Urban, Suburban, and Rural Contexts of School Districts and Neighborhood Revitalization Strategies: Rediscovering Equity in Education Policy and Urban Planning

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This article revisits the debate about school reform and homeowner-ship-based strategies for neighborhood revitalization. It is based on an analysis of school districts in New York State using data from the American Community Survey (ACS) and the New York State Education Department (NYSED). Findings indicate that the relationship between schools and housing values varies across urban, suburban, and rural school districts. It is recommended that education reformers and urban planners advocate for states and the federal government to assume a more central role in the promotion of educational equity and the subsequent stabilization of neighborhoods in older core cities.

INTRODUCTION

School Quality and Housing Values?

Increasingly, scholars and practitioners argue that school reform and neighborhood revitalization are linked. Yet, there continues to be disagreement over whether education or housing policy should take precedent in community development processes. This dialogue embodies a quintessential chicken-and-egg dilemma. In essence, education reformers and urban planners contest what comes first in the neighborhood revitalization process, providing for quality schools and supportive services versus developing housing. In this article, I argue that the former is most critical to neighborhood revitalization efforts in older core cities. Consequently, this article

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offers an important extension to the literature on schools and neighbor-hoods. In particular, this analysis differentiates between the effects of school and neighborhood characteristics on housing prices in urban, suburban, and rural areas. Distinctions across these types of areas suggest the need to tailor urban revitalization policies to meet the unique challenges posed by local contexts. This approach can be contrasted with past policy approaches that offer a relatively uniform set of revitalization strategies for distressed com-munities, which I argue are more appropriate for conditions in traditional middle-class suburbs.

The consideration of the urban, suburban, and rural context brings aspects of Varady and Raffel's (1995) widely accepted thesis, which argues for the use of housing policies to attract middle-class homeowners to older core cities, into question. Varady and Raffel viewed this strategy as a corner-stone of urban revitalization strategies. As a result, planning practitioners have a tendency to apply Varady and Raffel's recommendations to dis-tressed communities more generally. In light of the 2007–2008 housing and financial crisis, as well as growing fiscal constraints faced by local school districts across the U.S., I argue that Varady and Raffel's strategy has become a more peripheral component of broader school and housing poli-cies aimed at revitalizing urban neighborhoods. Revitalization strategies that emphasize attracting middle-class homeowners to areas experiencing decline appear insufficient, particularly in older core cities. Alternative approaches to revitalization would emphasize school reform over housing policy and include: an increased emphasis on addressing underlying socio-economic need, the provision of supportive services to low-income students, adjusting to broad demographic shifts, and stabilizing school finance through the use of statewide funding equalization formulas.

Convincing urban planners to place a greater emphasis on school reform will require a concerted effort. Neighborhood revitalization strategies like Varady and Raffel's are built on one of the most enduring assumptions held by realtors and urban planners. The assumption is that school quality has a strong influence on where people decide to purchase homes. In some cases, realtors assume homebuyers are willing to pay a premium for homes in highly rated school districts. Higher housing prices then translate into increased local property tax revenues that are used to finance local schools. These assumptions are clearly articulated in the preamble to the National Association of Realtors (NAR) *Field Guide to Schools and the Home Buying Decision* which states, "Of all the local neighborhood amenities that can influence a buyer's decision to purchase a home, proximity to good quality schools is one of the most influential" (National Association of Realtors, n.d.). This belief was echoed in a recent article by Finucan (2000) that appeared in *Planning*. Her article emphasized the influence of school district qual-ity on the home-buying process and housing values. I argue that the link between school quality and home purchasing is most applicable to relatively

homogenous middle-class and affluent suburbs. In older urban communities experiencing elevated poverty and population decline, school quality is less of a consideration in the home purchasing process. Homeownership rates are noticeably lower in these weak market cities. Thus, the rationale for school reform should not be driven by an urban revitalization strategy focused on promoting middle-class homeownership. Instead, school reform in weak market cities should be focused on developing human capital, promoting social equity, and the redistribution of wealth.

