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The Differential Impacts of Federally Assisted Housing Programs on Nearby Property Values: A Philadelphia Case Study*

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Abstract

Prior research has found negative impacts of public housing on neighborhood quality. Few studies have examined the impact of public and other assisted housing programs on real estate prices, particularly the differential impact by program type. In this study, federally assisted housing units by program type are aggregated by eighth or quarter mile radii around individual property sales, and regressed on sales prices from 1989-1991, controlling for area demographic, housing and amenity variables.

Results show that public housing developments exert a modest negative impact on property values. Scattered site public housing and Section 8 certificates and vouchers have slight negative impacts. Federal Housing Administration (FHA) units and public housing homeownership programs have modest positive impacts, as do Section 8 New Construction and Rehabilitation units. Low Income Housing Tax Credit (LIHTC) sites have a slight negative effect. Results suggest that homeownership programs and new construction/rehabilitation programs have a more positive impact on property values.

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Introduction

Federally assisted housing programs, particularly public housing developments, have been associated with negative neighborhood impacts by a number of investigators (Newman & Schnare, 1997; Schill & Wachter, 1995; Carter, Schill & Wachter, 1998). To date, much of that literature has focused on the effects of public housing on racial segregation and poverty concentration, while very little has examined the impact on real estate prices. As a result of court orders and various policy initiatives, other rental assistance programs have attempted to counteract segregation and poverty concentrations by providing for greater social and geographic mobility of assisted housing recipients, or through modified siting procedures for public housing. Still other programs have attempted to assist low-income households through homeownership programs, rather than through rental housing. As a result, tenant-based certificates, mobility programs, scattered site developments, and home ownership programs are expected to produce better locational outcomes for assisted households than traditional public housing developments. Correspondingly, one would expect that such programs would be associated with fewer negative neighborhood effects, including impacts on real estate prices. Alternatively, the targeting of housing assistance to poor and very low-income households could lead to a continued association with negative neighborhood impacts, including on the real estate market, due to real or perceived problems associated with their spatial concentration.

Using Philadelphia as a case study, this paper examines the differential effects of federally assisted housing programs by type on real estate prices.

Literature Review

Assisted Housing and Neighborhood Characteristics

Several researchers have associated public housing developments with negative neighborhood impacts, particularly racial segregation and poverty concentration. Such impacts have concerned researchers and policymakers as they undermine one of the key objectives of housing assistance programs, namely, to provide for the "suitable living environment" proscribed by the 1949 Housing Act (Newman & Schnare, 1997). By contributing to, rather than ameliorating, the troubled neighborhood conditions in which many poor families live, public housing developments may also contribute to the reduced economic mobility of assisted households and to the social problems believed to promote persistent poverty, including reduced rates of household formation, delinquency, poor educational attainment, and low levels of labor force participation. Indeed, a literature has emerged that links poor neighborhood conditions with poor school achievement (Aaronson, 1995), youth unemployment (Wilson, 1987), and crime and delinquency (Wilson & Kelling, 1982). According to Newman and Schnare, however, it is not yet clear "what features of a neighborhood matter, for whom, and under what conditions" (p. 705).

Whether or not assisted housing programs contribute to such effects is of critical concern, particularly as assisted housing and welfare programs are being refashioned, in part to improve the economic self-sufficiency of recipients. Even prior to the most recent policy changes, shifts in housing policy have tacitly acknowledged the poor locational

outcomes of public housing developments, by promoting, alternatively, either geographic mobility or greater heterogeneity in the neighborhood composition of housing development locations. Thus, although public housing developments, particularly older sites, were often located in such a way as to reinforce race and poverty concentrations (Schill & Wachter, 1995), more recent initiatives have been developed specifically to reduce the likelihood of such effects. Programs resulting from litigation (i.e. the Gatreaux program), tenant-based certificates and vouchers, the Moving to Opportunity program, and even, to some extent, scattered site public housing developments, were designed either to increase the geographic mobility of residents, and/or to reduce the likelihood that residents would live in high poverty areas.

The differential effects of this broader spectrum of programs on neighborhood quality has only recently begun to be examined. As this literature is further developed, it is likely to produce a more textured profile of assisted housing programs and their effects, than have studies of public housing developments alone. In the most significant effort to date, Newman and Schnare (1997) compare the locations of public housing developments, publicly financed private developments, certificates and vouchers, and all other rental housing, including welfare recipients' housing, finding significant variations in neighborhood quality by program type. Using national data, the authors examined the differential association of housing assistance programs with neighborhood income, the poverty rate, the employment rate, the minority concentration rate, rents, and the density of assisted housing households. They also investigated differences in neighborhood attributes within public housing programs and within the publicly assisted private stock.

