 1970; Schill and Wachter 1995). Still others see a social cost in the form of perpetuated racial and ethnic segregation and isolation (Bauman, Hummon, and Muller 1991; Goering

and Coulibably 1989; Massey and Denton 1993; Massey, Gross, and Eggers 1991).

Recently, however, the locational issue has been framed more positively. Housing subsidy programs, it has been argued, should be structured to give low-income households more spatial options than they have had before. This enrichment of residential alternatives would not only improve the freedom and well-being of recipients in the short run, but also their prospects for economic self-sufficiency in the long run, by enhancing their access to employment and job information networks and better-quality education. It would also expose them to community social norms more supportive of education and employment (Cisneros 1995; Polikoff 1994; Rosenbaum 1995).

With the ascendancy of tenant-based subsidies as the prime delivery vehicle for subsidized housing in the early 1980s (Hartung and Henig 1997; Nenno 1997), policy makers' attention turned to how tenants could best be provided with mobility information and counseling and how housing authorities could be encouraged to adopt procedures that would open up the widest possible range of residential options. By 1990, a set of new legislative and rule changes that permitted recipients of Section 8 certificates and vouchers to use their subsidies elsewhere than in the jurisdiction of the issuing local housing authority were in place (Goering et al. 1995; Peterson and Williams 1995).

Spurred on by the encouraging evaluations of the tenant mobility program mandated by the Gautreaux settlement of a civil rights suit against the Chicago Public Housing Authority, Congress authorized the Moving to Opportunity (MTO) demonstration program in 1992 (Ludwig and Stolzberg 1995). This experimental program provided Section 8 assistance and mobility counseling to former inner-city public housing residents in five sites. The results were to be evaluated over 10 years to assess the efficacy of different mobility-enhancing strategies and the long-term effects of recipients' having greater mobility (U.S. Department of Housing and Urban Development [HUD] 1996). HUD recently began another demonstration program in 12 metropolitan areas: The Regional Opportunity Counseling Program aims to help Section 8 households select the most appropriate dwellings and neighborhoods from a wide array of jurisdictions across their metropolitan area.

Regardless of the programmatic particulars, however, efforts to move tenants receiving housing subsidies outside of concentrated poverty neighborhoods must confront a common challenge: potential hostility from communities into which subsidized households move (Goetz, Lam, and Heitlinger 1996; Hogan 1996; McGrew 1981;

Schill 1992). Although such hostility is sometimes dismissed by policy makers as founded on indefensible racial prejudices or class animosities, there may be legitimate public policy concerns that introducing of subsidized tenants may seriously erode the quality of life in a neighborhood (Evans 1996). These concerns often focus on possible erosion of civil behaviors, upsurges in crime and violence, accelerated physical decay of residential and commercial properties, and a consequent drop in property values.

The HUD-sponsored MTO program as it was instituted in Baltimore City and County in 1994 provides a quintessential illustration of community opposition to policy initiatives to deconcentrate subsidized households that was based on the fear of potentially detrimental effects on neighborhoods. During its first phase, MTO was designed to help 143 subsidized tenants move from Baltimore City public housing developments to Baltimore County. Participating tenants were given a Section 8 rental certificate and provided various forms of mobility assistance (HUD 1996).

Despite the small scale of the Baltimore MTO program, it became a lightning rod for opponents of dispersed housing subsidy programs. A Fourth of July parade in blue-collar Dundalk, a suburban community adjacent to Baltimore, turned into a de facto rally where “spectators made it clear with signs and shouts that they want no part of MTO, predicting that a flood of poor people from the City [of Baltimore] will bring down their property values” (Waldron 1994, 1B). Ellen Sauerbrey, the Republican candidate for governor of Maryland who would be narrowly defeated later that year, remarked, “Once you start messing around with people’s property values, you’re asking for trouble” (Waldron 1994, 1B). Indeed, this proved to be the case. Senator Barbara Mikulski (D-MD) was persuaded to use her influence as chair of the Senate Appropriations Subcommittee for HUD to refrain from allocating the next fiscal year’s \$149 million appropriation for MTO (Mariano 1994). The demonstration program was effectively eviscerated.

Overview of research strategy

Our study examines whether Section 8 tenant-based housing assistance in Baltimore County (both MTO and the regular Section 8 program) had the negative impact that its critics contended. We will address the following questions:

1. Does the occupancy of an apartment by a Section 8 household, in general across Baltimore County, cause a significant reduction in the sales prices of single-family homes in the vicinity?

2. Does any price impact vary within 2,000 feet of the Section 8 site?
3. Does any price impact vary with the number of Section 8 sites and units occupied?
4. Does any price impact vary across types of Baltimore County neighborhoods?

To answer these questions, we performed multiple regression analyses to ascertain whether sales prices of single-family homes during the 1991–1995 period were adversely affected by proximity to Section 8 households. This analysis was conducted on a sample of 43,361 home sales. Addresses of Section 8 households and property sales were geocoded so that mapping software could be used to compute the distance between each sale and any nearby Section 8 households. Sales prices were regressed on their structural characteristics, year/quarter time dummy variables, census tract dummy variables, and a unique set of variables identifying sales trends and levels occurring both pre- and postoccupancy by Section 8 tenants in the vicinity of each subsidized site. This original specification allowed us to overcome a conundrum that has plagued previous studies of the effect of subsidized housing programs on property values: Is Section 8 attracted to low-price areas or does it cause prices to fall? To enrich our interpretation of the econometric results, we conducted focus groups with homeowners residing near Section 8 sites at four county locations.

Results and methodological shortcomings of previous empirical studies

Through the 1980s and earlier, at least a dozen scholarly studies investigated the question of whether subsidized housing has a negative impact on the property value of neighboring single-family homes.¹ The preponderant conclusion reached by these studies was that there was no sizable or statistically significant impact, and a few studies (De Salvo 1974; Nourse 1963; Warren, Aduddell, and Tatalovich 1983) even concluded that there was a positive impact.²

¹ See Martinez (1988), Matulef (1988), and Puryear (1989) for reviews. A related strand of literature, the impacts of group residences for persons with disabilities, is not considered here. For a review, see Galster and Williams (1994).

² A lone dissenting view came from Guy, Hysom, and Ruth (1985). A thorough review is provided in Galster et al. (1999).

Recently, however, the conventional wisdom of no impact has been shaken by four sophisticated statistical studies that have emphasized the contextuality of impacts (Cummings and Landis 1993; Goetz, Lam, and Heitlinger 1996; Lee, Culhane, and Wachter 1999; Lyons and Loveridge 1993). These studies have concluded that, in certain circumstances and with certain kinds of developments, subsidized housing can have a harmful effect on nearby property values.³

One possible explanation as to why the foregoing analyses have come to such different, nongeneralizable conclusions is that they employ different methodologies, each of which suffers from serious, if somewhat different, shortcomings.⁴ All prior studies share two crucial weaknesses: The first is that they cannot convincingly distinguish the direction of causation between trends in neighborhood property values and the siting of assisted housing.⁵ Put differently, because they do not control for the quality and market strength of the microneighborhood into which assisted housing is placed relative to the larger universe of potential sites, they cannot ascertain whether subsidized sites lead to neighborhood decline or whether subsidized sites are systematically located in areas having property values that are low and expected to depreciate further.

There are at least two reasons to suspect the latter. First, private landlords may be more willing to participate in the Section 8 program, and even actively recruit Section 8 tenants, if their properties are in weak housing submarkets where they cannot otherwise obtain fair market rents (FMRs) for their apartments.⁶ Second, since the value of the voucher is fixed, Section 8 households may try to move into modest neighborhoods so as to free up more of their income for nonhousing consumption.

A second, overarching criticism of all extant empirical work related to the property value impact of subsidized housing is the failure to account for spatial econometric issues. Can (1997) and Can and Megbolugbe (1997) have demonstrated how the predictive ability of home price regression models is enhanced considerably by the inclu-

³ This was not found by Briggs, Darden, and Aidala (1999). Similarly, the only study to investigate the effect of Section 8 tenant-based assistance found no impact (Lyons and Loveridge 1993).

⁴ For a critique, see Galster et al. (1999).

⁵ Lyons and Loveridge (1993) also discuss this problem.

⁶ For case studies of how landlords in the Baltimore area often actively recruit Section 8 tenants, see Varady and Walker (1998).

sion of variables measuring the spatial dependence (autocorrelation) among proximate home prices.

Our econometric approach overcomes the shortcomings of prior studies. By employing a pre/post design involving localized fixed effects before and after Section 8 occupancy, it controls for micro-neighborhood characteristics unrelated to such occupancy. By relating these localized fixed effects to property value trends and levels in larger geographic areas, it distinguishes the self-selection of Section 8 housing into weak neighborhood submarkets from the ultimate consequences on these neighborhoods. By carefully controlling for the characteristics of sold properties, macro trends in values, and spatial econometric effects, it purges several additional confounding elements that have plagued earlier analyses. The complete specification of our model follows.

Issues in the econometric measurement of subsidized housing's effect on prices

Nontechnical overview

Nothing can be quite as intimidating and often incomprehensible as a discussion of advanced econometric models. Unfortunately, such a model forms the core of our quantitative analysis, and it must be described with sufficient precision so that specialists can review it and assess the accuracy of its findings. The importance of the topic being investigated demands nothing less.

Nevertheless, our approach has a strong intuitive appeal. Thus, in this overview we aim to provide a comprehensible (albeit superficial) description of what our model is trying to accomplish and how it goes about doing so.

Our model builds on the work of numerous researchers who have statistically investigated the degree to which a variety of factors associated with a neighborhood affect the sales price of nearby single-family homes. The heart of these investigations consists of a statistical model that attempts to decompose the sales price into implicit prices paid for the myriad attributes of a home—such as rooms, yard, fireplaces, maintenance levels, year of construction—as well as attributes associated with the home's surroundings. The latter includes everything from the quality of local public schools, the condition of nearby properties, the proximity to shopping, and the socioeconomic and racial characteristics of neighbors to the quality of the air. The notion here is that homes with a different bundle of attributes will sell for different prices and that a home's sales price

can be predicted if one measures the amount of each attribute and then multiplies that amount by its implicit price, and aggregates everything.

The empirical technique for decomposing home sale prices into implicit prices of attributes is multiple regression analysis. In this technique, a sample of home sales is determined and as many attributes of each home as feasible are measured. Home sales becomes the dependent variable in the regression model, and the attributes become the independent (explanatory) variables. The estimated coefficients can be interpreted as the implicit prices of these attributes.