Although this article offers a different view on the relationship between school quality and housing values in urban areas, there remains a widely held belief in society that the quality of schools and housing prices are highly correlated. This assumption is supported by recent studies that find evidence for a causal relationship between spending on schools, student test scores, and increases in school district housing prices (Cellini, Ferreira, & Rothstein, 2010; Gibbons, Machin, & Silva, 2013; Nguyen-Hoang & Yinger, 2011). The omnipresence of this belief has a strong influence on public policy, particularly at the local level. The perceived relationship between school quality and property values often goes unchallenged when it is applied to the formulation of education policy and urban planning practice. This article examines the influence of school quality on housing values. Its research question asks whether urban, suburban, or rural location influences the relationship between the quality of schools and housing prices after controlling for other variables. I predict that the relationship between school quality and housing values is most pronounced in suburbs, and less relevant in urban and rural contexts.

These distinctions are often overlooked by realtors and planners when they advocate for policies to augment homeownership in older core cities. Until recently, the types of school reforms and housing policies professionals advocated for have tended to follow a suburb model and were not well-suited for non-suburban settings. These have included school reform programs designed to stabilize inner-city neighborhoods by attracting middle-class homebuyers to older core cities. In the wake of the 2007–2008 mortgage and financial crisis, some of these homeownership-based programs have given way to more balanced approaches that include public investments in affordable housing and comprehensive community development initiatives. Despite recent demonstration programs introduced by the Obama administration that focus on comprehensive community development, the emphasis on homeownership remains pervasive in planning circles.

This article uses cross-sectional analysis to identify neighborhood and school characteristics that are correlated with housing prices. The cross-sectional analysis distinguishes between urban, suburban, and rural settings. By applying this analytic approach, this article offers extensions to past research examining the relationship between school quality and housing values (Black, 1999; Bogart & Cromwell, 1997; Jacobson & Szczesek, 2013;

Jud, 1985). One branch of earlier research examines the variability of housing prices within school districts. This focus is exemplified in Kane, Staiger, and Reigg's (2005) analysis of schools and housing prices in Mecklenburg County, North Carolina. Their study examined the effects of school desegregation policies on housing values. Initially, they found some evidence for indirect effects between boundary adjustments in school attendance zones and changes in housing values. However, after applying controls, they concluded that housing values were more strongly affected by long-term, socioeconomic trends at the neighborhood level.

Clapp, Nanda, and Ross (2008) reached similar conclusions in their analysis of the relationship between student test scores and adjacent housing prices in Connecticut between 1994 and 2004. Their analysis found that ethnicity and the socioeconomic makeup of neighborhoods had stronger effects on housing values than student test scores. However, they also found that after the federal No Child Left Behind (NCLB) Act was passed in 2001, the effects of ethnicity and the socioeconomic makeup of neighborhoods declined, while the effects of student test scores increased. In essence, the linkage between student test scores on the availability of federal funding for schools created by NCLB resulted in a somewhat stronger relationship between schools and housing values. This caveat was also noted by Seo and Simons (2009) in their analysis of school quality and neighborhood housing values in Cuyahoga County, Ohio.

Other studies have examined variability in housing prices by making comparisons between school districts. It has been argued that analysis across school districts is advantageous, because it allows researchers to apply additional controls for per-pupil spending, property taxes, and other factors. Dhar and Ross (2012) conducted one of the most recent studies across school districts. After controlling for differences across districts they found little evidence for a relationship between school performance and housing prices. Instead, housing prices were correlated with inter-district variability in property taxes and school expenditures.

Combined, these studies highlight the manner in which the relationship between schools and housing values is influenced by community characteristics, educational reforms, federal mandates, and fiscal policies. However, they represent only a part of the picture. Societal norms linked to homeownership also influence how realtors and planners perceive the relationship between school quality and housing values. In large part, these norms are associated with the premium placed on homeownership in American society and the degree to which the suburban model is engrained in real estate and urban planning practice. Historically, societal norms in American society which are linked to homeownership and the suburban model have had a dark underbelly. Suburbanization and the expansion of homeownership have been accompanied by a history of residential segregation, housing discrimination, and other forms of racism (Lipsitz, 1995; Massey & Denton, 1993; Taylor, 2011).

