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ABSTRACT

Nonprofit organizations play a critical role in U.S. housing policy, a role typically justified by the claim that their housing investments produce significant neighborhood spillover benefits. However, little work has actually been done to measure these impacts on neighborhoods. This paper compares the neighborhood spillover effects of city-supported rehabilitation of rental housing undertaken by nonprofit and for-profit developers, using data from New York City. To measure these benefits, we use increases in neighboring property values, estimated from a difference-in-difference specification of a hedonic regression model. We study the impacts of about 43,000 units of city-supported housing completed during the 1980s and 1990s, and our sample of property transactions includes nearly 300,000 individual sales.

We find that both nonprofit and for-profit projects generate significant, positive spillover effects. This finding in itself is significant, given the widespread skepticism about the impact of subsidized housing on neighborhoods. We also find some differences across sectors. First, the impact of nonprofit housing remains stable over time, whereas the effect of for-profit housing declines slightly with time. Second, while large for-profit and nonprofit developments deliver similar benefits, in the case of small projects, for-profit developments generate greater impacts than their nonprofit counterparts. These differences are consistent with theoretical predictions. In particular, in the presence of information asymmetries with respect to housing quality, the non-distribution constraint should lead nonprofits to invest more than for-profits in developing and maintaining features that benefit the broader community. Meanwhile, the fact that scale makes a difference to nonprofit impacts may reflect the capacity constraints often faced by smaller nonprofits.

Keywords: housing, nonprofit sector, neighborhoods

Federal, state, and local governments in the United States are increasingly turning to the nonprofit sector to deliver their housing programs, with many giving preference to nonprofits or requiring specific set-asides for nonprofits. The two largest federal housing production programs—the Low Income Housing Tax Credit Program and the HOME Program—for instance, both require that grantees allocate a certain percentage of funds to nonprofits.

One justification given for nonprofit set-asides is that affordable housing developed by nonprofit organizations, especially community-based nonprofits, generates significantly greater neighborhood spillover benefits than that developed by other providers (O'Regan &Quigley, 2000; Walker, 1993). Little work has actually been done, however, to measure these neighborhood impacts. In this paper, we attempt to fill this gap, using data from New York City to compare the neighborhood spillover effects of city-supported rehabilitation of rental housing undertaken by nonprofits with the spillover effects generated by similar investments in rental housing undertaken by for-profit developers. We use increases in neighboring property values to measure these benefits.

In brief, we find that the rehabilitation of rental housing leads to significant increases in the value of surrounding properties, whether that rehabilitation is undertaken by nonprofit or for-profit organizations. This finding in itself is significant, given the widespread skepticism about the impact of subsidized housing on neighborhoods. We also find some differences across sectors. First, while the spillover benefits generated by nonprofit housing are sustained over time, the benefits generated by for-profit housing appear to diminish somewhat in the years after completion. Second, while large developments deliver similar benefits regardless of sector, we find that in the case of small projects, for-profit developments generate greater impacts than their nonprofit counterparts, perhaps as a result of capacity constraints faced by small nonprofits.

BACKGROUND: THEORY AND PAST LITERATURE

Many researchers have explored the questions of whether and under what circumstances governments should contract out services to external providers. Much less attention has been focused on the choice of sector to provide the service (Feiock & Clingermayer, 1999; Frumkin, 2002b). Yet increasingly, government officials face a choice between for-profit and nonprofit providers.

Nonprofit theory offers some guidance on how service delivery might differ by sector. As many have pointed out, the defining feature of nonprofit organizations is not the absence of profit, but instead the fact that those profits cannot be distributed to the people controlling the organization (Glaeser and Shleifer, 1998; Hansmann, 1980). This non-distribution constraint means that the profit motive cannot be relied upon to drive efficient performance, and the preferences of managers may drive organizational decisions (Glaeser, 2003; Schill, 1994; Steinberg, 1998).[1] The nondistribution constraint also makes it difficult for nonprofits to raise capital, and therefore they may be short on capital and experience and may not attain the same economies of scale as their for-profit counterparts (Steinberg, 1998; Frumkin, 2002b).

Still, nonprofits offer strengths as well. Hansmann (1980) argues that in markets with asymmetric information, the non-distribution constraint will lead nonprofits to produce higher quality output than their for-profit counterparts. When consumers cannot accurately evaluate the quality of goods and services, for-profit organizations have an opportunity as well as an incentive to economize on costs and shirk on quality. Owing to the non-distribution constraint, those controlling nonprofit organizations cannot directly benefit from taking advantage of customers and therefore have less of an incentive to do so.

In addition, nonprofit missions often explicitly include community involvement and a desire to develop projects valued by their community (Frumkin, 2002a).[2] Partly as a result, and

partly due to the non-distribution constraint as well, nonprofits may be more likely to win trust among community residents (Schill, 1994).

While these differences across sector may be important, some have questioned their relevance. Weisbrod (1988), for instance, argues that nonprofits and for-profits have identical objectives: the maximization of profits. Moreover, competition across sectors may be leading to convergence (Rosenau & Linder, 2003).

The empirical literature on contracting and sectoral differences is mixed. Feiock and Cligermayer (1999) study the decision to contract for health and human services and find that governments are more likely to turn to for-profit firms to deliver services in cases where service quality is clearly defined and easily monitored. As the difficulty and cost of monitoring increases, governments tend to rely more on nonprofit organizations. The authors do not attempt to measure or compare the actual quality of service delivered. In their review of the literature on healthcare providers, Rosenau and Linder (2003) report that studies more often find that nonprofits deliver superior quality care than the reverse, and surprisingly, studies typically find that nonprofit organizations do as well or better with respect to cost and efficiency. More generally, however, studies focusing on relative performance across sectors yield mixed results, perhaps in part due to the underlying difficulty in measuring relevant client outcomes (Frumkin, 2002b).

There is virtually no work on contracting and sector choice in the housing field. Indeed, the literature on nonprofit theory has generally overlooked the study of housing altogether, typically focusing instead on organizations providing childcare and healthcare, such as hospitals, nursing homes, and day care centers (see for example, Steinberg, 1998). Thus, there has been relatively little theoretical work probing how and why the behavior of nonprofit and for-profit

housing providers might differ and how we might expect the affordable housing that they develop to differ in turn.

Proponents generally make three main arguments to support nonprofit provision of housing. First, nonprofits are more likely to build housing that will be affordable permanently, not simply over the duration of the government subsidy (Koebel, 1998). Second, nonprofits, given their community service mission, are likely to serve needier tenants—for instance, tenants with special needs and those whose incomes fall at the low end of the allowable income spectrum (O'Regan & Quigley, 2000). Finally, because of their greater community orientation, nonprofits and community-based nonprofits in particular, are believed to work in more distressed neighborhoods and to pay greater attention to broader neighborhood benefits (Crowe, 1996; O'Regan & Quigley, 2000).

Our central aim in this paper is to explore the final proposition—whether the neighborhood spillover effects generated by renovating subsidized rental housing differ across sector. Schwartz, Ellen, Voicu, and Schill (2005) outline the various mechanisms through which such housing investment might deliver community benefits and increase the value of surrounding property. There are several reasons to expect that such spillover effects might differ across sectors. First, nonprofits have less to gain than for-profit firms from economizing on construction and maintenance costs. In some respects, housing is precisely the kind of good that Hansmann's theory addresses—it is a good for which quality can be difficult to monitor, especially by government funders.[3] In these circumstances, we would generally expect nonprofits to deliver higher quality housing with fewer hidden deficiencies, and to maintain it more vigilantly (Glaeser & Shleifer, 1998; Hansmann, 1980). For-profit housing might appear the same as nonprofit housing initially, but over time, it would deteriorate more rapidly (as would neighborhood spillover benefits).