The authors conclude that both public and private project-based housing assistance programs do little to improve the neighborhood quality for welfare recipients. Indeed, the authors found that the neighborhood characteristics of public housing developments for families were worse than for the welfare population overall, and that such housing fostered, rather than reduced, economic and racial segregation. This effect was "widespread" and "cannot be attributed to only a small proportion of seriously distressed developments" (p. 727). The association between racial isolation and public housing location was particularly prominent among the larger public housing developments (more than 2,500 units). The stock of publicly assisted, privately owned developments were not located in areas substantially different than those of the public assistance population overall, and so did not improve their locational outcomes -- though it did not worsen their relative locations either. Alternatively, the authors report evidence that certificate and voucher programs reduce the likelihood that families live in distressed neighborhoods. Though they do not move to middle and upper income areas, certificate and voucher recipients do not live in the most distressed areas, and experience improvement in location relative to the location of the welfare population overall.

As for whether public housing developments are the *cause* of the observed neighborhood characteristics, or whether public housing developments are *sited* in distressed areas or areas likely to become distressed, Newman and Schnare argue the latter. According to the authors, given the relatively low proportion of public housing in most tracts, such housing is unlikely to be responsible for the characteristics of the neighborhood. They also cite historical evidence to affirm that neighborhood decline had already taken place or was beginning before most public housing developments were sited

(Schill & Wachter, 1995). However, Newman and Schnare's results also show that, for as many as 28% of the public housing developments, assisted housing accounts for more than 50% of the housing stock in the census tract. Thus, particularly in the case of large public housing developments, it is possible that, by their size alone, public housing may well become the defining characteristic of an area, leading to *or* exacerbating neighborhood decline. Moreover, from an inter-temporal perspective, public housing development locations have been found to be associated with later, further concentrations of minority and poor households (Schill & Wachter, 1995; Carter, Schill & Wachter, 1998). Thus, while some trends of distress may merely be exacerbated by siting decisions, the possibility of diffusion effects of public housing cannot be ruled out. To the extent that other forms of assisted housing may also be associated, though presumably more modestly, with distressed neighborhood characteristics, the possibility of clustering effects or diffusion effects also cannot be eliminated. However, their much smaller scale, relative to large public housing developments, would seem to make the likelihood of such effects less probable, and the siting explanation more tenable.

Assisted Housing and Property Values

The relationship of assisted housing to yet another neighborhood characteristic, the real estate market, was not included in Newman and Schnare's national study. Indeed, only a few studies -- three from 25 or more years ago -- have assessed the impact of assisted housing on property values (Nourse, 1963; Schafer, 1972; DeSalvo, 1974; Rabiega et al., 1984; Guy et al., 1985; Chandler et al., 1993; Galster & Tatian, 1998). Nourse (1963), studying "urban renewal," or the replacement of dilapidated housing with multifamily public housing in St. Louis, found no effect of public housing on real estate

prices in the intervention areas, as compared to control neighborhoods. Schafer (1972) similarly found no effect of Below Market Interest Rate (BMIR) rehabilitation loan program-funded projects on adjacent properties in Los Angeles, though it was hypothesized that the introduction of low-income, minority households would contribute to "white flight" and a drop in property values in the mostly middle-income areas in which they were sited. DeSalvo (1974), studying the impact of Mitchell-Lama projects in New York City, found that property values in the intervention areas *increased* at twice the annual rate of property values in control areas, and that the effect was greater in lower rent, than higher rent areas.