From Middle-Class Dreams to Housing Nightmares

Increasingly, education policy literature has focused on the nexus between education and housing policies. Traditionally, this line of inquiry has been tied to the desegregation of public schools and open housing policies (Bullard, Grigsby, Lee, & Feagin, 1994; Galster & Godfrey, 2005; Jud, 1985; Lassiter, 2012; Squires & Hartman 2010; Tegeler, 2011). This tradition identified race and class segregation as an underlying cause of social inequality. Recent iterations of this thesis have been forwarded by de Souza Briggs (2005), in his discussion of the geography of race and opportunity, and Vincent and McKoy (2008) in their discussion of the housing–school nexus. Both link patterns of housing segregation to differential access to quality schools. Historically, planning proposals focused on ameliorating educational inequality that stemmed from race and class segregation using a variety of tools. Some of these tools included educational reforms designed to give minorities and the poor greater access to suburban schools. Reforms included experiments with school district consolidation, regional school busing, school funding equalization, and other programs. Likewise, housing reforms have attempted to increase suburban housing opportunities for minorities and the poor. These reforms have encompassed a variety of fair and affordable housing policies aimed at reducing barriers to renting and purchasing homes in segregated suburbs. These education and housing policies were distinct because of their social equity goals and the advocacy role they entailed (Davidoff, 1965; Krumholz & Forester, 1990).

A notable departure from the traditional focus on school integration was reflected in the emergence of policy recommendations that linked educational reforms to the promotion of middle-class homeownership in older core cities. While past policy proposals emphasized the need to desegregate suburban schools and neighborhoods, these policies were focused on reversing white flight and attracting the middle class back to urban centers. Unlike past policies aimed at promoting desegregation, policies designed to augment middle-class homeownership in older core cities were focused on stabilizing housing markets and local property tax bases. In essence, the goal was to recreate suburban conditions in older urban neighborhoods and reverse urban decline through gentrification and related forms of social upgrading.

Varady and Raffel (1995) produced the definitive work in this area of research. Their analysis identified school and housing programs which could be used to revitalize older core cities by augmenting middle-class homeownership. Varady and Raffel developed a typology of homebuyers and argued that retaining the middle class in older core cities became complicated as households began to form families and children began to attend school. At that lifecycle stage, the middle class would be more likely to buy homes in suburban locations where the quality of schools was perceived to be higher. Varady and Raffel recommended a number of policy reforms that would even the playing field and allow older core cities to attract

middle-class homebuyers. These recommendations included regional school district consolidation, the creation of magnet schools in urban districts to attract the middle class, and a variety of housing and tax incentives to retain middle-class homeowners.

Many municipalities took cues from Varady and Raffel's work during the housing bubble of the 1990s and early 2000s. However, the ability to implement their recommendations was often thwarted by political obstacles and persistent poverty in core cities. As a result, some of the more ambitious recommendations, like regional school district consolidation, were not pursued. At the same time, experiments with magnet schools, charter schools, and other school choice models began to proliferate around the country. In many cases, the creation of magnet schools and charter schools were accompanied by the decentralization of school funding (Reyes & Rodriguez, 2004). This trend gained momentum with the introduction of federal policies like NCLB in 2001 and the Race to the Top (RTTT) grant program in 2009 (Russom, 2012). However, the effects of magnet schools, charter schools, and other school choice models on school quality were mixed. This was particularly true in the case of charter schools, which proliferated as a school choice model nationally during the early 2000s (Fabricant & Fine, 2012; Ravitch, 2010; Silverman, 2013b).