Thus, should a regression of sales prices on the properties' housing and neighborhood attributes produce a negative coefficient for the attribute "age of the home," we would interpret this to mean that the market does not value older homes as much as newer ones. Similarly, if our regression were to estimate a positive coefficient for the attribute "a park is within two blocks," it would signify that the market valued proximity to parks.

It is important to realize that the multiple regression is estimating these coefficients independent of the effects of all the other attribute variables specified in the model. That is, one can interpret these coefficients as the additional impact on price that is contributed by the given attribute, controlling for the effect of all the other attributes. A crucial implication is that results are more accurate if one can control for as many attributes as possible in the multiple regression.

For the purposes of this study, we focus on one particular attribute: the home that was sold is close to a site occupied by a household or households receiving a Section 8 tenant-based housing subsidy. We define "close" in three alternative ways: within 500 feet, from 501 to 1,000 feet, and from 1,001 to 2,000 feet. We also consider another measure of this attribute: the number of subsidized tenants within x feet of the home sale. Our goal is to ascertain the degree to which this attribute affects sales prices in the Baltimore County housing market, controlling for a wide variety of attributes at the same time. These attributes include the home's structural characteristics, the characteristics of the surrounding neighborhood measured both at the census-tract level and at the microneighborhood level of the three aforementioned distances from a subsidized site, and measures to adjust for seasonal and business cycle influences.

We structured our multiple regression model to create the equivalent of a pre/post experiment. That is, we effectively compared the level and trend of home prices in a microneighborhood both before and after a site in its midst is occupied by a subsidized tenant. This

level and trend are estimated on the basis of sales of identical homes or, more accurately, homes whose differences in prices due to differences in their attributes have been adjusted so as to make them comparable. If either the level or the trend in prices is different after occupancy, that would signal to us that there was an independent effect from the occupied subsidized unit.

This pre/post aspect of our method is central to its power and, indeed, represents a significant methodological advance in analyzing house prices. It thus warrants some added explication. Our model takes the locations of rental sites that first began subsidized occupancy during the early through mid-1990s. We circumscribe each site with a circle whose radius is 2,000 feet. Within this circle, we take every home sale that occurred for several years, right up to the time of subsidized occupancy. Then, for each of the three distance rings noted earlier, we calculate the level and trend in prices, adjusting for any differences in the sold homes' attributes that could affect their price. We do the same for several years' worth of sales, beginning with the quarter after a subsidized site was occupied. Finally, after controlling for other factors, we compare the two levels and trends and draw conclusions.

Defining neighborhood

Our procedure is distinguished by its specification of the "neighborhood." We employed a set of fixed-boundary, mutually exclusive areas (census tracts) for defining one set of spatial fixed-effect variables. However, to measure fixed effects in smaller, microneighborhoods, we relied on a different procedure. Essentially, we defined a series of neighborhoods centered on each subsidized housing site, each one comprising one of several concentric rings within a range of 2,000 feet. Depending on the proximity of the subsidized sites, these neighborhoods might overlap. Our specification estimated a fixed-effect for these microneighborhood spaces, one within 500 feet, one from 501 to 1,000 feet, and the last from 1,001 to 2,000 feet. Significantly, these fixed effects are permitted to influence both the level of prices and their trends, pre- and postoccupancy.⁷ These variables control, in summary form, for the idiosyncratic bundle of at-

⁷ Our model represents a synthesis of the interrupted trend specification of Bloom and Ladd (1982) and the shift in level specification of Galster and Williams (1994) and Briggs, Darden, and Aidala (1999).

tributes present in the corresponding space. The effect on sales prices of individual attributes in this local attribute bundle cannot be determined, however.

Alternative model specifications

Overview. To test the robustness of our findings, we estimated three alternative model specifications for assessing the price impact of Section 8. In what follows, we will report results only when they prove statistically significant at the 5 percent level (two-tailed test) in at least two of three specifications. These alternatives are expressed symbolically as

Model 1 (proximity to any Section 8 site model):

$$\begin{aligned} \text{Ln}P = & c + [\text{Struct}][b] + [\text{Quarter}][n] + [\text{Tract}][m] \\ & + \text{dDAll}_{500} + \text{eDAll}_{1k} + \text{fDAll}_{2k} + \text{gDPost}_{500} + \text{hDPost}_{1k} \\ & + \text{jDPost}_{2k} + \text{qTime}_{500} + \text{rTime}_{1k} + \text{sTime}_{2k} + \text{tTrPost}_{500} \\ & + \text{uTrPost}_{1k} + \text{vTrPost}_{2k} + \epsilon \end{aligned} \tag{1}$$

Model 2 (proximity to a number of Section 8 sites interaction model):

$$\begin{aligned} \text{Ln}P = & c + [\text{Struct}][b] + [\text{Quarter}][n] + [\text{Tract}][m] + \text{dDAll}_{500} \\ & + \text{eDAll}_{1k} + \text{fDAll}_{2k} + \text{gPost}_{500} + \text{hPost}_{1k} + \text{jPost}_{2k} + \text{qTime}_{500} \\ & + \text{rTime}_{1k} + \text{sTime}_{2k} + \text{tTrPost}_{500} + \text{uTrPost}_{1k} + \text{vTrPost}_{2k} \\ & + \text{t}'(\text{TrPost}_{500} * \text{Post}_{500}) + \text{u}'(\text{TrPost}_{1k} * \text{Post}_{1k}) \\ & + \text{v}'(\text{TrPost}_{2k} * \text{Post}_{2k}) + \epsilon \end{aligned} \tag{2}$$

Model 3 (proximity to a number of Section 8 units interaction model):

$$\begin{aligned} \text{Ln}P = & c + [\text{Struct}][b] + [\text{Quarter}][n] + [\text{Tract}][m] \\ & + \text{dDAll}_{500} + \text{eDAll}_{1k} + \text{fDAll}_{2k} + \text{gUPost}_{500} + \text{hUPost}_{1k} \\ & + \text{jUPost}_{2k} + \text{qTime}_{500} + \text{rTime}_{1k} + \text{sTime}_{2k} + \text{tTrPost}_{500} \\ & + \text{uTrPost}_{1k} + \text{vTrPost}_{2k} + \text{t}'(\text{TrPost}_{500} * \text{UPost}_{500}) \\ & + \text{u}'(\text{TrPost}_{1k} * \text{UPost}_{1k}) + \text{v}'(\text{TrPost}_{2k} * \text{UPost}_{2k}) + \epsilon \end{aligned} \tag{3}$$

Where the variable acronyms are defined as

- LnP Natural log of the sales price
- c Constant term
- [Struct] Vector of structural characteristics of the home, including home and lot size, age, building materials and type, and numerous amenities (for details and descriptive statistics, contact the first author)

<i>[Quarter]</i>	Vector of dummies indicating the time (year and quarter) of the sale; countywide seasonal and intertemporal trend measure
<i>[Tract]</i>	Vector of census tract dummies indicating the location of the home; tract fixed-effect measure
<i>DAll_x</i>	Dummy for distance ring <i>x</i> ; equals 1 if the sale occurs within <i>x</i> feet of a current or future Section 8 site, whether occupied or not; zero otherwise
<i>DPost_x</i>	Postoccupancy dummy for distance ring <i>x</i> ; equals 1 if the sale occurs within <i>x</i> feet of one or more occupied Section 8 sites; zero otherwise
<i>Time_x</i>	Trend variable for distance ring <i>x</i> ; equals 0 if no sites are in distance ring <i>x</i> of the sale; otherwise, equals 1 if the sale occurs in the first quarter of the study period (first quarter 1989), equals 2 if the sale occurs in the second quarter of the study period and the sale is in distance ring <i>x</i> , and so on
<i>TrPost_x</i>	Postoccupancy trend variable for distance ring <i>x</i> ; equals 0 if the sale is preoccupancy for all sites in the distance ring; if the sale is postoccupancy of a site in ring <i>x</i> , then equals 1 if the sale occurs in the first quarter after the site was occupied, equals 2 if the sale occurs in the second quarter after site was occupied, and so on
ϵ	A random error term with the usual assumed independent, identically distributed statistical properties ⁸
<i>Post_x</i>	Number of postoccupancy locations (sites) of Section 8 households for distance ring <i>x</i> at the time of sale
<i>UPost_x</i>	Number of occupied Section 8 units for distance ring <i>x</i> at the time of sale

All lowercase letters in the equations represent coefficients to be estimated. Descriptive statistics of all variables are available from the first author.

⁸ A Goldfeld-Quandt test (Pindyck and Rubinfeld 1981) did not reveal heteroskedasticity. Adding a spatial lag variable to control for spatial autocorrelation (Can and Megbolugbe 1997) did not improve the model. We used the Can (1997) procedure to control for spatial heteroskedasticity. For details, see Galster et al. (1999).