Naturally, interest in repeat business and long-term appreciation should counter the incentive to shirk on construction quality and maintenance. In fact, if the expected gains from the price appreciation of high-quality, well-maintained housing outweigh the additional profits gained from shirking, there would be no incentive to shirk at all. But conversations with for-profit developers involved in New York City's housing programs suggest that the key profit centers are typically upfront development fees and operating income, and that there is little hope of capturing long-term appreciation.[4] Interest in repeat business may be important, but it would keep for-profit developers focused only on the indicators of quality that are typically monitored.

Thus, for-profit developers should have a greater incentive to economize on ongoing maintenance that won't affect the long-term value of the asset (but that may affect the magnitude of neighborhood spillovers), such as maintenance of the grounds and exterior and any community facilities. Moreover, government agencies are likely to pay less attention to monitoring ongoing maintenance than initial quality.

A second possible difference is that nonprofit developers may be more apt to offer services and incorporate features into their housing like community rooms or other public spaces that all community residents—not just tenants—can enjoy. When the government "purchases" housing services from developers, the hope is to get housing that provides sound shelter to tenants and that delivers benefits for the surrounding community. These neighborhood spillovers are external benefits that are not fully captured by individual owners and are highly difficult to measure. As such, private developers have a clear incentive to under-provide them. By contrast nonprofits, whose missions often explicitly include community involvement and revitalization, should be more likely to incorporate public spaces and to use them to offer programming and social services open to the broader community. Given nonprofits' capital shortages, however, only larger nonprofit developers may actually be able to include such amenities.

A third reason to expect spillover effects to vary across sector is differences in capacity. As noted above, the non-distribution constraint makes it difficult for nonprofits to raise capital and attain the same economies of scale as for-profit firms. Such capacity challenges predict that nonprofits—especially small, community-based nonprofits—will deliver lower quality housing with fewer amenities, and reduced neighborhood benefits in turn.

The fourth (and final) reason to expect differences in spillover effects between the two sectors has to do with potential differences in the mix of tenants served by nonprofits and for-profits. As noted, nonprofits may be more likely to select needier tenants (for instance, those who require supportive services or whose incomes fall at the low end of the allowable income spectrum), which might inhibit neighborhood spillover effects.

In summary, these theories generally predict that nonprofit organizations will be more committed to building housing that generates sustained benefits for the larger community, but they may not always have the capacity to do so. It is also possible that nonprofits will aim to house more economically disadvantaged tenants, which may dampen neighborhood benefits.

As noted already, we should be careful not to overstate the differences across sectors. Surely housing providers—especially those working to renovate and manage affordable housing–—all have a great deal in common, and these similarities may trump any organizational differences. Most nonprofit and for-profit housing providers aim to create high-quality, financially viable housing, and those that choose to build subsidized housing in low-income areas are likely to share some underlying commitment to affordable housing and neighborhood revitalization. Moreover, it seems likely that in New York City, with its unusually experienced and mature nonprofit sector, differences may be slimmer still.

As for the existing literature, despite the fact that most subsidized rental housing today is produced not by a major federal program, but instead by public/private partnerships in cities, few

studies have examined the effects of these developments on neighborhoods, and virtually none have considered differences across sectors. The literature to date comparing nonprofit and for-profit developments has instead focused on relative costs. Cummings and DiPasquale, (1999) for instance, find that the costs of Low Income Housing Tax Credit projects developed by nonprofits are about 20 percent higher than the costs of those developed by for-profits.

One exception is a study by Goetz, Lam, and Heitlinger (1996) thatcompares the neighborhood spillover effects of different types of subsidized housing in Minneapolis. The authors find that public housing owned and operated by the Minneapolis housing authority and subsidized housing owned by for-profit developers are both negatively associated with property values, while property values actually appear to be higher in close proximity to assisted housing owned and operated by community-based nonprofits. Their analysis is cross-sectional, however, which makes it impossible to know whether the sectoral differences are due to differential impacts or differential siting.

HOUSING INVESTMENT IN NEW YORK CITY

Between 1986 and 2000, New York City invested over five billion dollars in capital funds on a variety of housing programs, dwarfing the expenditures made by other cities. The plan grew out of a crisis. As the city lost population throughout the 1960s and especially the 1970s, entire neighborhoods were devastated by abandonment and arson, and by 1979, the city had taken ownership of approximately 60,000 vacant and 40,000 occupied apartments as a result of tax foreclosures. The occupied housing was generally in very poor shape, and its tenants typically had very low incomes. This "*in rem*" housing (named after the legal action that gave the city title), continued to deteriorate under city ownership and meanwhile consumed a

significant portion of the operating budget for the city's Department of Housing Preservation and Development (HPD).

There was broad consensus that something needed to be done, and in 1985 Mayor Koch proposed a "Ten Year Plan" for housing in response. A major goal of the plan was to rebuild the city's stock of *in rem* housing and its surrounding neighborhoods (Koch, 1985). The plan included a financial commitment of $5.1 billion to renovate 82,000 units in occupied *in rem* buildings, rebuild 47,000 units in vacant *in rem* buildings, build 37,000 new units, and upgrade 87,000 apartments in privately owned buildings.

The magnitude of the plan was unprecedented. One estimate suggests that the city spent 3.5 times more than the next 50 largest cities combined during the late 1980s (Berenyi, 1989). Another study estimated that in the mid-1990s, New York spent more than three times the total amount spent by 32 other large cities (Schwartz, 1999).

The magnitude of the plan offers a unique opportunity for researchers to identify impacts. The rental housing programs, on which we focus, generally shared the same basic design. Buildings from the city's inventory of *in rem* property (both vacant and occupied) were conveyed at no cost or for a nominal amount to nonprofit or for-profit developers. Capital subsidies were provided in the form of below market interest rate mortgage loans, using a combination of city and federal dollars. In addition, equity investors in the developments received Low Income Housing Tax credits where available. In some cases, the city provided vacant land for new construction projects, but the new construction projects typically involved constructing affordable, owner-occupied homes, which is not the focus of this paper (see Ellen et al., 2001).

METHODOLOGY

Our main empirical goal is to assess whether projects developed by nonprofit developers generate different neighborhood spillover effects than those developed by for-profit firms. We describe below the econometric models underlying the empirical analysis.

Identifying neighborhood impacts is challenging, in part because sites are not randomly chosen for development. Our basic strategy relies on a hedonic regression model that explains the sales price of a property as a function of its structural characteristics (such as lot size and building age) and its neighborhood surroundings. We use this hedonic model to compare the prices of properties that are close to subsidized housing sites, to the prices of comparable properties that are further away from the housing site but still located in the same general neighborhood (census tract). We then compare the magnitude of this difference before and after the completion of a subsidized project. This "difference-in-difference" in housing prices is our measure of project impact on neighborhoods, because it weeds out any systematic differences between neighborhoods chosen for housing investment and those that are not.

Naturally, we test whether impacts vary by sector. In making these comparisons, we do our best to control for differences in the types of housing developments built. As noted, we control for initial neighborhood and site conditions, for the scale of the project, and for the scope of work, as proxied by the share of units in projects involving the rehabilitation of vacant buildings in contrast to those that supported the renovation of occupied buildings. We expect projects of the former type to generate greater neighborhood spillovers, because they actually involve adding new units to a neighborhood and in the process remove a vacant, abandoned building.