In a like manner, Varady and Raffel's recommendations to expand middle-class homeownership in cities morphed into a variety of public and private sector initiatives designed to make homeownership accessible to groups with limited incomes. This was largely a phenomenon that occurred in older core cities, as municipalities pursued policies to augment homeownership among low- and moderate-income households and as private mortgage companies expanded efforts to market subprime loans. In some cases, subsidized housing policies and subprime loans from traditional banks promoted homeownership and stabilized schools (Chellman, Ellen, McCabe, Schwartz, & Stiefel, 2011; Littrell & Brooks, 2010). However, in the unregulated subprime housing market dominated by private mortgage companies, minorities and the poor were victimized by predatory lending which led to heightened foreclosure rates and neighborhood destabilization (Squires, 2011). By the early 2000s, scholars began to recognize that the unrestrained promotion of homeownership as a remedy for urban ills was spiraling out of control, and they called for a more balanced approach to urban housing policy that blended homeownership with affordable rental housing (Immergluck, 2009; Landis & McClure, 2010; Shlay, 2005).

From Homeownership to Community Development

In additions to calls for a more balanced approach to urban housing, scholars also advocated for a more comprehensive approach to community development. Part of that approach envisioned public schools as a community

development tool. This represented a reversal of earlier policy proposals based on upgrading neighborhoods through gentrification fueled by the attraction of middle-class homeowners to older core cities. Instead, renewed emphasis was placed on investing in education and upgrading schools to promote greater equity in education and stabilize urban housing markets. Chung (2002) articulated a strategy to promote community development through public schools based on targeted investment in school facilities, comprehensive service delivery through schools, and the coordination of affordable housing development and public school reforms. Dryfoos and Maguire (2002) identified a similar role for public schools as hubs for social-service delivery in the neighborhood stabilization process. Warren (2005) added that full-service schools could serve as a focal point for civic engagement and community organizing. From these perspectives, schools were argued to have the potential to emerge as centers for the coordination of comprehensive social and community services, as well as nodes for grass-roots organizing. Using a community-development framework, schools were to be transformed into community-based anchor institutions. This framework reaffirmed and expanded the nexus between schools and housing. However, the emphasis in this reconfiguration of policy was on reforming schools to empower poor, inner-city residents rather than on promoting middle-class homeownership.

In the wake of the 2007–2008 housing and financial crisis, new federal policies emerged which linked schools and housing. These policies were distinct from reforms based on the promotion of middle-class homeownership, since they focused on the role of schools as anchor institutions in comprehensive community-development processes (Bosic & Tate, 2011; Silverman, 2013a; Taylor McGlynn, & Luter, 2013). As part of its urban policy, the Obama administration stepped up efforts to develop school-based comprehensive programs aimed at reforming public education and revitalizing neighborhoods. One of these efforts was the Promise Neighborhoods demonstration program (PN) administered through the U.S. Department of Education. This program, created in 2010, was modeled after the Harlem Children's Zone (HCZ), a non-profit run by Geoffrey Canada that offers comprehensive educational and social-service programs to inner-city students (Dobbie and Fryer, 2011; Tough, 2008). Based on the HCZ model, PN used federal funds to leverage comprehensive neighborhood-based educational and social-service programming for disadvantaged youth. PN was designed to stabilize urban schools and stimulate philanthropy and private investment in surrounding neighborhoods.

In addition to PN, the Obama administration also introduced the Choice Neighborhoods demonstration program (CN) in 2010. This program was administered through the U.S. Department of Housing and Urban Development (HUD). It was designed to link revitalization of public housing, particularly mixed-income development following the HOPE VI model, with

comprehensive social-service and educational programming. Together, PN and CN made up a core component of the Obama administration's inner-city revitalization policy. These policies were guided by academic work focusing on the negative effects of concentrated poverty and housing policies designed to address them (Curley, 2005; Wilson, 1987). In many respects, the emphasis of current policy conforms to past efforts to revitalize urban neighborhoods, which focused on reducing housing density, developing mixed-income neighborhoods, and poverty de-concentration. Current policy goes a step further by strengthening the link between schools and neighborhoods. The expected benefits of these policies are higher quality public schools, improvement of student performance, neighborhood revitalization, strengthened housing values, and the stabilization of local property tax bases.