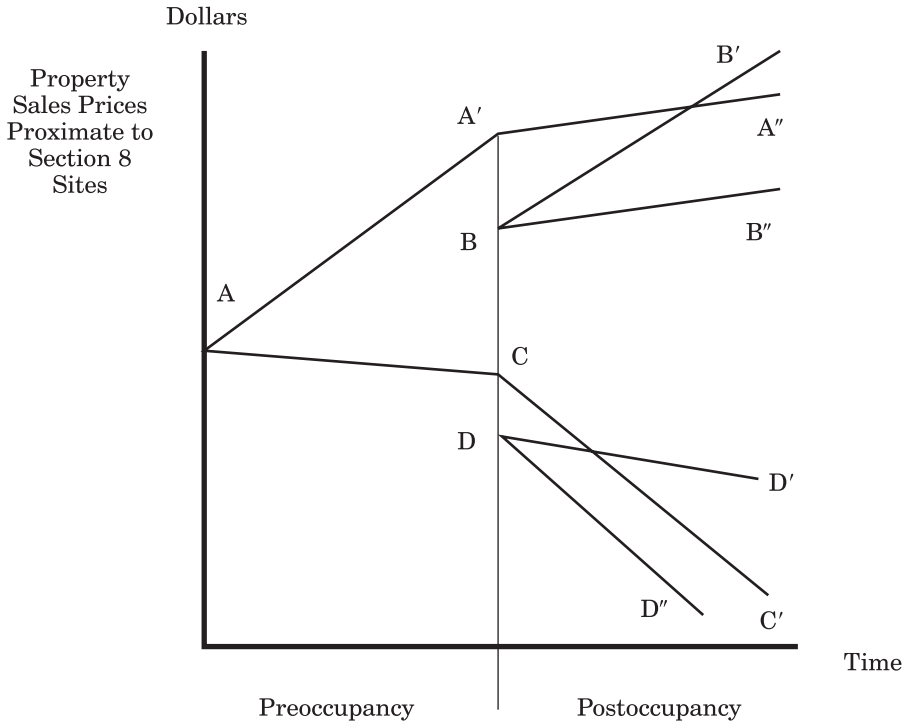
Model 1. Model 1 tests for effects of both price level shift and price trend slope alteration in three impact areas defined by different proximity to Section 8 sites and thus makes relatively few assumptions about what form any impact might take. We later summarize how the various price trend and area fixed effects are being controlled for in Model 1 in a way that permits us to identify unambiguously the impact of proximity to a subsidized site.⁹

First, we control for the countywide trend in home prices with the dummy variables denoted [*Quarter*]. They measure quarterly changes in the overall county house price levels associated with seasonality and general market trends. Second, we control for any variation in price levels across census tracts with the dummy variables denoted [*Tract*]. Having controlled for price patterns in larger geographic areas, we now turn to isolating patterns in smaller areas near Section 8 sites. The price level in these areas proximate to a current or future site is denoted by the dummy variable $DAll_x$. It measures the fixed effect throughout the county of being in the area defined as within distance x of one or more Section 8 sites, regardless of whether they are occupied. The price level in such proximate areas *after* the site has been occupied by a Section 8 household is denoted by the dummy variable $DPost_x$. It measures the fixed effect throughout the county of being in the area defined as within distance x of one or more Section 8 sites after occupancy. The trend in prices in such proximate areas before and after Section 8 occupancy is modeled with the last two variables. $Time_x$ measures the trend in house prices during the study period in the area throughout the county defined as within distance x of one or more Section 8 sites, regardless of whether they are occupied. Finally, $TrPost_x$ measures the trend in house prices during the study period in the area throughout the county defined as within distance x of one or more subsidized sites after occupancy.

Similar points can be made graphically with the aid of figure 1, which portrays hypothetical alternative price patterns associated with proximity to a Section 8 site, *ceteris paribus*, both pre- and postoccupancy. Several sorts of potential negative price impacts are illustrated. In the case of the upper set of lines, a neighborhood with a strong positive trend in price appreciation could be adversely affected by the opening of a Section 8 site through (1) a diminution of the rate of price appreciation (pattern A–A'–A''), (2) a discontinuous shift down in the price gradient but a reestablishment of the prior rate of appreciation (pattern A–A'–B–B'), or (3) both of the above (pattern A–A'–B–B''). The same three sorts of negative impacts are shown with the lower lines in figure 1, which portray a

⁹ A subsidized site refers to a unique street address where one or more Section 8 households are residing.

Figure 1. Illustration of Potential Property Value Impacts of Subsidized Housing



neighborhood with declining prices before occupancy of the subsidized site.

The test for statistical significance of the postoccupancy shift coefficients (g, h, j) of the $DPost_x$ variables is equivalent to testing whether there is a discontinuous change in the price levels in the microneighborhoods (defined by a particular distance ring) around Section 8 units postoccupancy. In terms of figure 1, it is equivalent to testing whether $A' = B$ or $C = D$. The test for statistical significance of the postoccupancy trend coefficients (t, u, v) of $TrPost_x$ is equivalent to testing whether there is a change in the price trends in the microneighborhoods around Section 8 units postoccupancy. In terms of figure 1, this is equivalent to testing whether the slopes of $A-A'$ and $A'-A''$ are equal (or the slopes of $A-C$ and $C-C'$ are equal). Should both the shift and trend postoccupancy coefficients prove to not be significantly different from zero, it would reject the hypothesis of impact.

Should one or both be statistically significant, however, the magnitude of Section 8 housing's impact across all sites involves assessing whether $(d + qTime^*) - (g + tTrPost)$, $(e + rTime^*) - (h + uTrPost)$,

and/or $(f + sTime^*) - (j + vTrPost) \neq 0$, where $Time^*$ represents the latest quarter before Section 8 household occupancy. Should the alterations in shift and trend terms yield contrary implications (such as a downward shift but increased slope in the price gradient), it will be necessary to calculate net effects at different quarters post-occupancy.

Models 2 and 3. Models 2 and 3 build on the foundation specification of Model 1 but differ from it in two important ways. Model 1 implicitly assumes that the measured impact of proximity to any Section 8 site is invariant to the number of such proximate sites. Model 2 relaxes this assumption and allows the postoccupancy shift variable to assume the number of occupied Section 8 sites at the given distance at the time of sale. Model 3 does the same, but uses the number of occupied Section 8 *units* instead of sites. These numbers of sites and units varied considerably across our sample, as shown by the maximum values in table 1.

Table 1. Maximum Numbers of Section 8 Sites and Units Observed at Time of Sale, by Proximity

Baltimore County Section 8	Proximity		
	0–500 Feet	501–1,000 Feet	1,001–2,000 Feet
Sites	46	84	154
Units	206	303	467

Models 2 and 3 also test for the possible effects of the number of sites or units on the postoccupancy price trends by use of the multiplicative interaction variables. That is, the model measures whether the decline (or appreciation) in house prices is magnified by the number of Section 8 sites or units.

Data sources

Home sales data

We purchased a complete set of property tax roll records for Baltimore County from the private data vendor Experian. These data contain all of the information available from the tax rolls on the property itself (including address, number of rooms, square footage, age, amenities, and type of construction), as well as the dates and amounts of the last two sales for each property. We supplemented the tax roll data with a sales history data file, also obtained from Experian, that had a listing of the dates and amounts of every sale

of the properties in the county. This sales history file allowed us to have a complete record of sales back to 1989 for Baltimore County.

Both the tax roll and sales history files were geocoded to match street addresses with latitude and longitude coordinates, census geographic identifiers (state, county, tract, and block), and U.S. Postal Service ZIP + 4 codes. We were able to geocode 92 percent of property addresses in Baltimore County to an exact street address or to a ZIP + 4 centroid.¹⁰ Sales records that could not be geocoded to at least this level of precision were excluded from the analysis. From the final set of sales data, we selected only sales of single-family homes.

Section 8 data

The Baltimore County Housing Office (BCHO) maintains a database of all Section 8 households for which it is responsible. These data include identification numbers for the landlords and tenants; the current address of the household; the date when the household moved to this address; the number of people in the household; the number of bedrooms in the unit; the household's income; and the sex, race, and ethnicity (Hispanic/non-Hispanic) of the head of household.¹¹ Additional files allowed us to determine the month that a household moved out.

The BCHO files contained information on approximately 11,000 Section 8 households living in the county sometime between February 1991 and August 1997. We were able to geocode 96 percent of the records to an exact street address and an additional 2 percent to a ZIP + 4 centroid. By aggregating these records by their geographic coordinates (latitude and longitude), we identified a total of 4,969 unique Section 8 sites in Baltimore County.¹²

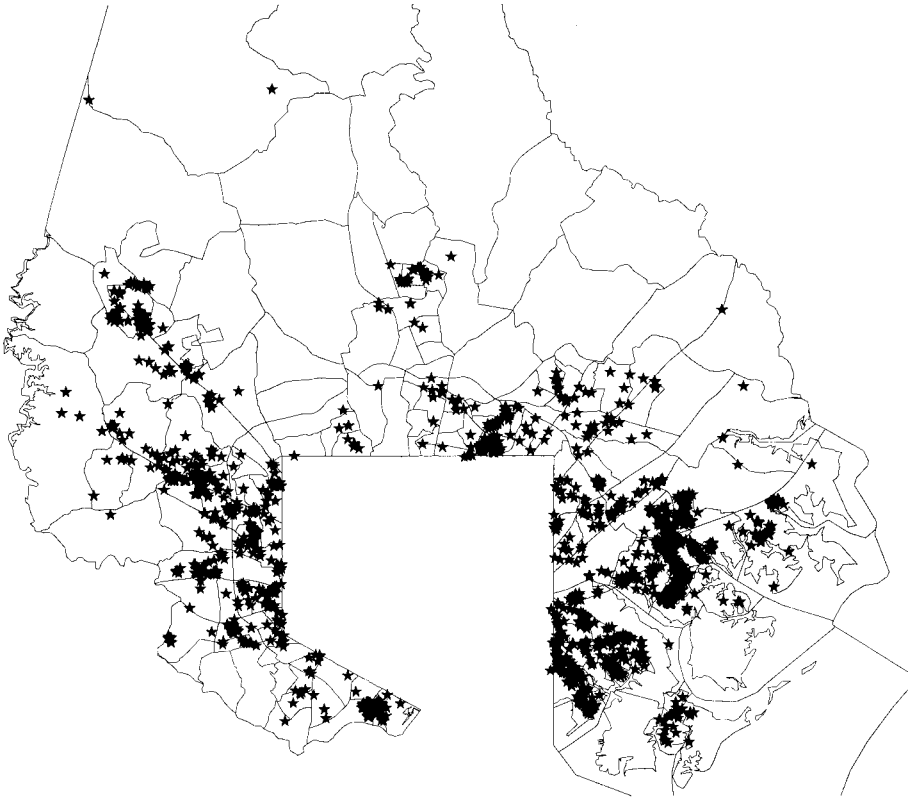
The locations of these sites are shown on figure 2. Each dot on this map represents a single Section 8 site, which may contain more than one subsidized household. Almost all of the sites are located in

¹⁰ ZIP + 4 codes are roughly equivalent to a city block. The centroid of a ZIP + 4 would be the geographical center of a block.

¹¹ The BCHO data also contained information on 131 Section 8 Moderate Rehabilitation (MR) properties. Since this program was not the subject of our analysis, we excluded these sites from our models. Furthermore, to avoid confusing the price impacts of the two programs, we excluded from our models all sales in Baltimore County that were within 2,000 feet of a Section 8 MR site.

¹² Unique locations mean distinct street addresses, not apartment or unit numbers. Tenants living in different apartments at a multifamily property were counted as living at a single site.

Figure 2. Location of Section 8 Households in Baltimore County, 1991 to 1997



the southern part of the county, closer to Baltimore City. There also appear to be definite clusters of Section 8 households, such as in the southeast corner of the county.