More formally, we estimate a regression model of the sales price of a property that can be expressed as follows:

(1) $\ln P_{icdt} = \alpha + \beta X_{it} + \delta_c W_c + \gamma \text{InRing}_i + \theta \, \text{InRing}_i \, D_i + \lambda \text{PostRing}_{it} + \pi \text{PostRing}_{it} \, D_i + \varphi \text{TPost}_{it}$

$+ \rho_{dt} I_{dt} + \varepsilon_{it},$

where $\ln P_{icdt}$ is the log of the sales price per unit of property i in census tract c, in community district d, and in quarter t. X_{it} is a vector of property-related characteristics, including age, square footage, the number of buildings on the lot, and a set of dummy variables distinguishing 18 different building classifications such as 'single-family detached' or 'two family home,' and so on. W_c are a series of census tract fixed effects, which help control for unobserved, time-invariant features of different neighborhoods.

Described more fully below, InRing_i, $\text{InRing}_i \, D_i$, PostRing_{it}, $\text{PostRing}_{it} \, D_i$, and TPost_{it} are vectors of ring variables that indicate proximity to various types of assisted housing sites. Finally, I_{dt} are a series of dummy variables indicating the quarter and community district of the sale. These variables allow for distinct time trends for each of the 48 community districts used in the analysis.[5] The coefficients to be estimated are α, β, δ, γ, θ, λ, π, φ and ρ, and ε is an error term. Since we measure sales prices as logarithms, the coefficients can be interpreted as the percentage change in price resulting from an additional unit of the independent variable. In the case of a dummy variable, the coefficient can be interpreted approximately as the percentage difference in price between properties with the attribute—say a garage or a corner location—and those without.[6]

Our key variables of interest are the ring variables, which capture the proximity to rental housing units subsidized under the city's Ten Year Plan. We include three vectors of ring variable—"In Ring," "Post Ring," and "TPost." Specifically, the In Ring variables are dummy variables that take on a value of one if the property is located within 1,000 feet of a site on which there is or *will be* at least one subsidized rental housing unit of particular type. Intuitively, the coefficients on the In Ring variables capture baseline differences in sales prices between

properties located within a 1,000-foot ring of subsidized housing sites and those further away, but still in the same neighborhood. Because baseline property values may be associated with the size of the site, we include separate In Ring variables for large projects (more than 100 units) and small projects (100 units or fewer). Similarly, because nonprofits may channel their efforts to more distressed areas than for-profit firms, we also include separate In Ring variables for properties located within 1,000 feet of *only* for-profit sites, those located near *only* nonprofit sites, and those located near both types of sites.

We include several interactions. First, we interact these variables with D_i, the Euclidean distance between property i and the nearest assisted housing site developed by for-profit or nonprofit developers.[7] These interaction terms allow us to estimate how the effects of proximity to an assisted housing site vary with distance to the site, within the 1,000-foot ring. Second, to control for scope of work (since projects involving more extensive rehabilitation work may be located on more distressed sites), we also include variables noting the share of units in each type of ring that were rehabilitated in vacant buildings.

The Post Ring dummy variables indicate whether the sale is within 1,000 feet of a *completed* rental housing development—either large (over 100 units) or small (100 units or less).[8] Their coefficients provide the simplest impact estimates for projects of different sizes.[9] We again interact with D_i, the Euclidean distance between property i and the nearest assisted housing site developed by for-profit or nonprofit developers. And to control for the scope of work, which could differ across sectors, we again include interactions between the Post Ring variables and the share of units that were initially in vacant buildings.

The final vector of ring variables, "Tpost" equals the number of years between the date of sale and the project completion date for properties in the 1,000-foot ring of for-profit or nonprofit housing developments. By including these variables, we allow project impacts to vary over

time.[10]

We also include in these ring vectors a set of control variables that capture proximity to other types of subsidized housing that are not part of the analysis (such as federally subsidized housing and subsidized owner-occupied homes),because it is possible that the location of these other types of units is correlated with that of our sample of rehabilitated rental units.

Alternative Specifications

The above model controls for pre-existing differences in price levels between properties within 1,000 feet of subsidized housing sites and those further away. However, it is possible that site selection might be related in some systematic way to pre-existing *trends* in house prices (see Santiago, Galster, & Tatian, 2001). In particular, one might worry that subsidized housing was built in micro-neighborhoods that were starting to appreciate relative to the surrounding area, even before the advent of these projects. If so, our overall pre/post comparison might overstate the magnitude of the impact. Moreover, one might expect that for-profit developers in particular would be attracted to neighborhoods where property values were appreciating, which might make for-profit impacts appear more favorable.

To help mitigate these concerns, in an extension of our main model, we follow Santiago et al. (2001) and estimate a specification that includes controls for trends in the relative price of housing in the vicinity of subsidized housing sites prior to the construction of the housing. This specification differs from equation (1) only in that here we add, for each development type, a ring-specific time-trend–—spline–—that measures the overall price trend in the ring (not simply the trend *after* completion). The spline variable is defined in much the same way as Tpost is, with two key differences. First, unlike TPost, spline is also defined for properties sold prior to project completion. For example, if a property is sold exactly one year before project completion,

the spline trend takes the value of −1. Second, we divide the ring-specific time-trends into three linear segments (splines), with knot-points at 8 and 3 years prior to completion.[11]

In this specification, the counterfactual is that the price gap between properties in the vicinity of subsidized housing sites and properties in the larger neighborhood would have continued to shrink (or grow) at the pre-completion rate, had no subsidized housing been built. This pre-completion rate of change is based on the period spanning from 3 to 8 years pre-completion, under the assumption that an increase in prices in the ring during the years immediately preceding completion may have been caused by the projects themselves—more precisely, by the project announcement and/or construction.

To test the sensitivity of our results to different specifications of project size or scale, we also estimated a model in which we allowed impacts to vary with project size in a continuous fashion. Finally, to help ensure that the scope of work was comparable across sectors, we replicate our analysis and consider only proximity to projects involving the rehabilitation of formerly vacant and abandoned buildings. Given that these buildings were vacant and abandoned, virtually all of them required complete rebuilding. (It seems likely that the scope of work would vary more for programs offering subsidies to occupied buildings, because the range in initial building quality is likely to be larger.)

SUMMARY OF DATA

To undertake our analysis, we obtained data from New York City's Department of Housing Preservation and Development (HPD) describing all housing built or renovated under the city's Ten Year Capital Plan as well as a significant number of other publicly supported projects completed since 1976 (for example, developments sponsored by the federal government and pre-1987 city-sponsored developments). For each housing development, this data set

indicates its precise location (down to the tax lot or block level), the date the project was completed, the type of building structure, the number of units that were built or rehabilitated, the program name, the type of intervention (new construction or rehabilitation), and whether units are rental or owner-occupied.

Our focus is on Ten Year Plan rental housing projects involving the rehabilitation of city-owned buildings. We exclude programs that provided renovation loans to occupied, privately-owned buildings, because in some cases these loans were modest and supported the kind of internal renovation work (for example, replacing a boiler) that would not be expected to generate neighborhood benefits. We also exclude new construction projects from our focus because neither for-profit developers nor nonprofit organizations did much new construction of rental housing.