At this juncture in the development of policies aimed at linking schools to neighborhood revitalization, it is important to reexamine the context in which these policies are implemented. In particular, a reassessment of assumptions about the relationship between schools and housing values is warranted. It is important to disentangle factors that influence housing values and subsequently local property tax bases. An understanding of the factors that influence housing values in urban, suburban, and rural contexts can inform education reform and urban planners as they design community development strategies.

The remainder of this article focuses on this type of cross-sectional analysis. After discussing the data and methods used in this analysis, school district characteristics in New York State are summarized. This summary data is followed by a cross-sectional analysis of urban, suburban, and rural school districts. The focus of this analysis is on identifying school and neighborhood characteristics that are correlated with housing prices in each type of school district. The results from the analysis are discussed in the article's final section. This section highlights the importance of designing education and community development strategies that are appropriate to the urban, suburban, and rural contexts in which they are embedded.

DATA AND METHODS

This article examines the relationship between school quality and housing values using data for school districts in New York State. Data were collected from the 2006–2010 American Community Survey (ACS),[1] the New York State Education Department (NYSED), and the National Center for Education Statistics. Variables included measures of school district: population and housing characteristics, graduation rates, and budget information. The 2006–2010 ACS estimates were a particularly valuable source of data for this analysis, since they included estimates for a variety of demographic variables from the U.S. Census that conformed to school-district boundaries.

In addition to the ACS data, variables were incorporated into the analysis from the NYSED. Most of these data were drawn from the 2009–2010 School Report Card (SRC) database, which included measures of enrollment, school district demographics, student performance, and other variables. In addition to this data, 2009–2010 NYSED fiscal profile data were collected. Also, data from the National Center for Education Statistics, Common Core of Data (CCD) were used to identify urban, suburban, and rural school districts in New York State.

Data were used to develop four multivariate linear regression models to examine the relationship between school district characteristics and housing values. The first model examined this relationship for all school districts used in the analysis. The other three models were run for urban, suburban, and rural schools respectively. This cross-sectional approach allowed for the identification of distinct correlates with housing values in urban, suburban, and rural areas. Although efforts were made to identify correlates with housing values based on previous research, the ability to fully account for all possible factors was constrained by the completeness of variables contained in the data sets. This should be viewed as a limitation of the analysis. Another limitation to note is that there may be observed and unobserved neighborhood characteristics that account for both housing values and school quality that are not fully accounted for in the data. This analysis included all school districts in New York State with the exception of the New York City (NYC) school system. The NYC schools were excluded from the analysis due to limitations of the data set, and due to methodological considerations. In terms of the data-set limitations, there was no school district data reported in the ACS for the NYC school system. The absence of this data represented a limitation to the analysis for a number of reasons. First, the NYC school system is the largest school system in the U.S., with over 1.1 million students. It encompasses all of the public schools in the city's five boroughs and represents about one-third of the state's public school enrollment. Because of its size, the NYC education department divides the school system into 31 geographic districts. Two options were available to account for the NYC schools in this analysis. One option was to aggregate ACS data for each of the city's five boroughs and merge them into the data set. This would have created a proxy for the NYC school system which would have been an extreme outlier in the analysis. The other option was to aggregate data for each of the NYC school system's geographic districts. However, the boundaries for these districts did not conform to census tracts, which made aggregation at that level of analysis unfeasible.

In addition to limitations in the data, methodological consideration led to the decision to exclude the NYC school system from the analysis. The analysis focused on the relationship between school quality and housing values. However, the NYC housing market is distinct from the rest of the state. Housing values in NYC are among the highest in the U.S. and the rental