Among the more recent studies, Rabiega et al. (1984) found a small increase in property values in two varying distances (or zones) from public housing developments (low and medium rise townhouses) in Portland, OR. The property value increases were greatest the further the zone from the public housing developments, suggesting that proximity to the public housing did have a potentially suppressive effect on property value *increases*. The authors qualify the results by noting the potential uniqueness of the Portland setting, where the public housing developments were sited in relatively low to moderate density urban areas, were small in scale by national standards, served primarily a white population, and thus did not alter the perceived ethnic composition of the neighborhoods. A study by Guy et al. (1985) of subsidized (BMIR) developments concluded that "subsidized housing had a negative impact on the values of adjacent properties" (p. 378), based on a positive coefficient for the variable for distance from subsidized housing in a regression model predicting sales price. It is not clear from this analysis that property values declined, though proximity to the subsidized housing was

associated with suppressed value increases. A study by Chandler et al (1993) in Cleveland, examined the impact of the Acquisition Housing Program (AHP), a scattered site public housing initiative. The authors measured changes in the price-to-market value ratio (MVR), based on a ratio of actual transfer value to an expected market value, derived from tax assessments, before and after the siting of AHP housing. The results indicate a positive market impact in 8 of 12 census tracts, and no change in 3 of the 12 tracts. The authors did not employ a multivariate research design, and so did not control for potential mediating variables.

Another recent analysis, by Galster and Tatian (1998), examined the impact of the concentration of Section 8 units on nearby property values in Baltimore County, at varying proximities. The authors found that, within a 500-foot ring of sales, lower concentrations of Section 8 units are associated with positive effects on property values. However, larger concentrations of units, either within 500, 1,000 or 2,000 feet of sales, and particularly within the 500-foot ring, are associated with negative impacts on value. The authors were able to include several important statistical controls, for temporal, spatial and neighborhood effects, providing a more carefully specified model than previous research.

As a group, this body of research represents a relatively modest attempt at understanding the impact of assisted housing programs on the real estate market. With the exception of the Galster and Tatian study (1998), this research has employed limited statistical controls for neighborhood attributes, or for existing trends in neighborhood

conditions.[1] Moreover, there are too few studies, of too few areas, spanning four different decades, to support any generalizable conclusions. Finally, the studies each looked at a *different* type of assisted housing program, in a *different* geographic area, prohibiting comparisons among types of assisted housing programs, or even within a single program across jurisdictions.

Study Rationale

The proposed study was designed to augment the literature by offering a comparative framework for assessing the relative impacts of various assisted housing program types – similar to the types of programs analyzed by Newman and Schnare (1997) – on property values. The study uses Philadelphia as a case study, limiting its generalizability nationally. However, such a strategy was selected to improve the feasibility of a parcel-level analysis of sales activity. In doing so, the study method can more readily take advantage of geographic information systems analysis techniques that enable aggregation of assisted housing programs and program types by specified distances from property sales, as well as for the creation of spatial variables that can control for neighborhood characteristics, which might otherwise bias regression estimates (Bailey & Gatrell, 1995). The study employs a hedonic over a repeat-sales indexing approach, given that too few repeated observations existed in the study period for which both sales data

[1] Alternatively, studies of property value impacts of new housing construction or rehabilitation, and of group homes or other supported living environments, while not shedding light on the impact of specific federally assisted housing programs, do provide additional references for research design and analytic approaches in this area. A study by Galster and Williams (1994) examined the impact of community housing for people with mental disabilities on property values, using hedonic price models, finding mixed effects of six such developments. Simons, Quercia and Maric (1997) similarly employ a hedonic regression approach to estimate the impact of new housing construction on nearby property values, finding positive price impacts in one- to two-block areas, controlling for housing and neighborhood factors, and persisting for two years.

and neighborhood characteristic data were available (period selected: 1989-1991). A pre-post design was not feasible, given that too few public housing developments were created after 1980, limiting a comparative assessment by program type.

Hypotheses

Given the poverty concentration associated with public housing developments (Schill & Wachter, 1995), these are expected to have a more consistently negative association with property values. An added negative effect is expected for larger developments, including highrises, although the negative effects of developments are expected to diminish with distance. Increasing concentrations of scattered site public housing units are also expected to be associated with negative impacts on property values. Public housing built since 1980 is expected to be associated with further negative effects on property values, given the institution of federal "preferences" promulgated in 1980, which gave higher priority to poorer tenants for public housing vacancies, and Section 8 certificates.[2] Publicly financed, private developments (LIHTC and Section 8 New Construction and Rehabilitation) are expected to have no significant impacts on property values, as the national data suggest that such programs are not associated with improved (or worsened) neighborhood characteristics (Newman & Schnare, 1997). Certificate and voucher programs are expected to have a negative impact on value, given the results from the study of the impact of the Section 8 program in Baltimore (Galster & Tatian, 1998). Homeownership assistance program units (FHA and the Philadelphia Housing Authority's

[2] Since 1980, the homeless, those paying more than 50% of income for rent, and those displaced from or living in substandard housing have been given greater priority for placement in public housing (Epp, 1996), increasing the probability that new facilities will have higher concentrations of poor households. The Quality Housing and Work Responsibility Act of 1998 requires greater income mixing, allows targeting higher income tenants, and repeals federal preferences.

homeownership program) are predicted to have a positive effect on property values, in that homeownership creates greater incentives for residents to improve the value of their properties, as compared to the rental assistance programs.