Because our aim is to compare the neighborhood spillover effects delivered by nonprofit and for-profit development, we worked with HPD to choose a set of programs in which the scope of work and mix of tenants were fairly comparable. We exclude, for instance, developments targeted to the elderly and supportive housing aimed at tenants with special needs. Most of these projects were developed by nonprofit organizations, and if included, they would bias our sectoral comparison of spillover effects.

As of June 2000, a total of 44,326 units were renovated in city-owned buildings through our selected set of Ten Year Plan rental programs. From discussions with key HPD staff members, we were able to identify the tax status for 43,417 of these units.

Note that in our statistical models, we also control for proximity to all other subsidized housing units built through the Ten Year Plan (including owner-occupied units), the majority of federally-subsidized housing built in the city since 1976, and city-assisted projects built prior to the start of the Ten Year Plan.

We supplement our data on housing investments with two other geocoded, administrative data sets. First, through an arrangement with the New York City Department of Finance, we obtained a confidential database that contains sales prices for all transactions of apartment buildings, condominium apartments, and single-family homes over the period 1980–1999.[12] In order to ensure that we did not include the sales of Ten Year Plan developments themselves, we excluded any sale that occurred on the same block as a Ten Year Plan development if the sale was of a building that was constructed after the Ten Year Plan units had been completed.[13] Our final sample includes 293,786 property sales, spread across 1,606 census tracts and 48 community districts.[14]

Second, we obtained data on building characteristics from an administrative data set gathered for the purpose of assessing property taxes (the RPAD file). Although the RPAD data contain little information about the characteristics of individual units in apartment buildings (except in the case of condominiums), the building characteristics included in the dataset explain variations in prices quite well.[15]

We used GIS techniques to measure the distance from each sale in our database to all Ten Year Plan and other housing sites and, from these distance measures, created a variable that identified properties within 1,000 feet of housing investments of different types.[16] We also created a continuous distance variable that indicates the distance from the property sale to the closest city-assisted housing site of a given type.

Table 1 shows summary statistics for our sample of property sales. The first column shows the characteristics of the full sample; the second column shows the characteristics of transacting properties that were located or at some point would be located within 1,000 feet of a for-profit project; and the last column shows the characteristics of transacting properties that were located or at some point would be located within 1,000 feet of a nonprofit site.[17]

The first column shows that 60 percent of the sales in our sample were located in Brooklyn and Queens, largely because those boroughs are populated by small properties, which sell more frequently than apartment buildings. More than 80 percent of all properties sold were single-family homes, two-family homes, or small apartments. Roughly one-third of the transacting properties had garages and more than three-quarters were built before the Second World War. Only a handful were vandalized or otherwise abandoned.

A comparison across columns reveals some systematic differences between the properties selling near nonprofit or for-profit sites and the full universe of sales. Properties located within 1,000 feet of nonprofit or for-profit rental sites are far more concentrated in Brooklyn, for instance, and far less concentrated in Staten Island and Queens. They are also older, less likely to be single-family homes, more likely to be walk-up apartments, and consistent with these differences, less likely to have garages.

There seem to be few evident differences between properties located near nonprofit projects and those in the vicinity of for-profit sites. Properties in rings with nonprofit sites appear to be somewhat more concentrated in Manhattan, somewhat more likely to be apartment/multi-family buildings, and less likely to have garages.

Some properties are located within 1,000 feet of both nonprofit and for-profit developments. Table 2 provides more detail on the types of assisted housing projects in the vicinity of property sales. It shows that of the 49,237 property sales that were located within 1,000 feet of an assisted housing site, 33.7 percent were located within 1,000 feet of only for-profit sites, 28.4 percent were located within 1,000 feet of only nonprofit project sites, and the remaining 38 percent were located within 1,000 feet of both types of developments. In terms of project size, just under one-third (30 percent) of these properties were located near to sites where more than 100 units would ultimately be assisted.

How Do Nonprofit and For-profit Developments Differ?

Before moving on to discussing the results of our spillover models, it is instructive to compare the characteristics of nonprofit and for-profit developments. While HPD's rental rehabilitation programs generally had the same basic structure, whether aimed at for-profit or nonprofit organizations, it is possible that there were differences across sector in the type of projects undertaken. Table 3 compares the characteristics of our sample of nonprofit and for-profit developments. The table reveals few evident differences: The median completion year for nonprofit and for-profit housing is identical (1992); the distributions of units across boroughs are also very similar–—about half the units are located in the Bronx, and the remaining half are almost equally distributed in Manhattan and Brooklyn; and, in terms of building type, almost all units of both types are in multi-family housing.

The one notable difference relates to scope of work: A higher proportion of the units rehabilitated by nonprofit developers were in formerly vacant, abandoned buildings—67.7 percent, as compared to 57.6 percent in the case of for-profit developers. That said, it is worth stressing that these occupied buildings were quite deteriorated as well and demanded fairly extensive renovation.

As for project location, Table 4 compares the average 1990 characteristics of census tracts that include for-profit and nonprofit units with those of tracts citywide and shows that city-assisted rental developments were generally located in distressed neighborhoods.[18] As compared with the average census tract in the city, tracts with assisted rental housing had higher rates of poverty, lower mean family incomes, lower homeownership rates, and higher proportions of minority residents. As predicted, nonprofit units appear to have been located in somewhat more disadvantaged neighborhoods compared to for-profit units, as measured by family income and

poverty. It is interesting that, while the proportion Hispanic was significantly greater in nonprofit tracts, the proportion black was greater in for-profit tracts (see Dillman, 2004, for further discussion on the question of ethnic composition).

As for other project characteristics, systematic information about construction costs and tenant characteristics was not available. Nonetheless, for-profit and nonprofit developers were required to follow the same construction cost schedules and expected to meet the same building specifications. In addition, HPD staff maintain that the conditions of the buildings provided to for-profit and nonprofit organizations were substantially equivalent. As noted, we distinguish between programs that supported the rehabilitation of vacant buildings and those that supported the renovation of occupied buildings, which helps to control for initial building conditions. Still, there could be differences by sector in these initial conditions and costs of construction within these categories.

As for tenants, nonprofits were much more likely to develop housing for special needs populations. As noted, we have excluded these developments from our analysis, because we aim to compare similar projects. It is possible that even within our sample, nonprofits tended to house a lower income set of tenants, but HPD does not collect information on the actual incomes of tenants living in the developments they sponsor—only on the income limits. The official income limits were comparable across the programs, with many of them receiving HOME funds and Low Income Housing Tax Credits and therefore being subject to those programs' income guidelines.

RESULTS

Table 5 presents the key coefficients for our basic model of neighborhood spillovers. The R^2 value is relatively high (0.86), and the coefficients on the structural variables (not shown) are

consistent with expectations, both of which suggest that our model provides reasonable controls for the characteristics of the properties sold.[19]

Looking first at baseline conditions, note that the coefficients on all six In Ring dummy variables are negative and statistically significant. Specifically, prior to completion, properties located right next to a city-assisted housing site (D =0) sold for between 20 and 37 percent less than comparable properties located outside the 1,000-foot ring, but still in the same census tract. This is perhaps not surprising, given that these projects involved the rehabilitation of abandoned or generally run-down properties that had been taken over for nonpayment of taxes. This disamenity effect was typically larger for larger sites and also for nonprofit sites. Consistent with theoretical priors, in other words, nonprofits tend to develop housing on sites that are located in relatively more distressed pockets of neighborhoods than those chosen by their for-profit counterparts. Surprisingly, the share of city-assisted units that were created through the rehabilitation of formerly vacant buildings is not consistently correlated with a larger disamenity effect. This may reflect the fact that even the occupied city-owned buildings that were taken over for tax delinquency were in very bad shape.