market is a prominent component of the overall housing market. In addition, the sheer size of the NYC housing market represented an aberration in the state and the nation more generally. Like the NYC school system, the city's housing market constituted an extreme outlier in the analysis and would have further skewed the dependent variable. Subsequently, the decision was made to focus the analysis on the remaining 695 school districts in the state. There were three main advantages to this approach. One was that excluding the NYC school system enhanced the ability to compare across urban, suburban, and rural schools. In particular, distinctions between the relatively smaller urban areas in the state and other jurisdictions were not confounded by the inclusion of data from the NYC school system. The other advantage to excluding the NYC school system was that the removal of this outlier made it possible to generalize findings from the remainder of the state to other parts of the country. Finally, excluding NYC reduced issues associated with housing supply inelasticity when comparing urban, suburban, and rural areas which were identified by Brasington (2002). NYC is particularly problematic in this respect, given the extremely tight housing market and the lack of land available for development.[2] In essence, the remainder of the state is much more like the rest of the U.S. when NYC is excluded from the analysis. Thus, the exclusion of NYC from the analysis makes the findings from this research more generalizable.[3] Although the selection of New York State as the focus of this analysis was partly driven by the availability of data and a knowledge base developed through prior statewide research, the ability to extrapolate findings from this analysis was a consideration in selecting the research focus.

RESULTS

Descriptive Statistics for School Districts in New York State

A number of insights can be drawn about the relationship between schools and housing values through an examination of descriptive statistics. Table 1 summarizes school district characteristics in New York State. It includes totals for all school districts and cross-sectional data comparing urban, suburban, and rural districts. The first set of summary statistics comes from the 2006–2010 ACS. They identify noticeable contrasts between urban, suburban, and rural school districts in the state in terms of population and housing characteristics. In terms of school district size, it is noteworthy that there were a relatively small number of larger school districts found in urban areas of the state. Urban schools had an average of 8,748 students. In contrast, suburban and rural schools had averages of 3,842 and 1,281 students respectively. The norm in the state is toward smaller school districts. This norm is also reflected by other measures. For instance, less than 13% of the total population lived in urban school districts, while over 57% lived in suburban school districts and approximately 30% lived in rural districts. Two other

TABLE 1 School District Characteristics ($N = 695$).

	All Districts ($N = 695$)	Urban Districts ($n = 25$)	Suburban Districts ($n = 259$)	Rural Districts ($n = 411$)
2006–2010 American Community Survey (ACS) estimates				
Total school district population	11,386,666	1,473,065	6,511,461	3,402,140
Average school district population	16,672	61,378	26,046	8,318
% black	4.1	15.0	6.3	2.1
% white	89.9	75.7	84.0	94.3
% other	6.0	9.3	9.7	3.6
Median household income	$63,295	$43,947	$83,990	$51,780
% below poverty	10.0	18.8	6.5	11.6
Median value of all owner occupied housing units	$237,772	$149,400	$384,527	$154,957
%t of all occupied housing units, owner occupied	76.9	56.2	77.2	78.0
% of housing units vacant	16.3	11.1	6.9	22.3
2009–2010 New York State Education Department data				
Total school district enrollment	1,725,612	201,215	995,204	529,193
Average school district enrollment	2,494	8,748	3,842	1,291
% of total population enrolled in school district	15.5	13.4	15.6	15.5
% students black	7.7	12.5	6.8	8.0
% students white	79.2	73.4	81.5	78.2
% students other				
% of students receiving free or reduced price lunch	32.5	44.6	23.9	37.3
% of high school seniors graduating	85.6	84.0	88.3	84.1
Average expenditures per pupil	$20,347	$17,878	$21,171	$19,978
% of district revenue from local sources	47.3	36.6	61.9	38.9
% of districts with a revenue surplus	86.0	91.0	85.0	86.0

Sources. National Center for Education Statistics (NCER), n.d.; New York State Education Department (NYSED), 2012, n.d.; United States Census Bureau, n.d.

distinguishing characteristics in the state related to race and poverty. First, the black population was most concentrated in urban school districts in the state, where it represented 15% of the total population. In contrast, the black

population was least concentrated in rural school districts, where it made up 2.1% of the total population. However, poverty did not follow this pattern. Although the highest poverty rates were reported in urban school districts (18.8%), rural poverty was also elevated (11.6%).