Analysis of subsidized sites and home sales

Our quantitative analysis did not use all of the observed sales and Section 8 household sites in Baltimore County. Rather, we conducted our econometric analysis of property value impacts on a subset of home sales and Section 8 sites that we will refer to as “analysis sites.”

To operationalize the pre/post econometric specification described earlier, we were necessarily restricted to those Section 8 locations having sufficient observations of single-family home sales within various distances over several years both prior to first occupancy and subsequently. Given that our sales data spanned the period

1989 to mid-1997, we confined our analysis sites to those that were first occupied between the first quarter of 1991 and the second quarter of 1995. Moreover, to qualify as an analysis site, a location had to be continuously occupied by a Section 8 household (though not necessarily the same one), so that we could measure a consistent postoccupancy impact. Finally, only those sites meeting the prior two criteria that also had an average annual rate of single-family home sales of two in each of the ranges (0 to 500 feet, 501 to 1,000 feet, and 1,001 to 2,000 feet) qualified as analysis sites. Seventy-two Section 8 sites met the foregoing criteria as analysis sites.

Our subset of sales to be used in the econometric analysis was chosen in the following manner. We used all sales that either were (1) not within 2,000 feet of *any* occupied Section 8 site or (2) within 2,000 feet of one (or more) of our analysis sites after it was occupied. We omitted sales that were within 2,000 feet of any other occupied subsidized site but did not qualify as an analysis site. This exclusion allowed us to conduct unambiguous tests based on our pre/post principles of deciphering impacts and produced a sample of 43,361 sales spanning the 1989–1997 period.

Econometric results

In overview, the models performed extremely well. The adjusted *R*-squares were 0.79 across all three specifications. Not surprisingly, given the exceptional sample sizes, virtually all of the structural, census tract, and countywide price trend control variables evinced coefficients that were significantly different from zero. All the coefficients of the homes characteristics had the expected signs. Results for the control variables are available from the first author. The estimated parameters of the variables of interest for our models are shown in table 2 (consistent standard errors as suggested by White 1980, are shown parenthetically).

The net effects of the table 2 coefficients are easier to see when portrayed graphically. Figure 3 shows the estimated home sales price trends within 500 feet and 501 to 1,000 feet of any Section 8 site(s) in Baltimore County for the study period, based on the estimated (statistically significant) coefficients of Model 1.¹³ Figures 4 and 5

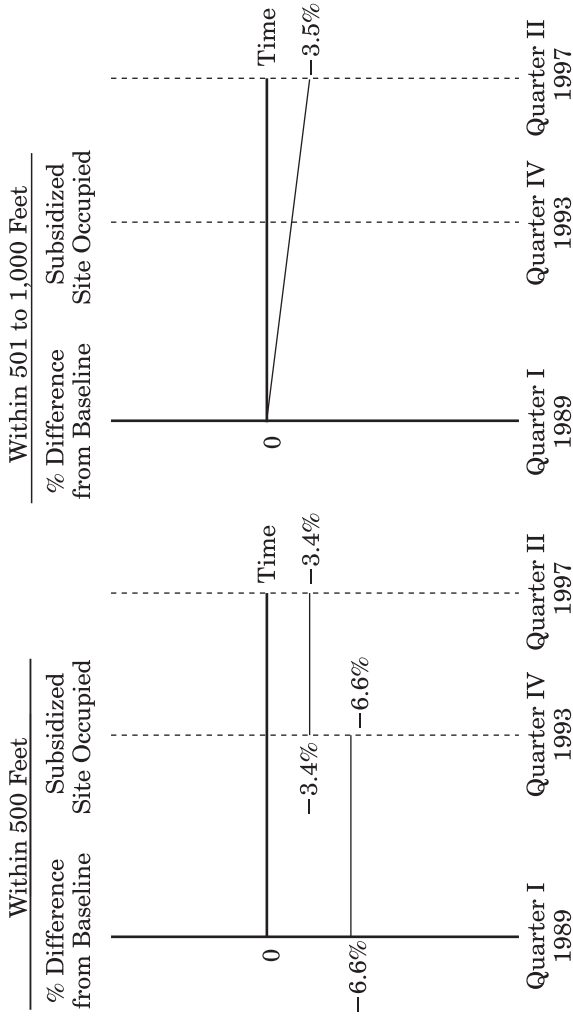
¹³ In figure 2, only coefficients statistically significant at the 0.05 level or better (two-tailed test) are portrayed.

Table 2. Estimated Regression Coefficients for Section 8 Impact Variables

Variable	Model 1	Model 2	Model 3
<i>DAll</i> 500 feet	-0.0643 (.009)***	-0.0403 (.002)***	-0.0492 (.007)***
<i>DAll</i> 1,000 feet	-0.0075 (.007)	-0.0103 (.005)*	-0.0114 (.006)*
<i>DAll</i> 2,000 feet	-0.0069 (.005)	-0.0078 (.005)	-0.0069 (.005)
<i>DPost</i> 500 feet	0.0307 (.010)**		
<i>DPost</i> 1,000 feet	-0.0139 (.008)		
<i>DPost</i> 2,000 feet	-0.0114 (.007)		
<i>Post</i> 500 feet (/100)		-0.15 (.16)	
<i>Post</i> 1,000 feet (/100)		-0.11 (.06)	
<i>Post</i> 2,000 feet (/100)		-0.07 (.03)**	
<i>UPost</i> 500 feet (/100)			0.1 (.14)
<i>UPost</i> 1,000 feet (/100)			-0.13 (.06)**
<i>UPost</i> 2,000 feet (/100)			-0.02 (.03)
<i>Time</i> 500 feet (/100)	-0.038 (.042)	-0.054 (.04)	-0.08 (.05)
<i>Time</i> 1,000 feet (/100)	-0.102 (.033)**	-0.095 (.03)**	-0.115 (.04)**
<i>Time</i> 2,000 feet (/100)	0.048 (.032)	0.039 (.03)	-0.034 (.03)
<i>TrPost</i> 500 feet (/100)	-0.038 (.110)	0.188 (.12)	0.328 (.12)**
<i>TrPost</i> 1,000 feet (/100)	-0.042 (.079)	-0.166 (.08)*	-0.108 (.08)
<i>TrPost</i> 2,000 feet (/100)	-0.108 (.060)	-0.168 (.06)**	-0.174 (.07)**
<i>TrPost*Post</i> 500 feet (/1,000)		-0.325 (.16)*	
<i>TrPost*Post</i> 1,000 feet (/1,000)		0.092 (.06)	
<i>TrPost*Post</i> 2,000 feet (/1,000)		0.036 (.01)**	
<i>TrPost*UPost</i> 500 feet (/1,000)			-0.38 (.14)**
<i>TrPost*UPost</i> 1,000 feet (/1,000)			0.08 (.05)
<i>TrPost*UPost</i> 2,000 feet (/1,000)			0.03 (.02)

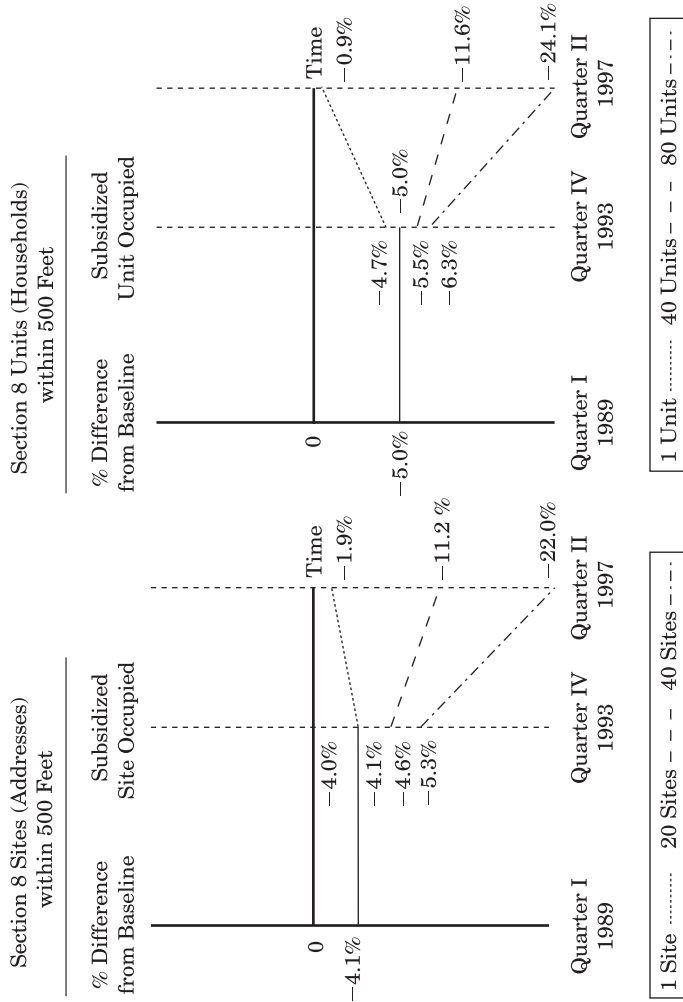
Note: White's Corrected Standard Errors are shown parenthetically.
 * = 0.05 level. ** = 0.01 level. *** = 0.0001 level.

Figure 3. Estimated Price Trends within 500 and 1,000 Feet of Any Section 8 Site, Baltimore County (Relative to Baseline Areas of the Same Tracts Not within 2,000 Feet) (Model 1)



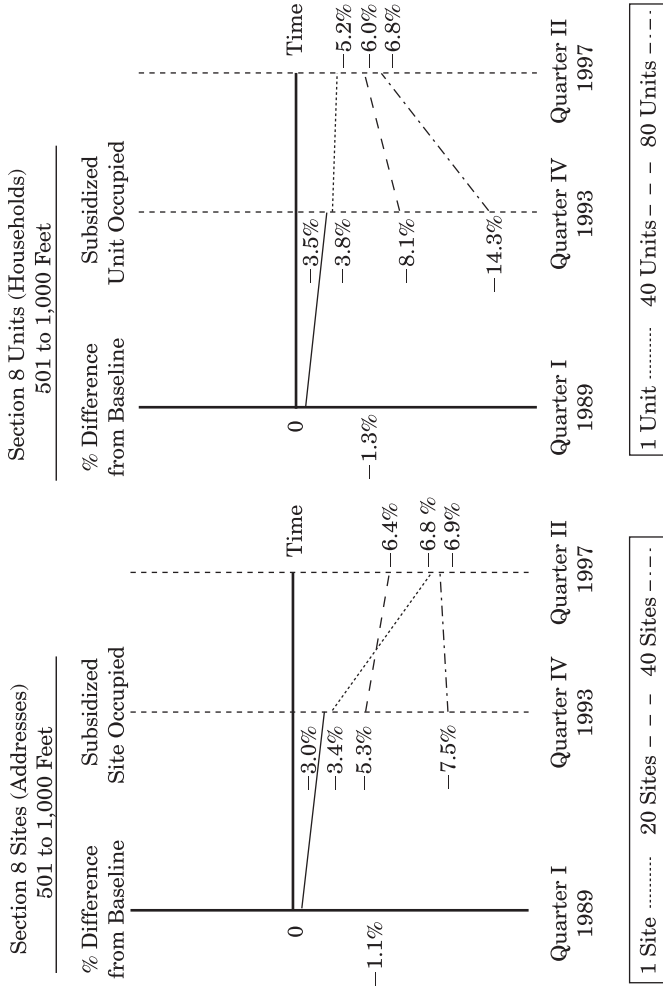
Note: Baseline prices control for seasonal and countywide quarterly trends, plus housing stock characteristics.