Methods

Data Sources

Assisted housing program data by address (FHA housing, LIHTC, Section 8 New Construction and Rehabilitation, and Section 8 Certificates and Vouchers) were obtained from HUD (pre-1989 locations), including survey data published on the HUD User website (*A Picture of Subsidized Households*). Detailed information on public housing development locations and characteristics, and scattered site public housing locations, were obtained from the Philadelphia Planning Commission. All locational data were geocoded in a GIS; locational variables were calculated using spatial analysis techniques in GIS and SAS. Neighborhood condition variables at the census blockgroup level were abstracted from the 1990 Census Summary Tape File 1A and 3A.

The sale price data and property-specific attribute data were obtained from the Board of Revision of Taxes in Philadelphia. Sales time was restricted to within the period of 1989 and 1991, in order to correspond as closely as possible with the 1990 Census data, while retaining sufficient observations for the analysis. Only single family residential property sales data, excluding condominiums, were abstracted. Address data for sales and property information were geocoded using address-matching procedures in a GIS. After cleaning the data, a total of 18,062 sales were included in the final dataset.

Model and Variables

The empirical model assumes that property value is a function of property specific attributes, period of sale, neighborhood quality, macro-locational amenities, and existence and programs characteristics of assisted housing in proximal areas. The variables for the analysis are listed in Table 1.

Insert Tables 1 and 2 about here

Property characteristics for sale properties (property cnnnnontrol variables) include lot size (square footage), living area (square footage), house type (dummy variables for semi-detached, and rowhouse), garage (dummy), masonry (dummy), and stone (dummy). Sale period control variables include year of sale (dummy variables for 1990 and 1991), and season of sale (dummy variables for winter, spring and summer). Neighborhood quality variables (control variables) at the blockgroup level include: percent black, percent Hispanic, percent unemployed, percent people below poverty level, median household income, and percent boarded up units. Macro-locational amenity variables (also control variables) include distance from Central Business District (CBD), and dummy variables for living within 1, ½ or ¼ mile from a park or river.

The housing programs included in the analysis are: public housing developments, public housing scattered sites, FHA housing, Section 8 New Construction and Rehabilitation, Section 8 Voucher and Certificates, and LIHTC. Public housing developments are further differentiated by building type (high-rise, low-rise), program type (family; senior; homeownership), size of development (large, small) and era (built before

or after 1980). Each property sale has radii of ¼ and 1/8 miles drawn around it, and, for each sale property, a dummy variable is created indicating whether a public housing development is located in the perimeter of a given zone by type of public housing development (high rise, large, homeownership, development built after 1980). Similarly, the total number of scattered site units, FHA units, Section 8 New Construction/Rehab units, Section 8 certificate and voucher units, and LIHTC program units within a ¼ mile radius of the sale properties are aggregated by program per sale property.

The first model specification (Model I) tests the impacts of several types of assisted housing, including public housing developments (DOPUB125 and DOPUB250) either within 1/8 mile of the sale property, or between 1/8 and ¼ mile of the sale property, public housing scattered site units (NUSCA250) aggregated within a quarter mile of the sale, FHA housing units (NUFHA250) aggregated within a quarter mile of the sale, Section 8 New Construction and Rehabilitation units (NUS8N250) aggregated within a quarter mile of the sale, Section 8 Vouchers and Certificates (NUS8C250) aggregated within a quarter mile of the sale, and LIHTC units (NULTC250) aggregated within a quarter mile of the sale.[3] Model I does not include the neighborhood quality control variables, nor variables for the types of public housing developments. The second model specification adds the neighborhood control variables (Model II) to the variables used in Model I. In Model III, more detailed characteristics of public housing developments are introduced to examine the heterogeneous impacts of building and program types. These