Coefficients on the In Ring*Distance variables are consistently positive, indicating that the pre-completion price-depressing effects of the site (the disamenity effects) decline with distance from the site. For property sales adjacent to sites that will ultimately house up to 100 nonprofit units, for example, we estimate that prices are initially 26.9 percent lower than in the surrounding neighborhood. At a distance of 1,000 feet, prices are only 12 percent lower. In other words, given that the average city block is about 500 feet long, the price differential falls by about 7.5 percentage points per city block. In general, these pre-completion price gradients are steeper for larger sites, but there appears to be little difference in these gradients across sectors.[20]

Turning to impact estimates, the positive and statistically significant coefficients on all four Post Ring variables indicate that both for-profit and nonprofit projects, whether large or small, generated positive and significant external benefits in their vicinity immediately after completion. When comparing the external effects of for-profit and nonprofit developments, we find that while there are no significant differences in impacts across sector for large projects, for smaller projects, for-profit developments generate larger initial impacts.

The key seems to be that while the size of a for-profit project has little bearing on the size of spillover effects, the spillover benefits of nonprofit projects are highly sensitive to the scale of a project. One explanation may be that large nonprofit projects are much more likely than small ones to include community facilities and/or initiate more effective community outreach activities. Another explanation may have to do with the fact that larger projects are usually undertaken by large nonprofit developers who have similar capacity and experience as for-profit developers, while smaller nonprofit projects are typically carried out by far smaller and less experienced organizations. Our data do not identify the size or experience of the developer, but a correlation between the size of the organization and the size of the project is likely.[21]

The spillover effects of for-profit and nonprofit projects do not seem to vary with the type of rehabilitation undertaken, despite our expectations that projects involving the rehabilitation of vacant buildings—in part because they actually create new housing units and bring new residents into a community—would generate more dramatic spillovers. It is possible that increases in population simply don't contribute much to spillovers. As noted above, it is also possible that because many of the occupied buildings were in such bad shape, the scope of rehabilitation work required for vacant and occupied properties was not in fact that different.

As expected, the negative coefficients on distance interaction variables suggest that the impacts of both for-profit and nonprofit projects are larger closer to developments and fade with

distance. Although the estimated distance gradients for nonprofit projects are somewhat flatter than those for for-profit projects of similar scale, these differences in slope are not statistically significant. Similarly, there are also no statistically significant differences in the slope of the distance gradients between large and small projects.

As for changes over time, the coefficients on the TPost variables indicate that estimated spillover effects of for-profit projects decline slightly over time, while the impacts of nonprofit projects remain steady. This sectoral difference in time trends may reflect differences in the ongoing maintenance of housing and grounds or differences in the degree to which community activities are taking place at the developments–—differences that are predicted by the differences in underlying incentives across sectors discussed above.

Given the large number of coefficients, it is useful to summarize these results in a graph. Figure 1 compares impacts of for-profit and nonprofit projects—both small and large–—at a given distance within a 1,000-foot ring, one year following project completion. Impact simulations are performed for a project in which 55 percent of the units were produced through the gut rehabilitation of formerly vacant housing, which represents the average percentage for all sales in the 1,000-foot ring. The figure shows that after one year, the effects of large for-profit and nonprofit projects are quite similar, as are the effects of smaller for-profit developments. The one clear difference—noted already above—is that small nonprofit developments appear to generate somewhat smaller benefits.

Specifically, our estimates suggest that in the immediate vicinity of a project site, the initial ring-census tract price gap in housing prices shrinks by a sizable 13.3 percentage points one year after the completion of a large for-profit project. The impact of a large nonprofit project is almost the same (12.1 percentage points), while the impact of a smaller for-profit project is only slightly lower at 10.7 percentage points. By comparison, small nonprofit projects generate

significantly smaller impacts—after completion, prices of properties adjacent to sites rise by 6.3 percentage points relative to the surrounding neighborhood. Several years after construction, the difference in community impact between small for-profit and nonprofit developments diminishes considerably. Specifically, five years after completion, this difference shrinks to only 2.4 percentage points (down from the 4.4 percentage points difference one year post-completion).[22]

Alternative Specifications

As noted above, the average price differential between the rings and their census tracts may have already been declining prior to project completion and may have continued to decline, even without the new housing investment. To test for this possibility, we extend our specification to include the trend in housing prices in the ring of subsidized housing before the renovation work is completed. We do indeed find an upward trend in the years prior to project completion of the housing, and this trend is, as expected, more pronounced in the rings of for-profit sites. For-profit developers, in other words, developed projects in pockets of neighborhoods where prices were appreciating more rapidly than sites developed by nonprofits.

However, even after controlling for these prior trends in housing prices, we still find significant positive impacts upon project completion. [23] In fact, the impact estimates are only slightly smaller than those found in earlier models. Thus, the positive impacts we find are not explained by a general upward trend in prices in the ring. Moreover, the differences between nonprofit and for-profit impacts remain, even after controlling for prior trends.

To test the sensitivity of our results to different scale specifications, we also estimated a model in which we allowed impacts to vary with the number of city-assisted units in a continuous fashion. The results were again very similar.

Finally, to help ensure that the scopes of work were similar across nonprofit and for-

profit developments, we re-estimated our model with a sample restricted to programs involving the rehabilitation of formerly vacant buildings. Even with this restricted sample, the results were again quite similar to those presented above.[24]

CONCLUSION AND POLICY IMPLICATIONS

In summary, these results indicate that both nonprofit and for-profit rehabilitation projects generated significant, positive spillover effects. This finding in itself is significant, given the widespread skepticism about the neighborhood effects of subsidized housing investments and given that little of the prior work examining the spillover effects of subsidized housing has focused on rehabilitation.

From a policy perspective, our results suggest that a city's investment in housing rehabilitation may bring significant benefits, beyond those conferred to the individual households who are fortunate enough to get to live in the newly renovated housing units at subsidized rents. They also suggest that both for-profit and nonprofit developers can be successful in renovating housing and revitalizing neighborhoods in the process.

As for sectoral differences, the paper provides some evidence to support the use of nonprofit set-asides. In particular, while both nonprofit and for-profit organizations developed housing in distressed neighborhoods, nonprofits appear to have worked in somewhat more disadvantaged neighborhoods as well as in more distressed pockets of these communities. In this sense, nonprofit set-asides may help to ensure that housing is redeveloped in the most distressed areas. Moreover, the paper also provides some evidence that neighborhood spillover benefits are somewhat more sustained over time when rehabilitation projects are undertaken by nonprofit developers. Consistent with theoretical predictions, this finding may reflect the fact that in the

presence of information asymmetries, nonprofits are likely to invest more in developing and maintaining features that benefit the broader community than their for-profit counterparts.

On the other hand, the paper also suggests that in the case of small projects, nonprofit organizations delivered significantly lesser neighborhood benefits than their for-profit counterparts. The fact that scale makes such a difference to nonprofit impacts may be explained by the capacity issues that often challenge smaller nonprofits, again rooted in the non-distribution constraint. It could also reflect the fact that smaller nonprofit projects do not include community amenities. At the very least, this finding suggests greater heterogeneity within the nonprofit sector and points to the continued importance of paying attention to capacity issues for nonprofits, especially those that are small operations.