Figure 4. Estimated Price Trends as a Function of the Density of Section 8 Sites or Units, Baltimore County (Relative to Baseline Areas of the Same Tracts Not within 2,000 Feet) (Models 2 and 3)



Note: Baseline prices control for seasonal and countywide quarterly trends, plus housing stock characteristics.

Figure 5. Estimated Price Trends as a Function of the Density of Section 8 Sites or Units, Baltimore County (Relative to Baseline Areas of the Same Tracts Not within 2,000 Feet) (Models 2 and 3)



Note: Baseline prices control for seasonal and countywide quarterly trends, plus housing stock characteristics.

do the same for Models 2 and 3.¹⁴ Figure 6 shows the trends for the 1,001 to 2,000-foot range for Models 2 and 3. In all figures, the trends are plotted before and after occupancy of an archetypical Section 8 site, computed at the median of the occupancy dates—fourth quarter 1993.

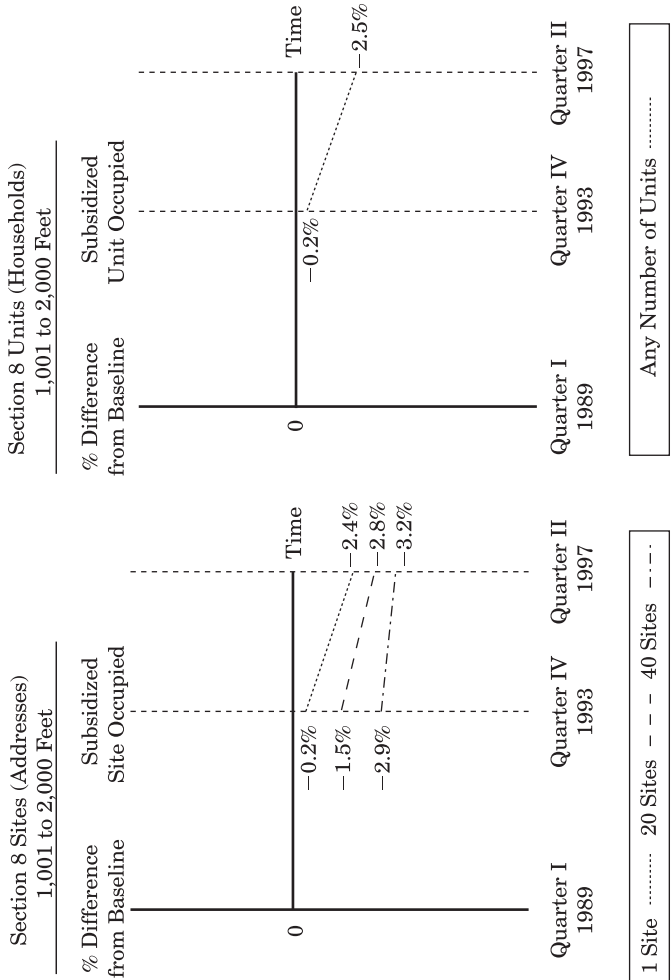
Sales price levels and trends before occupancy of Section 8 sites

The results indicate that the neighborhoods (areas within 1,000 feet of a Section 8 site) into which Section 8 households moved were valued less and/or had lower rates of appreciation than other neighborhoods within the same census tracts that were not within 1,000 feet of any Section 8 sites. By the fourth quarter 1993, just before occupancy by a representative Section 8 household, prices for areas within 500 feet of the future site were 4.1 to 6.6 percent lower, depending on the specification (see figures 3 and 4). The same was true of sales within a distance of 501 to 1,000 feet, but with a slightly lower decrement of between 3.0 and 3.5 percent. There were no statistically significant indicators that areas within 1,000 to 2,000 feet of an eventual Section 8 site were priced any differently from other locations in the tract. Thus, it is clear that the closer to the site eventually occupied by the Section 8 household, the consistently greater the price decrement.

These results indicate that there was a tendency for Section 8 households to locate in less desirable, weaker submarket niches of Baltimore County, independent of any subsequent impact of such locational choices on the neighborhoods thereafter. From this information, we are unable to distinguish among several plausible hypotheses: (1) landlords in less desirable or declining submarket niches are more likely to participate in Section 8 or more actively recruit Section 8 households; (2) Section 8 voucher (not certificate) holders seek to stretch their subsidy by occupying less expensive sections of neighborhoods; (3) selective information, proximity to attributes like public transport, or kin/friendship networks lead Section 8 households to cluster in the less expensive niches within neighborhoods; and (4) proximity to a rental dwelling lowers prices and appreciation rates, regardless of its occupants.

¹⁴ In figures 4 and 5, coefficients statistically significant at the 0.10 level or better are portrayed. Examination of the patterns of coefficients among main effects and interaction effects across Models 2 and 3, and the fact that many coefficients narrowly missed significance at the 0.05 level suggested that to include only those significant at the 0.05 (two-tailed test) level would give a misleading portrait of the overall pattern of results.

Figure 6. Estimated Price Trends as a Function of the Density of Section 8 Sites or Units, Baltimore County (Relative to Baseline Areas of the Same Tracts Not within 2,000 Feet) (Models 2 and 3)



Note: Baseline prices control for seasonal and countywide quarterly trends, plus housing stock characteristics.

Impact on property values of Section 8 occupancy

Figure 3 shows that the price level within 500 feet of an occupied Section 8 site was 3.2 percentage points higher than the level of prices evinced in that area before occupancy. Even though the microneighborhoods within 500 feet of Section 8 sites are still valued somewhat lower than elsewhere in the tract, the apparent general impact of the Section 8 occupancy itself appears positive and significant, both statistically and substantively. No such positive impact was observed beyond 500 feet.

The results drawn from Model 1 must be qualified in important ways by considering the impact of the *number* of proximate Section 8 sites and occupied units nearby, not merely whether any are present. Results for Model 3 suggest that there was a strong interaction between the postoccupancy trend in prices and the number of occupied Section 8 sites (addresses) in a given range. As the left-hand panel of figure 4 demonstrates, the greater the number of occupied Section 8 sites within 500 feet of a sale, the greater the initial shift downward in values and the greater the rate of decline thereafter. However, in this specification there appears to be the possibility of net positive price trend effects, as long as the number of sites is limited. Specifically, parameter estimates show that as long as the number of Section 8 sites within 500 feet remained below six, there was a positive postoccupancy price trend. This trend was such that the initial negative impact was completely wiped out within 14 quarters after opening; thereafter, prices were higher than otherwise would have been the case in this microneighborhood. It should be stressed, however, that with larger numbers of proximate sites, such as the observed sample maximum of 39, the net impact on price proved substantively negative, both immediately after occupancy and with a downward trend thereafter.

Similar insights are gained from considering the Model 3 results for Section 8 unit counts portrayed in the right-hand panel of figure 4. Results indicate that 500-foot proximity to a greater number of occupied Section 8 units (not distinct addresses) was associated with *higher* sales prices, as long as the number of units did not exceed eight. The vast majority of observations met this criterion. However, the parameters suggest that, were a sale to occur within 500 feet of the observed sample maximum number of Section 8 units (67), substantial price decrements would occur, especially as more time elapsed between the sale and first occupancy of the units.

Taken together, Model 2 and 3 results for the area described by a 500-foot radius from the site provide clear implications about impacts from various configurations of Section 8 occupancy. At one extreme, if the area had only one Section 8 household, the estimated

initial impact in the quarter after occupancy would be virtually nil. Subsequently, a positive impact would occur, rising to roughly two to four percentage points (depending on the model) 14 quarters after the first occupancy. If the area were to have hypothetically only one address at which Section 8 tenants resided, the net impact on prices would continue to be positive until the building's occupancy reached eight Section 8 tenants, whereupon there would be no estimated impact, either immediately after occupancy or thereafter. The parameters clearly show that the net positive impacts are enhanced if more Section 8 tenants occupy a single site, as opposed to the same number of tenants scattered across an equal number of sites. As noted earlier, if more than five distinct Section 8 sites are within 500 feet of a sale, there will be a net negative impact on property values, both initially after occupancy and accelerating thereafter.

The foregoing helps one understand the combination of results from Models 1, 2, and 3. The vast majority of observations in our sales sample that are within 500 feet of one or more Section 8 occupied dwellings consist of combinations of sites and units well below the combinations that yield net negative effects. As such, the net proximity effects of Section 8 overall will be measured as positive, as shown by Model 1. However, other combinations of larger numbers of sites and units, though relatively rare, will produce negative price effects, as shown by the results of Models 2 and 3.

Results for Models 2 and 3 for 501 to 1,000 feet further reinforce the conclusion that the number of Section 8 sites and units has a profound effect on property values when the model is estimated across all areas of the county. As portrayed in figure 5, the results show that sales prices within 501 to 1,000 feet of a site are initially lower when the number of sites or units is larger. However, the larger this number, the more positive the subsequent trend in prices. The price trend turns positive when the number of sites (units) exceeds 28 (14).¹⁵ The net positive impact on the postoccupancy price trends is clearly better for a marginal unit than for a marginal site. But with fewer units in the ring, the postoccupancy price level more quickly exceeds the level that would have occurred in the absence of any Section 8 sites in the ring. Just the opposite is true for the number of sites.