[3] Within the original data set, the authors deleted the observations with notable coding errors (out of range codes), notable outliers based on the sample statistics of each variable, and the residual plot. Also, the residual plot test for three different functional forms including linear, full-log, and semi-log models were tested showing that the semi-log model was the most acceptable functional form in terms of shape and variability.

include DPHIGH (a dummy for high-rise developments), DPLARGE (a dummy for large scale developments), DPHOME (a dummy for PHA's homeownership programs), and D80P2 (a dummy for public housing developments built after 1980). All of these variables are calculated using a quarter-mile criterion. The final model specification (Model IV) differs from Model III in that it tests for the effect of public housing developments within 1/8 mile, versus ¼ mile. This is done to apply a stricter distance criterion, which would presumably be more sensitive to negative price effects, particularly as they may vary by types of public housing developments.

Results

Control Variables

Among the property-specific control variables, all variables, except MASONRY produce positive coefficients at a statistically significant level (see Table 3).[4] Masonry is the most common structure of houses in Philadelphia, particularly among the city's many older rowhouses. Although MASONRY produces a negative coefficient in Model I, it becomes positive in the other two models, when the neighborhood characteristics variables are included (see Table 3). Also, the insignificant positive coefficient of STONE in Model I increases in magnitude and becomes statistically significant in the other models, when neighborhood quality variables are introduced. This indicates that there exists a premium for endurable materials, in spite of building age and location. The estimation results show some yearly fluctuations for the year of sale control variables, but they are only marginally significant. For the seasonal impacts, the estimation results indicate that there exist

[4] It is noteworthy that SEMIDETA and ROWHOUSE become negative when LSQFTLOT is dropped. It indicates that the premium for a single-family detached housed is based on the lot size.

negative impacts on sales in winter and spring. For summer, the estimated coefficient is not significant. All of the neighborhood quality control variables obtain expected signs at statistically significant levels throughout the model variations. The macro-locational amenity variable for distance to the Central Business District (LDISTCBD) produces an expected negative coefficient (positive effect of accessibility) and is statistically significant. The dummy variables for park and river accessibility produce statistically significant positive coefficients, decreasing in magnitude by distance.

Insert Table 3 about here

Assisted Housing Variables

The coefficients for the two dummy variables in Model I for distance from public housing developments (DOPUB125 and DOPUB250) show that the impact of public housing developments reduces by distance (-0.4 for an eighth mile to –0.2 for a quarter mile). For other types of assisted housing, the number of units for each program within a quarter mile from the sale property location is used. All types of assisted housing programs, except FHA housing, have negative impacts on property values in nearby areas, and their coefficients are statistically significant. The variables for public housing developments (DOPUB125 and DOPUB250) and Section 8 New Construction and Rehabilitation (NUS8N250) have the largest negative coefficients.

However, when neighborhood quality variables (the spatial control variables) are included in Model II, the R^2 increases considerably (from 0.55 to 0.72), and the coefficients of the variables are reduced considerably in magnitude or change in sign. For

example, DOPUB125, the eighth mile distance from public housing developments measure, is reduced from –0.43 to –0.07 and NUS8C250 (Section 8 Certificates and Vouchers) is reduced from –0.008 to –0.002. Notably, NUS8N250 (Section 8 New Construction and Rehab) and DOPUB250 (public housing between 1/8 and ¼ mile radius) produce positive signs of coefficients in Model II, opposite from the negative signs in Model I. Also, NULTC250 (LIHTC) loses statistical significance. These changes in estimation results indicate that the impact of assisted housing on property values is not as critical when the existing neighborhood conditions of assisted housing location are taken into account. Thus, based on Model II, public housing developments, scattered site public housing and Section 8 Certificates and Vouchers have modest to slight negative impacts on property values, while FHA housing and Section 8 New Construction and Rehabilitation exert positive impacts on property values in nearby areas.

In Model III more detailed characteristics of public housing developments and PHA programs are included. Contrary to common conceptions, DPHIGH (high-rise developments) and DPLARGE (large developments) do not produce negative signs. However, when a more strict distance criterion of an eighth mile is included (see Model IV), DPHIGH loses statistical significance and DPLARGE becomes negative, but is not significant. In contrast, DPHOME (PHA's homeownership program units) is positive, and remains statistically significant in both Model III and Model IV. D80P (public housing developments built since 1980) is negative, and remains statistically significant in both Models III and IV.