It is important to underscore that our paper focused on a single housing outcome—the magnitude of neighborhood spillover effects. Nonprofits may do a better job of meeting other important policy goals. Nonprofits may serve a needier set of tenants, for instance. As noted, virtually all the special needs and supportive housing built through the Ten Year Plan was developed by nonprofits. And it is possible, even in our set of developments, that nonprofits served tenants whose incomes fell at the low end of the allowable income spectrum.

It is also worth emphasizing that this paper has focused on benefits rather than costs. While the city dollars spent per unit should have been fairly comparable in New York City, we did not have access to actual, project-level costs. Past research suggests that construction costs can be higher in nonprofit developments (Cummings & DiPasquale, 1999).

Finally, our work is obviously limited to the context of New York City. Although the scale of the total program in New York City was unprecedented, we believe the lessons learned here are highly relevant for other cities as well. Many cities are faced with large stocks of distressed housing and provide subsidies to encourage the redevelopment of this housing. Few

cities can undertake the scale of the program that was accomplished in New York City, but surely they can adopt more limited versions targeted to particular neighborhoods. Moreover, while few cities have an infrastructure of housing organizations as extensive as that in New York City, most cities can boast both qualified nonprofit and for-profit developers and can benefit from understanding their relative strengths and capacities.

In the end, the evidence here suggests that government officials will be well served by contracting housing rehabilitation dollars out to either nonprofit or for-profit organizations. But this does not necessarily suggest that nonprofit set-asides should be eliminated. Such set-asides may help to ensure that the neediest populations and communities are served, and moreover, as Frumkin (2002b) argues, there is ultimately a value in maintaining a mixed organizational environment in which both nonprofit and for-profit providers can compete.

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REFERENCES

Berenyi, E.B. (1989). Locally funded housing programs in the United States: A survey of the 51 most populated cities. New York, NY: Community Development Research Center.

Crowe, D. (1996). Comment on Langley C. Keyes et al.'s Networks and nonprofits: Opportunities and challenges in an era of federal devolution. Housing Policy Debate, 7(2), 231–241.

Cummings, J.L., & DiPasquale, D. (1999). The low income housing tax credit: an analysis of the first ten years. Housing Policy Debate, 10(2), 251–307.

Dillman, K. (2004). Ownership and outcomes: Investigating nonprofit and for-profit subsidized housing developers. Manuscript submitted for publication.

Ellen, I.G., Schill, M.H., Susin, S.J., & Schwartz, A.E. (2001). Building homes, reviving neighborhoods: Spillovers from subsidized construction of owner-occupied housing in New York City. Journal of Housing Research, 12(2), 185–216.

Feiock, R.C., & Clingermayer, J.C. (1999). Contracting and sector choice for delivery of local health and human services: A transaction cost approach. Manuscript submitted for publication.

Frumkin, P. (2002a). On being nonprofit: A conceptual and policy primer. Cambridge, MA: Harvard University Press.

Frumkin, P. (2002b). Service contracting with nonprofit and for-profit providers: On preserving a mixed organizational ecology. In J.D. Donahue and J.S. Nye, Jr. (Eds.), Market-Based Governance: Supply Side, Demand Side, Upside and Downside. Washington, DC: Brookings Institution Press.

Glaeser, E.L. (2003). Introduction. In E. Glaeser (Ed.), The Governance of Not-For-Profit Organizations, 1–43. Chicago: University of Chicago Press.

Glaeser, E.L., & Shleifer, A. (1998). Not-for-profit entrepreneurs. NBER Working Paper Series No. 6810.

Goetz, E., Lam, H.K., & Heitlinger, A. (1996). There goes the neighborhood? The impact of subsidized multi-family housing on urban neighborhoods. Center for Urban and Regional Affairs Working Paper 96-1. Minneapolis.

Halvorsen, R., & Palmquist, R. (1980).The interpretation of dummy variables in semilogarithmic equations. The American Economic Review, 70(3), 474–475.

Hansmann, H. B. (1980). The role of nonprofit enterprise. The Yale Law Journal, 89(5), 835–901.

Kennedy, P. E. (1981). Estimation with correctly interpreted dummy variables in semilogarithmic equations. The American Economic Review, 71(4), 801.

Koch, E.I. (1985). The state of the city: Housing initiatives. (Undated text of speech dated January 30, 1985).

Koebel, C.T. (Ed.). (1998). Shelter and society: Theory, research and policy for nonprofit housing. Albany, NY: State University of New York Press.

Malani, A., & Choi, A. (2004). Are nonprofit firms simply for-profits in disguise? Evidence from executive compensation in the nursing home industry. Working paper, University of Virginia.

O'Regan, K. M., & Quigley, ,J.M. (2000). Federal policy and the rise of nonprofit housing providers. Journal of Housing Research, 11(2), 297–317.

Rosenau, P.V., & Linder, S.H. (2003). Two decades of research comparing for-profit and nonprofit health provider performance in the United States. Social Science Quarterly, 84(2), 219–241.

Santiago, A.M., Galster, G.C., & Tatian, P. (2001). Assessing the Property value impacts of the Dispersed Housing Subsidy Program in Denver. Journal of Policy Analysis and Management, 20(1), 65–88.

Schill, M.H. (1994). The role of the nonprofit sector in low-income housing production: A comparative perspective. Urban Affairs Quarterly, 30(1), 74–101.

Schwartz, A.C. (1999). New York City and subsidized housing: Impacts and lessons of the city's $5 billion Capital Budget Housing Plan. Housing Policy Debate, 10(4), 839–877.

Schwartz, A.E., Susin, S.J., & Voicu, I. (2003). Has falling crime driven New York City's real estate boom? Journal of Housing Research, 14(1), 101–135.

Schwartz, A.E., Ellen, I.G., Voicu, I., & Schill, M.H. (2005). The external effects of place-based subsidized housing. NYU Furman Center for Real Estate and Urban Policy Working Paper.

Steinberg, R. (1998). The theory of the nonprofit sector in housing. In C. Theodore Koebel (Ed.), Shelter and Society: Theory, Research, and Policy for Nonprofit Housing, 21-38. New York, NY: State University of New York Press.

Walker, C. (1993). Nonprofit housing development: Status, trends, and prospects. Housing Policy Debate, 4(3), 369–414.

Weisbrod, B.A. (1988). The Nonprofit Economy. Cambridge, MA: Harvard University Press

Table 1. Characteristics of properties sold.

	Percentage of all property sales	Percentage of sales within 1,000 feet of For-Profit Site	Percentage of sales within 1,000 feet of Nonprofit site
Borough			
Manhattan	14.6	10.2	20.8
Bronx	13.1	20.1	17.4
Brooklyn	29.6	66.3	61.0
Queens	31.0	2.9	0.7
Staten Island	11.8	0.5	0.0
Any borough	100.0	100.0	100.0
Building Class			
Single-family detached	25.0	6.4	3.6
Single-family attached	11.1	6.0	4.4
Two-family	27.6	33.3	28.1
Walk-up apartments	17.5	42.0	44.1
Elevator apartments	1.2	2.8	2.9
Loft buildings	0.1	0.0	0.1
Condominiums	14.4	3.2	10.0
Mixed-use, multi-family (includes store or office plus residential units)	3.0	6.2	6.9
Any building type	100.0	100.0	100.0

	Percentage of all property sales	Percentage of sales within 1,000 feet of For-Profit Site	Percentage of sales within 1,000 feet of Nonprofit Site
Other Structural Characteristics			
Built pre-World War II	77.0	96.5	98.1
Vandalized	0.0	0.2	0.3
Other abandoned	0.1	0.3	0.3
Garage	31.1	11.6	5.5
Corner location	7.1	7.7	7.9
Major alteration prior to sale	3.3	6.3	8.4
N	293,786	35,274	32,654

Note: Universe = all sales in community districts with at least 100 Ten Year Plan units.