Results for Models 2 and 3 for 1,001 to 2,000 feet show that the presence (and less so the number) of Section 8 sites and units has a negative effect on property values. (See figure 6.) Also, unlike the results for the smaller distances, those for 1,001 to 2,000 feet do not

¹⁵ For comparison, the observed sample maximum for sites (units) in this range was 84 (116).

reveal any combinations of sites and units wherein the net property value impacts are not negative, as estimated countywide.

When juxtaposed against the results at closer proximity, this result poses a challenging puzzle: Why might any numbers of sites or units yield a negative price impact on properties within 1,001 to 2,000 feet when they often might simultaneously be yielding a positive impact on closer properties? This apparent conundrum disappears when we disaggregate the results by neighborhood type.

Impact on property values in different parts of Baltimore County

To probe these findings more deeply, we replicated our three econometric specifications for different clusters of census tracts in Baltimore County that were stratified alternately according to racial composition, median 1990 home values, and real changes in median values from 1990 to 1996.¹⁶

These stratified regressions show that the results reported for the aggregate, countywide econometric specifications above require important qualification.¹⁷ Positive price impacts from close proximity to Section 8 sites apparently do not occur in all sorts of neighborhoods, but appear to be an exclusive feature of census tracts that (1) rank in the highest third of 1990 median values, (2) have a real appreciation of median values from 1990 to 1996, and (3) are overwhelmingly occupied by whites (less than 5 percent black in 1990). Moreover, the magnitude of the implied impact is great: an extra percentage point increase in value each succeeding year after opening. In these areas, there are no apparent negative price effects from tenant-based Section 8 anywhere.

Negative price impacts—statistically significant impacts occurring at all distances up to 2,000 feet—appear confined to neighborhoods that we hereafter will call “vulnerable”: areas comprised of low- to moderate-value homes that have declined in real value since 1990. We also note that all Baltimore County racially mixed to predominantly black neighborhoods (20 percent black or more) fall into this category, although a much larger number of predominantly white

¹⁶ For a few sites in Baltimore County around which an unusually large number of sales occurred both pre- and post-Section 8 occupancy, we ran site-specific regressions. Unfortunately, our specifications apparently require more observations than were available from these disaggregated runs, inasmuch as very few results were statistically significant.

¹⁷ Detailed results for stratified runs are available from the first author.

ones (95+ percent) do as well.¹⁸ Here, however, the magnitude of the impact is quite modest: within 500 feet, a 0.4 percentage point and from 501 to 2,000 feet, a 0.1 percentage point lower value level per occupied Section 8 site.

In conjunction, these results mean that positive and negative price impacts are not being manifested in the same neighborhoods, as the aggregate regression results might erroneously lead us to believe. Rather, the larger positive impacts generated by Section 8 in stronger neighborhoods are merely masking the smaller negative impacts in vulnerable neighborhoods within the 500-foot range; at longer distances, only the small negative impacts in vulnerable neighborhoods are manifest.

We were able to explore econometrically another intriguing dimension of these stratified results. We had information on the race of the first Section 8 household to occupy each of our analysis sites, so we were able to estimate our models for all four combinations of race of first Section 8 occupant and racial composition of the neighborhood. There were virtually no substantive differences among the four race of Section 8 household/neighborhood cells, regardless of distance. Not only are the same coefficient sign and statistical significance patterns evinced, but the magnitude of the price effects does not differ appreciably across the combinations.¹⁹ This leads us to conclude that it is some non-racially identifiable aspect(s) of the Section 8 program in Baltimore County that produces the strong, consistent impacts on property values we observed.

Enriching the interpretation of statistical findings through focus groups

To further our understanding of the econometric estimates, we conducted focus groups at four sites in Baltimore County during the late summer of 1998.²⁰ The first three communities represented various sorts of vulnerable communities defined above; the last one did not.

1. *Dundalk*: A predominantly white but increasingly racially diverse, working-class community in the southeast that was the center of MTO protests in 1994

¹⁸ There is so much overlap among tracts comprising these three alternative strata that it is impossible to delineate unambiguously which dimension of vulnerability is most important.

¹⁹ This is true when all three model specifications are considered as a set.

²⁰ For details, see Galster et al. (1999).

2. *Millbrook*: A racially diverse, middle-class community with a significant Jewish population, located near the northwest border of Baltimore
3. *Twelve Trees*: A predominantly black middle-class community located in the northwestern part of the county along the traditional path of minority migration out of Baltimore; facing immigration of lower-income blacks
4. *Rodgers Forge*: An overwhelmingly white middle-class area in the north-central county with strict housing codes and an exclusive reputation

Focus group methodology

Participants were all homeowners who had lived in their house more than two years. They were recruited by mail from a random sample of addresses located within 1,400 feet of one of our analysis Section 8 sites in the community. Thus, each group's members had proximate exposure to Section 8, though they may have not realized it. Recruits were told that they would be participating in a HUD-sponsored research project on the quality of neighborhood life. To encourage participation and defray costs, each participant was offered a \$25 honorarium. All discussions were held in the early evening in public libraries located in the neighborhood on a main bus line. Written informed consent was obtained from all participants before the discussions began. Verbal and written assurances of anonymity were provided.

The four focus groups ranged in size from 5 to 11 participants. Three were comprised entirely of white homeowners, and the Twelve Trees group was comprised entirely of black homeowners, reflecting the racial composition of the areas. Most participants were college educated and had children in the household.

The focus group discussion guides were supposed to elicit in an open-ended fashion homeowners' opinions about the characteristics (demographic, physical, social, economic) of their neighborhoods, the changes in those characteristics, the ways they received information about such changes, and the reasons for them. The facilitators never mentioned the existence of an occupied Section 8 site in the vicinity or raised the general topic. However, if subsidized housing was brought up by the homeowners, the question of how participants thought such housing might affect their neighborhood would be probed.

The two-person team that facilitated the discussions, took notes, and tape-recorded the proceedings came from The Urban Institute. Assigned staff matched the racial makeup of the homeowners. As a safeguard against bias in leading participants or assessing responses, neither staff member was informed about the foregoing statistical results before the focus groups. Records of each discussion were summarized in written form and analyzed to identify key themes. Analytical files based on these themes were then created and probed via content analysis to reveal any further contextual information that would facilitate the interpretation of our statistical findings.

Awareness of Section 8 sites

We cannot tell directly from our econometric study whether it is Section 8 per se that is signaling the market or some more visible correlates of Section 8, such as exterior building condition or behavioral problems with tenants. Our focus group findings suggest that it is probably predominantly the latter.

Especially in Dundalk, but in other sites as well, homeowners were highly attuned to the Section 8 issue, volunteering their concerns about the program by name without any encouragement from the facilitator. Several homeowners were so concerned about Section 8 occupancy that they personally questioned new tenants and landlords about whether their apartments were subsidized. Another participant found out about Section 8 sites from a friend who is a real estate broker. These homeowners apparently gathered quite accurate information, given that several locations they identified during the focus group as Section 8 occupied were indeed, according to our database. Of course, even the Dundalk focus group incorrectly identified some addresses as Section 8 occupied and overlooked others that were. This failure to identify Section 8 units was typical in the other focus groups. The Rodgers Forge group members confidently (if erroneously) asserted the absence of such sites near their homes. Thus, although some Section 8 sites were clearly known to the homeowners nearby and, apparently, to some local real estate agents, this direct evidence appears to be generally inaccurate and spotty, especially where Section 8 sites are few.

Additional qualitative evidence suggests that homeowners' failure to identify proximate Section 8 apartments was directly related to the state of repair and the behavior of tenants in these units. Significantly, one of the sites that the Dundalk group failed to identify was the apartment at the center of the neighborhood from which we drew focus group participants. Our windshield inspection of this unit revealed that it was indistinguishable from all the other row

houses in the area. In Millbrook, focus group participants commented favorably about the civic-minded behavior of Russian immigrants who lived in a large, well-maintained garden apartment complex across the street from them, without any reference to the fact that this complex had the largest concentration of Section 8 tenants in our sample and that many of these immigrants received housing subsidies. We believe, therefore, that it is not Section 8 occupancy in and of itself, but rather the correlation (albeit imperfect) between Section 8 and “bad properties” that the market is observing (and pricing). Put differently: If the Baltimore County market were to observe “problem rental properties,” it would assume that many had to be Section 8; if the market were to observe no problem rental properties, it would conclude that Section 8 housing was absent.

It is quite clear that problem properties were visible and of great significance to the quality of life and the value of properties on the market. All groups were acutely aware of rental properties that were poorly managed and maintained and whose occupants engaged in visibly uncivil or disreputable behaviors, such as having loud parties, selling drugs, or “having a lot of men hanging around.” Moreover, our focus group participants generally equated rental properties having the above problems as “Section 8 apartments.”

In other words, our focus groups indicate that homeowners (and, presumably, prospective buyers) are extremely sensitive to rental properties with visibly problematic maintenance or tenants. They perceive that most problem properties are subsidized but apparently do not recognize Section 8 sites that do not exhibit these problems. They thus seem unaware, perhaps tautologically, of Section 8 when it occurs in a strong neighborhood and the occupied property creates no problems. Unfortunately, in Baltimore County, there is apparently a strong statistical association between Section 8 sites and problem properties, at least in the more vulnerable neighborhoods, as we explore in the next section.

Section 8 impacts in vulnerable neighborhoods

In general, focus group participants liked their neighborhoods and planned to stay in them. Nevertheless, all groups were concerned about the current value of their homes and prospects for future appreciation. This concern was manifested not only for financial reasons, but also because decline in property values was seen as an indicator of eroding quality of neighborhood life. Across the focus groups in Baltimore County, participants attributed decline in property values to similar factors: (1) physical upkeep, (2) safety, and (3) resident values. Issues related to the physical condition of homes

and yards were at the forefront for many participants, with widespread scorn for people, particularly owners of rental units, who did not keep up their properties. For many participants, an increase in the amount of rental housing was a harbinger of neighborhood decline.

Groups in the vulnerable neighborhoods of Dundalk, Millbrook, and Twelve Trees were especially anxious about neighborhood changes in terms of both physical conditions and resident characteristics and thought these shifts would soon be manifested in slowing or declining values. Their comments projected dual themes—both high regard for neighborhood living and anxiety about the future of their valued environment and asset. Notably, most of the concerns suggesting neighborhood vulnerability were remarkably similar across these three sites, despite the fact that they differed dramatically in their racial composition. We interpret this as evidence that weak market values signaling a decline in the quality of neighborhood life, not racial composition, are the key ingredient of vulnerability as applicable here.