Discussion

The study results provide valuable comparative information on the impact of assisted housing program types on property values in Philadelphia. According to Model II, when neighborhood characteristics are controlled, both types of public housing (developments and scattered site), as well as Section 8 rental assistance yield modest to slight negative impacts on property values. In contrast, FHA and Section 8 New Construction and Rehabilitation programs have significant positive effects on property values, as does the PHA homeownership program. The key difference between the FHA and PHA homeownership programs, and the Section 8 certificates/vouchers and other public housing programs (developments and scattered sites) is that the former are homeownership programs, while the latter are rental assistance programs. Section 8 New Construction and Rehabilitation is the only rental housing program with a positive effect on property values (though it is slight), an effect that is significantly reversed when neighborhood control variables are *not* included, as in Model I. Taken together, these findings suggest that homeownership and new construction/rehabilitation programs produce better locational outcomes than rental assistance programs, as indexed by property values.

Consistent our hypothesis, the Section 8 voucher/certificate program had a negative market impact, though the effect is very modest (coefficient = -0.003 in Model IV). This finding runs counter to the national data on neighborhood characteristics reported by Newman and Schnare (1997), but is consistent with the results of Galster and Tatian (1998), which led us to predict a negative impact on property values. Similarly, the negative effect of scattered site public housing suggests that it is not just the public

housing developments that are problematic for property values, but that concentrations of low density public housing has negative market impacts. While the effect is small, it nevertheless may reflect the difficulties with maintenance problems, the use of older, rehabilitated structures, and other management issues affecting the Philadelphia Housing Authority.

Interestingly, no statistically significant effects are found for the physical type of public housing developments, be they large developments or highrise buildings, when the stricter one-eighth mile criterion is applied. If there are such impacts, they are not large enough to be captured by our property sales data. It is also possible that too few sales occurred in areas with large or highrise public housing to produce reliable estimates. However, public housing built after 1980 does exert a negative impact on property values, as expected. This result is likely related to the stricter eligibility standards (federal preferences) for public housing promulgated in 1980, whereby households with very low incomes (the homeless, those paying more than 50% of income for rent, and those displaced from or living in substandard housing) are given greater priority for placement in public housing (Epp, 1996). According to Epp (1996), from 1981 to 1991, the proportion of very poor households (below 10 percent local median income) in public housing increased eightfold, from 2.5% to 20%. Epp also notes that most public housing households now have incomes below the 20% local median income. This shift in the demographic composition of public housing residents after 1980 likely exerts a negative impact on nearby property values of newer developments, as indicated by our results.

The Section 8 New Construction and Rehabilitation program, which supports private, multi-family or other rental housing, did yield a significant, though modest

positive effect, and so would not support our prediction of no market impact of such programs. Also contrary to our prediction, LIHTC had a significant negative effect on property values in Model IV. These contrasting findings for the publicly assisted, private stock may reflect differential siting decisions for the programs, or differences in management or tenant selection procedures. According to a housing official in Philadelphia (Wilds, 1998), that is not a likely explanation. Alternatively, Wilds posits that the differential effect is likely a result of a lag in the positive impact of such programs on property values. Given that Philadelphia's Section 8 New Construction and Rehabilitation units are from an older program (mostly pre-1985), and that the LIHTC units are from a newer program (mostly post-1987), one might expect the lag effect to produce positive results in the former program, before they would appear in the latter. This interpretation would be consistent with the results based on our study period.

This study is limited in that it analyzed data for a single US city, and, therefore, may not be generalizable to other US cities. The available data also did not permit an analysis of price change trends, only a cross-sectional treatment of sales data. This as well as other model specifications could affect results. The study did improve on the literature in providing a comparative framework for assessing the housing market impact of various assisted housing programs. The study also includes neighborhood level control variables, thereby permitting a less biased estimate of the effects of the various housing assistance programs. While this partially addresses the confounding influence of siting decisions versus program impacts, longitudinal data are necessary to more fully control for pre-existing neighborhood conditions. Future research should replicate this study in other

localities and might even include national samples, to assess how these various programs function in a more diverse set of urban environments.