Table 2. Distribution of properties sold within 1,000 feet of any ten year plan for-profit or nonprofit housing, by ring type.

	N	% of sales in ring
Ring contains:		
For-Profit units only	**16,583**	**33.7**
100 units or less	15,583	31.6
101 units or more	1,000	2.0
Nonprofit units only	**13,963**	**28.4**
100 units or less	11,833	24.0
101 units or more	2,130	4.3
For-Profit and Nonprofit units	**18,691**	**38.0**
100 units or less	6,943	14.1
101 units or more	11,748	23.9
Total	***49,237***	***100.0***

Table 3. Characteristics of ten-year plan rental units rehabilitated by for-profit and nonprofit developers.

		For-Profit	Nonprofit	Total
Program classification				
% Rehabilitation	- Occupied In Rem	42.4	32.3	37.2
	- Vacant	57.6	67.7	62.8
Median completion year		1992	1992	1992
Building type				
% units in 1–4 family housing		1.1	2.2	1.7
% units in multi-family housing		98.9	97.8	98.3
% Borough				
	Manhattan	26.0	26.6	26.4
	Bronx	50.1	49.3	49.7
	Brooklyn	23.0	23.9	23.5
	Queens	0.7	0.1	0.4
	Staten Island	0.1	0.0	0.1
Total number of units		**20,857**	**22,560**	**43,417**

Source: HPD

Table 4. 1990 characteristics of census tracts in which for-profit and nonprofit ten year plan units are located.

	Mean Family Income	Mean Poverty Rate	Mean Percentage Non-Hispanic Black	Mean Percentage Hispanic	Mean Homeownership Rate	Number of Tracts
Tracts with for-profit units	$23,309	39.9%	56.1%	38.3%	8.0%	273
Tracts with nonprofit units	$21,906	43.6%	44.6%	46.9%	7.3%	316
All tracts in New York City	$46,665	18.4%	26.2%	21.9%	34.8%	2138

Notes:
The statistics in this table, except those for all New York City tracts, are weighted by the number of tract-level Ten Year Plan units in the relevant category.

Tracts with less than 200 persons are excluded from the samples on which these statistics are based.

Mean Family Income and Mean Poverty Rate statistics for all NYC are based on 2,122 and 2,131 tracts, respectively.

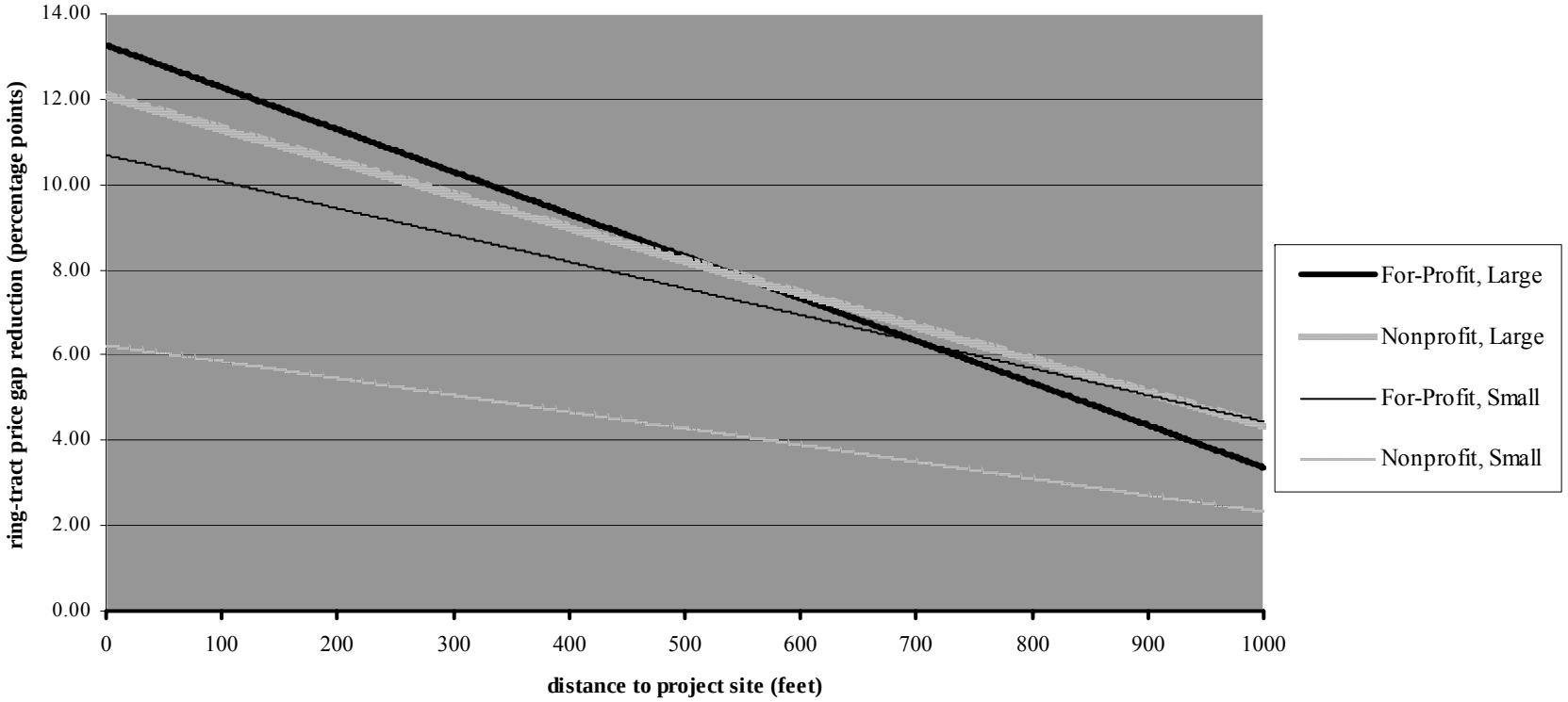
Table 5. Selected regression results

In Ring variables		
Only For-Profit units, Large (101 units or more)	-0.2399	***
	(0.0263)	
Only For-Profit units, Large (101 units or more) *D	3.4E-05	
	(5.1E-05)	
Only For-Profit units, Small (100 units or less)	-0.1947	***
	(0.0114)	
Only For-Profit units, Small (100 units or less) *D	1.4E-04	***
	(1.3E-5)	
Share of units in formerly vacant buildings in ring with only For-Profit units	-0.0041	
	(0.0089)	
Only Nonprofit units, Large (101 units or more)	-0.3696	***
	(0.0236)	
Only Nonprofit units, Large (101 units or more) *D	2.5E-04	***
	(4.7E-05)	
Only Nonprofit units, Small (100 units or less)	-0.2687	***
	(0.0149)	
Only Nonprofit units, Small (100 units or less) *D	1.5E-04	***
	(1.5E-05)	
Share of units in formerly vacant buildings in ring with only Nonprofit units	0.0487	***
	(0.0120)	
For-Profit and Nonprofit units, Large (101 units or more)	-0.3067	***
	(0.0151)	
For-Profit and Nonprofit units, Large (101 units or more) *D	2.9E-04	***
	(2.2E-05)	
For-Profit and Nonprofit units, Small (100 units or less)	-0.2091	***
	(0.0161)	
For-Profit and Nonprofit units, Small (100 units or less) *D	1.4E-04	***
	(2.0E-05)	
Share of units in formerly vacant buildings in ring with For-Profit and Nonprofit units	-0.0516	***
	(0.0140)	
Post Ring variables, For-Profit		
Post Ring, Large (101 units or more)	0.1356	***
	(0.0202)	
Post Ring, Large (101 units or more) * D	-9.9E-05	***
	(3.6E-05)	
Post Ring, Small (100 units or less)	0.1099	***
	(0.0128)	
Post Ring, Small (100 units or less) * D	-6.3E-05	***
	(1.5E-05)	
Share of units in formerly vacant buildings at the time of sale	-1.9E-04	
	(0.0090)	