All groups mentioned concerns about the encroachment of “the City” as bringing an increase in crime and deterioration to their neighborhoods.²¹ Respondents felt that these in-movers had different values and standards than the current residents desired for their neighborhood.

The anxiety often expressed about rental housing in general and subsidized housing in particular brings together concerns about physical conditions, safety, and resident characteristics. One Dundalk participant went so far as to volunteer that what makes for a good neighborhood is “little Section 8.” While some participants talked about “good renters” or “not everyone on Section 8 does bad,” rental and subsidized housing was strongly perceived as associated with declining physical standards, increased crime, and bad neighbors. In this sort of skittish neighborhood context, it is understandable that concentrations of Section 8 units are apparently viewed by the market as forces leading to decline.

Section 8 impacts in less vulnerable neighborhoods

Members of the focus groups in Rodgers Forge generally expressed more confidence than other groups in the future of their neighborhood and the lack of current deleterious forces. Indeed, whereas the other three groups in vulnerable neighborhoods typically listed a

²¹ All three of the vulnerable neighborhoods were relatively close to the Baltimore city limits, including one where a neighborhood boundary was the city line.

dozen or more problems eroding their neighborhood's livability, those in Rodgers Forge mentioned only that some owners were building fences that violated the local building covenants and that there was a bit more vandalism. The group viewed their property values as remaining strong, thereby implicitly supporting and endorsing their neighborhood standards and covenants. Indeed, it was this very strength of property values buttressed by housing covenants that led the group to believe that they were less vulnerable to having the "wrong sort of people" move in.

This high degree of confidence did not mean, however, that there was any less distaste for the prospect of subsidized housing. Rodgers Forge respondents were united in strong opposition to subsidized housing coming to their neighborhood but said (erroneously) that such housing was not currently there and so was not a problem for them.²² Participants felt very strongly that subsidized housing brought physical decay and vandalism.

In a context of less neighborhood vulnerability, the Rodgers Forge focus group indicates that, despite opposition in principle to subsidized housing, there is little likelihood that the few Section 8 households will be noticed and that any negative consequences will follow. On the contrary, our stratified econometric results clearly showed that in higher-valued, white neighborhoods like Rodgers Forge, the effect on sales prices within 500 feet is consistently positive. We speculate that this is due to the physical improvements to the dwelling made at the time of Section 8 occupancy, although we unfortunately have no direct evidence on this point from the focus group. We could go even further and speculate that it is precisely because the Section 8 unit in question was apparently renovated and/or then well maintained and there were no serious behavioral issues with the Section 8 household(s) that the respondents did not think of it as a subsidized site, given the stereotypes they held.

Policy implications from the Baltimore County experience

We emphasized at the outset that drawing firm policy conclusions from study of only one county would be premature. Nevertheless, we believe that the logical implications of our findings for potential changes in the way dispersed subsidized housing programs are delivered should be explicitly noted so they can be more easily discussed by policy makers. Assuming that our findings have general applicability, the overarching implication is that comprehensive ini-

²² While all of our focus group sites contained some Section 8 households as of late 1997, only one such household was living within the vicinity in Rodgers Forge.

tiatives to direct Section 8 households away from vulnerable neighborhoods and into stronger ones should be undertaken.

Our results make it clear that, in higher-valued, appreciating, predominantly white neighborhoods, Section 8 can be a vehicle for generating positive externalities. If we are correct in our supposition that this effect is associated with improvements to the exterior of the rental building, policy makers may well seek to recruit landlords of deteriorating structures in otherwise solid neighborhoods into Section 8 and then require renovation (perhaps with financial assistance) as part of program participation. Even if such targeted landlord recruitment does not prove feasible, efforts to recruit landlords in stronger neighborhoods should be intensified. The Community Assistance Network, the mobility contractor for the MTO program in Baltimore, has already provided some useful precedents in this regard. Such initiatives may also require HUD to grant more exception rents in certain target communities, thereby allowing certificate and voucher payment formulas to exceed the standard FMR limits.

Clear implications also follow from our findings that too many Section 8 households or sites clustered in a small area within vulnerable neighborhoods result in increasingly negative price impacts. If such deleterious clustering is to be avoided, policy makers need to encourage or even mandate spatially related choices on the part of Section 8 tenants and landlords. Tenants should be induced or perhaps required to move into areas with stronger housing submarkets that have not already been significantly affected by Section 8 (or other subsidized housing programs or poverty in general). For example, the MTO program experimental group in Baltimore (and in other sites) was required to meet one such nonimpaction standard, inasmuch as participants were required to reside in tracts with less than 10 percent poverty rates. Analogously, landlords in vulnerable neighborhoods would be discouraged or forbidden from leasing units to additional Section 8 households once the number in the given apartment building or neighborhood reached some ceiling. Though such impaction standards would likely be opposed by landlords and some tenants rights groups, there is a long-standing precedent of analogous standards for all sorts of site-based housing assistance programs. Of course, such standards would likely require significant regulatory or even legislative changes at the federal level.

Whether impaction standards can be promulgated or not, another implied policy response is devising ways to ensure that Section 8 sites are well maintained and managed and that tenants do not engage in disruptive or illegal behavior in their residences. According to key informants we interviewed in conjunction with this project, the Housing Authority of Baltimore City has recently initiated sev-

eral policies aimed at precisely these goals. These policies include stepping up maintenance checks on landlords and tenants, encouraging intensified reporting of lease violations by landlords, and establishing neighborhood service centers to deal with community complaints. The Community Assistance Network has engaged in several activities suggested by our results, including assessing tenants' readiness to move and providing appropriate referral and counseling services, and conducting postmove follow-ups. During interviews of key informants, the BCHO indicated to other researchers (Varady and Walker 1998) and to us that they were stricter in screening Section 8 tenants and in requiring Housing Quality Standard compliance than many other jurisdictions. Nevertheless, they were often frustrated by the regulatory limits placed on the screening criteria that could be applied and by Section 8 landlords who proved to be weak property managers and lease enforcers. The Cincinnati housing authority represents one creative response to this issue. It is attempting to form an association of Section 8 landlords, with the goal of enhancing their property management skills.²³

Conclusions

Housing mobility programs using tenant-based Section 8 are a major policy thrust at both the national and local levels. Much evidence suggests that such programs can have more positive consequences for participants than residence in traditional public housing or private rentals in concentrated poverty neighborhoods. The main question raised about mobility programs has concerned their social costs, typically framed in terms of their impact on neighborhoods into which subsidized tenants move.

This article has analyzed the issue of neighborhood impacts by examining patterns of home sales prices in Baltimore County near Section 8 sites first occupied from 1991 to 1995 and by having follow-up discussions with neighboring homeowners. During this period, Baltimore County was engulfed by political firestorms swirling around the Section 8 issue in general and the MTO program in particular. We found that the impact on property values was complex and mixed, depending on neighborhood type, distance, and the number of nearby Section 8 sites and occupied units.

Impact mechanisms

Our results hold four interesting implications about the potential mechanisms by which Section 8 sites affect nearby home sales

²³ We are indebted to David Varady for bringing this to our attention.

prices. First, the fact that we uncovered a variety of statistically and practically significant price effects should belie any notion that the Baltimore County market is indifferent to the Section 8 households in a particular location. It is clear that it evaluates some characteristic(s) related systematically to Section 8 households and/or the apartments in which they live. Depending on the type of neighborhood, one or more of these characteristics are quickly capitalized into increments or decrements in property values.

Second, in strong neighborhoods, small numbers of Section 8 households, especially sites within 500 feet, enhance price trends subsequent to occupancy. This supports the hypothesis that Section 8 landlords in the higher-valued, predominantly white areas of Baltimore County often undertake exterior repairs mandated by BCHO in order to pass housing quality standards required for participation in Section 8 or use the enhanced rental revenues gained from Section 8 to reinvest in their properties (and perhaps manage them better). The fact that considerably more households (units) in an area, not more sites, could continue to produce this positive result implies that the latter may be important for generating the apparently positive externality for the immediate neighborhood. During discussions of our findings with key staff at BCHO, however, the former factor was cited as highly important.

Third, in vulnerable neighborhoods, larger numbers of proximate Section 8 households increased the prospect of large, negative price effects within all distance rings up to 2,000 feet. In concert with focus groups, this provides support for three, non-mutually exclusive hypotheses: that the uncivil behavior of the Section 8 households themselves, the class prejudices of the market unrelated to the actual behavior of Section 8 tenants, or the poor property maintenance and management practices of landlords who take Section 8 tenants adversely affect property values when the incidence of any of these factors becomes noticeable by market actors. We cannot ascertain whether the hypothesized positive impacts from rehabilitation in less vulnerable neighborhoods do not occur as often in vulnerable neighborhoods (perhaps because of lax enforcement by BCHO or a systematically different sort of landlord) or whether such impacts occur but are swamped by the negative forces above.

Fourth, the strong negative interaction effect evinced for larger concentrations of Section 8 sites within a 500-foot radius in vulnerable neighborhoods suggests that there may be a microneighborhood stigmatization effect. That is, if such a small area exceeds a threshold number of Section 8 sites, it may take on the imprimatur of a subsidized housing/poverty pocket, whereupon the market attaches a stigma (for any or all of the aforementioned reasons) and reduces its property valuations accordingly.

Self-selection, research, and real politics

A crucial, if incidental, finding of our statistical analyses was that Baltimore County Section 8 sites were systematically located in the lowest-valued or slowest-appreciating sectors of any given census tract. These patterns, we believe, can be traced primarily to the behavior of Section 8 landlords or tenants (or both), although we cannot disentangle these causes here. Perhaps of more importance, however, are two implications from this finding. First, from a research perspective, it implies that statistical models of house price effects must be specified carefully to avoid erroneous conclusions. For example, if one merely compares prices near subsidized sites cross-sectionally with those less proximate, one will tend to observe lower prices in the former area, but this cannot necessarily be traced to an independent impact from the subsidized sites. As another example, if one merely compares *levels* of prices (instead of both levels and trends) before and after occupancy of a subsidized site, there will be a bias toward observing a lower postoccupancy level because of a preexisting trend toward depreciation in the area, not because of subsidized housing.