While study results from a single city do not permit firm generalizations, the study results so suggest a need for continued discussion of several policy considerations. First, the study affirms the value of homeownership programs, as compared to rental assistance programs, in improving communities, at the same time that housing opportunities are improved for program participants. However, whether this effect is a function of the differential characteristics of assisted renter versus owner households is not known, and deserves further study. Second, the study results could be viewed as supportive evidence for the Quality Housing and Work Responsibility Act of 1998, which requires increases in the diversity of residents of public housing, through income mixing, permitting targeting based on higher incomes, and through the repeal of Federal preferences. To the extent that the "built since 1980" variable reflects the added distress created by targeting public housing to the poorer and more at-risk households, the study results support the relaxation of those preferences. Finally, the study results provide support for arguments that the existing system of public and certificate housing creates or contributes to reduced property values, although the modest size of these effects, and the significant reduction of these negative effects when neighborhood characteristics are included, suggest that these effects may be, in part, a function of locational constraints of such housing. Clearly, more temporally sensitive research models are needed, as are studies of the locational choices of voucher/certificate recipients, and the siting decisions of local housing authorities.

Conclusion

Although the study results reflect the impacts of programs in a single city, the results suggest that, at least in Philadelphia, federally assisted homeownership programs have a more beneficial impact on surrounding neighborhoods than rental assistance programs, regardless of the type of rental assistance program. However, the negative impact of rental assistance programs (Section 8 as well as public housing) on property values are modest, when control variables for neighborhood characteristics are included. Public housing preferences since 1980 also appear to have worsened the impact of public housing on surrounding areas. To the extent that neighborhood impacts are important for producing positive outcomes for residents, this finding would lend support to recent proposals intended to diversify the population of public housing residents.

References

Aaronson, Daniel (1995). Using Sibling Data to Estimate the Impact of Neighborhoods on Children's Educational Outcomes. Unpublished paper. Evanston, IL: Northwestern University.

Bailey, TC & Gatrell, AC (1995). *Interactive Spatial Data Analysis*. Essex, England: Longman Group, LTD.

Carter, W.H., Schill, M.H. & Wachter, S.M. (1998). Polarisation, public housing and racial minorities. *Urban Studies, 35* (10), 1879-1911.

Chandler, Mittie O., Virginia O. Benson & Richard Klein (1993). The impact of public housing: A new perspective. *Real Estate Issues*, Spring/Summer, 29-32.DeSalvo, R.W. (1974). Neighborhood upgrading effects of middle-income housing projects in New York City. *Journal of Urban Economics, 1* (3), 269-277.

Epp, Gayle (1996). Emerging strategies for revitalizing public housing communities. *Housing Policy Debate, 7* (3), 563-588.

Galster, George & Peter Tatian (1998). The property value impacts of neighbors receiving housing subsidies. *ACSP Conference*, November 5, 1998, Pasadena, CA.

Galster, George & Yolanda Williams (1994). Dwellings for the severely mentally disabled and neighborhood property values: The details matter. *Land Economics, 70* (4) 466-477.

Guy, Donald C., John L. Hysom, & Stephen R. Ruth (1985). The effect of subsidized housing on values of adjacent housing. *Journal of the American Real Estate and Urban Economics Association*, *13* (4), 378-387.

Newman, Sandra J. & Ann B. Schnare (1997). "…And a suitable living environment": The failure of housing programs to deliver on neighborhood quality. *Housing Policy Debate*, *8* (4), 703-741.

Nourse, Hugh O. (1963). The effects of public housing on property values in St. Louis. *Land Economics*, *52* (Feb.), 54-65.

Rabiega, William A., Ta-Win Lin & Linda M. Robinson (1984). The property value impacts of public housing projects in low and moderate density residential neighborhoods. *Land Economics*, *60* (2), 174-179.

Schafer, Robert (1972). The effect of BMIR housing on property values. *Land Economics*, *48* (Aug.), 262-286.

Schill, Michael & Susan M. Wachter (1995). The spatial bias of federal law and policy: Concentrated poverty in urban American. *University of Pennsylvania Law Review*, *143*, 1285-1342.

Simons, Robert A., Roberto Quercia, and Ivan Maric (1997). The effect of new housing construction and neighborhood disinvestment on residential sale price. *Journal of Real Estate Research*.

Wilds, Scott (1998). Personal communication, Philadelphia Mayor's Office of Housing and Community Development. November 11, 1998.

Wilson, J.Q. & Kelling, G.L. (1982). The police and neighborhood safety. *The Atlantic* (March, 1982): 29-38.

Wilson, William J. (1987). *The Truly Disadvantaged: The Inner City, the Underclass and Public Policy*. Chicago: University of Chicago Press.