Tpost	-0.0028	**
	(0.0013)	
Post Ring variables, Nonprofit		
Post Ring, Large (101 units or more)	0.1225	***
	(0.0208)	
Post Ring, Large (101 units or more) * D	-7.7E-05	**
	(3.9E-05)	
Post Ring, Small (100 units or less)	0.0643	***
	(0.0150)	
Post Ring, Small (100 units or less) * D	-3.9E-05	**
	(1.6E-05)	
Share of units in formerly vacant buildings at the time of sale	-0.0074	
	(0.0109)	
Tpost	0.0023	
	(0.0015)	
N	293,786	
R^2	0.8572	

Note: This table shows only the ring variables for the Ten Year Plan housing rehabilitated by for-profit or nonprofit developers. The regressions include ring variables for other types of subsidized housing, census tract and community district-quarter dummies, and detailed building controls. Standard errors in parentheses. *** denotes 1% significance level; ** denotes 5% significance level; * denotes 10% significance level.

Figure 1
Impacts of For-Profit and Nonprofit Projects in 1000-foot Ring, by Scale and Distance to Project Site



Note: Impact simulations are performed for a project with 55% share of units in formerly vacant buildings, one year after project completion.

[1] Competition for government subsidies can help to promote some discipline, but funders may ultimately be less successful than stockholders in monitoring performance, because they lack the financial incentives (Steinberg 1998).

[2] Some argue this greater commitment to community development and involvement is driven by underlying characteristics in the types of workers attracted to the nonprofit sector; managers and workers attracted to nonprofit organizations may be motivated to a greater degree by altruism and community service than their counterparts in for-profit firms (Malani & Choi 2004).

[3] While tenants may know the quality of the housing and related services, they may be nervous about reporting problems, for fear of losing their subsidized units (Schill, 1994). This is likely to be especially true in cities like New York, where queues for subsidized housing are long and thus turnover costs for landlords are relatively small.

[4] Restrictions vary across programs, but affordability limitations typically last for 30 years, and all buildings are subject to rent stabilization even after that period ends. Projects can be sold to other owners, but the seller must be reviewed and approved by HPD and must abide by affordability restrictions. Moreover, all projects are subject to 30-year mortgages that do not amortize. It is ot surprising, then, that only a small number of buildings have been sold.

[5] Most previous research has assumed that trends in housing prices are constant across a city or metropolitan area, but this seems particularly inappropriate in a city as large and diverse as New York. Schwartz, Susin, and Voicu (2003), for instance, find considerable variation in price trends across community districts in New York City.

[6] More precisely, the coefficient on a dummy variable should be interpreted as the difference in log price between properties that have the attribute and those that do not. Because the difference in log price closely approximates the percentage difference in price when the difference is small enough and because differences discussed in this paper are generally smaller than 10 percent, we use this more intuitive interpretation throughout the paper. The percentage effect of a difference in logs, b, is given by $100(e^b - 1)$, although this formula is itself an approximation when b is a regression coefficient; see Halvorsen and Palmquist (1980), and Kennedy (1981).

[7] $D_{i,}$ is the Euclidean distance between property i and the nearest assisted housing site developed by the specified sector. For the interaction between D_i and the In Ring dummy indicating proximity to both for-profit and nonprofit

sites, D_i indicates distance to the closest site, whether for-profit or nonprofit.

[8] Note that we only distinguish between the impact of for-profit and nonprofit units in the Post Ring vector, rather than distinguishing between three, mutually exclusive types of rings—not for-profit only, nonprofit only, and both for-profit and nonprofit, as in the In Ring vector. The reason is that there are too few post-completion sales within 1,000 feet of large nonprofit sites only to obtain reliable impact estimates for this ring type.

[9] If a sale is within 1,000 feet of more than one project, we use the completion date of the first project completed.

[10] Tpost equals 1/365 if a sale is located within the ring of a city-assisted unit and occurs the day after its completion; it equals one if the sale occurs one year after the unit completion; and so on.

[11] Our choice of knot-points is driven by several considerations. First, community residents were involved in the planning process and typically knew about these projects one to two years in advance of construction start. Given that the average construction period in our sample is 1.7 years, the 3-year pre-completion knot-point should capture the moment in time when knowledge of the project started to spread out and any project-induced price changes might have started to occur. Our second knot-point defines a 5-year period—from 3 to 8 years pre-completion—on which the counterfactual price trend is based; this period is long enough to allow a reliable estimation of the trend, and recent enough to accurately capture trends that are contemporaneous with the project. Nonetheless, we also experimented with alternative knot-points (at 5 and 10 years pre-completion) and obtained similar results.

[12] Sales of cooperative apartments are not included in the data set.

[13]Specifically, we exclude any sales that are on the same block as a Ten Year Plan unit and that were completed after, or within two years of, the completion of the Ten Year Plan units. This resulted in the exclusion of 2,465 sales, representing less than one percent of the sample.

[14] We limit the analysis to the 48 community districts (of the total 59) where more than 100 Ten Year Plan units were built.

[15] We use 1999 RPAD data, because most of the included characteristics are fairly immutable (for instance, corner location, square feet, presence of garage). Earlier analyses suggest that characteristics change only rarely between years, and we suspect that a majority of these apparent changes are corrections, rather than true changes (Ellen et al., 2001).

[16] We used a "cross-walk" (the "Geosupport File") which associates each tax lot with an x,y coordinate (that is,. latitude, longitude using the U.S. State Plane 1927 projection), police precinct, community district, and census tract. A tax lot is usually a building and is an identifier available to the homes sales and RPAD data. We are able to assign x,y coordinates and other geographic variables to over 98 percent of the sales using this method. For most of the HPD units, we had both tax block and tax lot. If the tax lot was unavailable, then we collapsed the Geosupport file to the tax block level (that is, calculating the center of each block) in order to assign x.y coordinates. We were unable to assign an x,y coordinate to 6 percent of the HPD units, largely due to missing block information.

[17] Note that some of these property sales are in rings with both for-profit and nonprofit sites and are therefore counted in both columns.

[18] The census tract data is taken from the 1990 Census. Tracts are characterized by whether they will ultimately include for-profit or nonprofit housing units. Tract characteristics are weighted by the number of units in the tract.

[19] Full results are available from the authors upon request.

[20] The only exception is the relatively flat gradient for sites that will house large for-profit projects.

[21] Conversations with city officials and housing developers and an examination of one city-rehabilitation program that targeted small, community-based nonprofits corroborated that such a correlation probably exists.

[22] Specifically, five years after completion, the impact of a small for-profit project is 9.6 percentage points, whereas the impact of a small nonprofit project is 7.2 percentage points.

[23] These estimates are available from the authors upon request.

[24] Estimates for these alternative specifications are available from the authors.