The second implication relates to politics and the public support that can be mustered for a dispersed subsidized housing program. Inasmuch as Section 8 households in Baltimore County currently tend to be located in lower-valued, lower-appreciation pockets within neighborhoods, local residents and the market as a whole will more likely have their anxieties about the neighborhood's future reinforced. These anxieties clearly appear to be magnified in a vulnerable neighborhood. Moreover, local residents and the market are unlikely to be able to make the subtle distinctions in causality that our statistical analyses permitted here. From their perspective, subsidized housing will be seen as highly correlated with neighborhood depreciation, and this is probably enough to attribute causation. Of course, our Baltimore County analysis showed that this attribution may, indeed, be correct in vulnerable neighborhoods, especially if the spatial concentration of Section 8 sites becomes excessive.

Our findings suggest one last political irony. We found that Section 8 residences in stronger neighborhoods of Baltimore County augmented price trends of homes within 500 feet. Moreover, neighboring homeowners appeared unaware of Section 8 households in their midst. Unfortunately, two political obstacles are involved in penetrating more of these strong neighborhoods: First, it likely will require granting exceptions to (or generally raising) FMR levels in these areas, which increases the per-household subsidy cost to the federal government. This, in turn, means that HUD policy makers would be forced either to aid fewer low-income households through

Section 8 or to wrest budgetary enhancements from a Republican Congress whose constituency would be the neighbors near whom the targeted Section 8 program would move. Given such neighborhoods' prior record of successfully thwarting efforts to build a wide array of subsidized housing in their midst (Takahashi and Dear 1997), the political challenges here are immense.

Authors

George C. Galster is the Clarence Hilberry Professor of Urban Affairs at Wayne State University in Detroit. Peter Tatian and Robin Smith are Research Associates at The Urban Institute in Washington, DC.

Opinions expressed in this work are those of the authors and do not necessarily reflect those of HUD, Wayne State University, The Urban Institute, or their respective Boards of Trustees. HUD generously funded this research through a contract with The Urban Institute, Metropolitan Housing and Communities Center. The authors wish to thank numerous staff at the Housing Authority of Baltimore City, the Baltimore County Housing Office, and the Community Assistance Network, who provided the data and valuable insights that made this research possible. Helpful comments on an earlier version of this article were made by John Goering, Robert Lang, William Rohe, Gary Sands, David Varady, two anonymous referees, participants in a seminar at the Haas School of Business, University of California–Berkeley, and participants in a session at the Association of Collegiate Schools of Planning Meeting, 1998.

References

Bauman, John, Norman Hummon, and Edward Muller. 1991. Public Housing, Isolation, and the Urban Underclass: Philadelphia's Richard Allen Homes, 1941–1965. *Journal of Urban History* 17:264–92.

Bloom, Howard S., and Helen F. Ladd. 1982. Property Tax Revaluation and Tax Levy Growth. *Journal of Urban Economics* 11:73–84.

Briggs, Xavier de Souza, Joe T. Darden, and Angela Aidala. 1999. In the Wake of Desegregation: Early Impacts of Scattered-Site Public Housing on Neighborhoods in Yonkers, NY. *Journal of the American Planning Association* 65:27–49.

Can, Ayse. 1997. Spatial Segmentation in Urban House Prices: Alternative Approaches. Working paper. Fannie Mae Foundation. Washington, DC.

Can, Ayse, and Isaac Megbolugbe. 1997. Spatial Dependence and House Price Index Construction. *Journal of Real Estate and Economics* 14:203–22.

Cisneros, Henry. 1995. *Regionalism: The New Geography of Opportunity*. Washington, DC: U.S. Department of Housing and Urban Development.

- Coulton, Claudia, and Shanta Pandey. 1992. Geographic Concentration of Poverty and the Risk to Children in Urban Neighborhoods. *American Behavioral Scientist* 35:238–57.
- Crane, Jonathan. 1991. The Epidemic Theory of Ghettos and Neighborhood Effects on Dropping Out and Teenage Childbearing. *American Journal of Sociology* 96:1226–59.
- Cummings, Paul M., and John D. Landis. 1993. Relationships between Affordable Housing Developments and Neighboring Property Values. Working Paper 599. University of California at Berkeley, Institute of Urban and Regional Development.
- De Salvo, Joseph. 1974. Neighborhood Upgrading Effects of Middle Income Housing Projects in New York City. *Journal of Urban Economics* 1:269–77.
- Evans, Judith. 1996. In Baltimore, Leaving Behind a City's Crime. *Washington Post*, March 23, p. E1.
- Galster, George, Anna M. Santiago, Robin E. Smith, and Peter A. Tatian. 1999. *Assessing Property Value Impacts of Dispersed Housing Subsidy Programs*. Report to the U.S. Department of Housing and Urban Development, Washington, DC.
- Galster, George, and Yolonda Williams. 1994. Dwellings for the Severely Mentally Disabled and Neighborhood Property Values: The Details Matter. *Land Economics* 70:466–77.
- Goering, John, and Modibo Coulibaly. 1989. Investigating Public Housing Segregation: Conceptual and Methodological Issues. *Urban Affairs Quarterly* 25:265–97.
- Goering, John, Abdollah Haghighi, Helene Stebbins, and Michael Siewert. 1995. *Promoting Housing Choice in HUD's Rental Assistance Programs*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.
- Goetz, Edward, Hin Kin Lam, and Anne Heitlinger. 1996. *There Goes the Neighborhood? The Impact of Subsidized Multi-Family Housing on Urban Neighborhoods*. Minneapolis: University of Minnesota, Center for Urban and Regional Affairs.
- Guy, Donald C., John L. Hysom, and Stephen R. Ruth. 1985. The Effect of Subsidized Housing on Values of Adjacent Housing. *AREUEA Journal* 13:378–87.
- Hartung, John, and Jeffrey Henig. 1997. Housing Vouchers and Certificates as a Vehicle for Deconcentrating the Poor: Evidence from the Washington, DC, Metropolitan Area. *Urban Affairs Review* 32:403–19.
- Hogan, James. 1996. *Scattered-Site Housing: Characteristics and Consequences*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.
- Leavitt, Jacqueline, and Anastasia Loukaitou-Sideris. 1995. "A Decent Home and a Suitable Environment": Dilemmas of Public Housing Residents in Los Angeles. *Journal of Architectural and Planning Research* 12:221–39.

Lee, Chang-Moo, Dennis Culhane, and Susan Wachter. 1999. The Differential Impacts of Federally Assisted Housing Programs on Nearby Property Values: A Philadelphia Case Study. *Housing Policy Debate* 10(1):75–94.

Ludwig, Jens, and Simeon Stolzberg. 1995. HUD's Moving to Opportunity Demonstration: Uncertain Benefits, Unlikely Costs, Unfortunate Politics. *Georgetown Public Policy Review* 1:25–37.

Lyons, Robert F., and Scott Loveridge. 1993. An Hedonic Estimation of the Effect of Federally Subsidized Housing on Nearby Residential Property Values. Staff Paper P93–6. University of Minnesota, Department of Agriculture and Applied Economics.

Mariano, Ann. 1994. Hill Panel Halts Plan to Move Poor Families. *Washington Post*, September 3, E1–E5.

Martinez, Marco. 1988. *The Effects of Subsidized and Affordable Housing on Property Values: A Survey of Research*. Sacramento, CA: State of California, Department of Housing and Community Development.

Massey, Douglas, and Nancy Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

Massey, Douglas, Andrew Gross, and Mitchell Eggers. 1991. Segregation, the Concentration of Poverty, and the Life Chances of Individuals. *Social Science Research* 20:397–420.

Massey, Douglas, and Shawn Kanaiapuni. 1993. Public Housing, the Concentration of Poverty, and the Life Chances of Individuals. *Social Science Quarterly* 74:109–23.

Matulef, Mark. 1988. The Effects of Subsidized Housing on Property Values. *Journal of Housing* 45(November/December):286–87.

McGrew, Jane Lang. 1981. Resistance to Change Continues to Restrict Public Housing Choices. *Journal of Housing*, (July):375–81.

Nenno, Mary. 1997. Changes and Challenges in Affordable Housing and Urban Development. In *Affordable Housing and Urban Redevelopment in the United States*, ed. Willem van Vliet, 1–22. Thousand Oaks, CA: Sage.

Nourse, Hugh. 1963. The Effect of Public Housing on Property Values in St. Louis. *Land Economics* 39:433–41.

Peterson, George, and Kale Williams. 1995. *Housing Mobility: What Has It Accomplished and What Is Its Promise?* Washington, DC: Urban Institute.

Pindyck, Robert, and Daniel Rubinfeld. 1981. *Econometric Models and Economic Forecasts*. New York: McGraw-Hill.

Polikoff, Alexander. 1994. *Housing Policy and Urban Poverty*. Washington, DC: Center for Housing Policy.

Puryear, Vivian. 1989. *The Effects of Scattered-Site Public Housing on Residential Property Values*. Unpublished M.A. thesis. University of North Carolina–Charlotte.

Rainwater, Lee. 1970. *Behind Ghetto Walls*. Chicago: Aldine-Atheron.

Rosenbaum, James. 1995. Changing the Geography of Opportunity by Expanding Residential Choice: Lessons from the Gautreaux Program. *Housing Policy Debate* 6:231–70.

Schill, Michael. 1992. Deconcentrating the Inner City Poor. *Chicago-Kent Law Review* 67:795–853.

Schill, Michael, and Susan Wachter. 1995. The Spatial Bias of Federal Housing Law and Policy: Concentrated Poverty in Urban America. *University of Pennsylvania Law Review* 143:1285–1341.

Takahashi, Lois M., and Michael J. Dear. 1997. The Changing Dynamics of Community Opposition to Human Service Facilities. *Journal of the American Planning Association* 63:79–93.

U.S. Department of Housing and Urban Development. 1996. *Expanding Housing Choices for HUD-Assisted Families*. Washington, DC: Office of Policy Development and Research.

Varady, David, and Carol Walker. 1998. *Case Studies of Vouchering-Out Assisted Properties*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Waldron, Thomas. 1994. Parading Politicians Hear Critics of Housing Program. *Baltimore Sun*, September 12, p. 1B.

Warren, Elizabeth, Robert M. Aduddell, and Raymond Tatalovich. 1983. *The Impact of Subsidized Housing on Property Values: A Two-Pronged Analysis of Chicago and Cook County Suburbs*. Urban Insight Series No. 13. Chicago: Loyola University, Center for Urban Policy.

White, Halbert. 1980. A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica* 48:817–38.