Housing characteristics reported in Table 1 revealed similar contrasts. In terms of housing prices, urban and rural school districts had noticeably lower median housing values than the suburbs. However, there were high levels of owner-occupied housing in both suburban and rural school districts, 77.2% and 78% respectively. This was in stark contrast to urban school districts, where owner-occupied housing made up only 56.2% of all occupied housing units. Despite the fact that rural school districts had the highest owner occupancy rated, they also had the highest vacancy rates (22.3%) in the state. Although high rates of homeownership are often associated with neighborhood stability, elevated vacancy rates and lower median housing values in rural New York suggest that other factors are destabilizing local housing markets.

The second set of summary statistics in Table 1 comes from the NYSED. These data parallel the patterns identified using ACS data. For instance, fewer than 12% of all students were enrolled in urban school districts, while suburban students made up almost 58% of all students and rural students accounted for approximately 30%. Still, school districts with the largest enrollment were in urban areas. It is also noteworthy that the percent of the total population enrolled in school (13.4%) was lowest in urban school districts. Despite these similarities to the total population, distinctions existed along the lines of race and poverty. Although black students were most concentrated (12.5%) in urban school districts, the second largest concentration of black students (8%) was found in rural areas. Rural school districts had the smallest percent of the total population that was black, but the school-age population of blacks was more pronounced. In terms of poverty, the distribution of students receiving free or reduced-price lunches across school districts mirrored the data for households below the poverty level. However, the magnitude of children receiving subsidized lunches in school districts exceeded the overall poverty statistics in urban (44.6%), suburban (23.9%), and rural areas (37.3%).

The summary statistics from the NYSED also reveal important distinctions between urban, suburban, and rural school districts related to school performance and finances. High school graduation rates were noticeably higher (88.3%) in suburban school districts. Also, the fiscal picture for suburban school districts contrasted with other geographic areas. Average expenditures per pupil were $21,171 in suburban school districts. In comparison, urban school districts averaged $17,878 per pupil, while rural districts averaged $19,978. Moreover, suburban school districts drew the majority of their revenues (61.9%) from local sources, while urban and rural districts relied on state and federal funds for most of their resources. Suburban districts were also the most likely to end the budget year with revenue shortfalls.

Multivariate Analysis of School Districts in New York State

Multivariate linear regression models were developed to further examine the relationships between schools and housing values in New York State. Four fully specified linear regression models were examined using the variables identified in Table 2. The models examined the relationship between community demographics, school characteristics, and housing values. The dependent variable examined in each of the models was the natural log of the median value of owner occupied housing in school districts.[4] Models were developed for all school districts examined in the analysis, as well as for

TABLE 2 Variables Used in the Linear Regression Analysis.

Variable Name	Variable Description
Dependent variable	
Log median housing value	Natural log of the estimated median value of owner occupied housing (source: United States Census Bureau, n.d.)
Independent variables	
Total school district population	Estimated total school district population (source: United States Census Bureau, n.d.)
% enrolled in school	Estimate percent of the total school district population enrolled in school (sources: NYSED n.d.; United States Census Bureau, n.d.)
% below poverty	Estimated percent of the population below the poverty level (source: United States Census Bureau, n.d.)
% black	Estimated percent of the total population black/African-American (source: United States Census Bureau, n.d.)
Black squared	The squared value of the estimated percent of the total population black/African-American (source: United States Census Bureau, n.d.)
Rural dummy	A dummy variable coded 1 = rural school district, 0 = suburban school district or urban school district (source: NCED, n.d.)
Urban dummy	A dummy variable coded 1=urban school district, 0=suburban school district or rural school district (source: NCED, n.d.)
% housing units owner occupied	Estimated percent of housing units owner occupied (source: United States Census Bureau, n.d.)
Housing units owner occupied squared	The squared value of the estimated percent of housing units owner occupied (source: United States Census Bureau, n.d.)
% high school seniors graduating	Percent of high school seniors graduating in 2009–10 (source: NYSED, n.d.)
Per-pupil expenditures	2009–10 school district per pupil expenditure (source: NYSED, 2012)
% school district revenue from local sources	2009–10 percent of school district revenue from local sources (source: NYSED, 2012)
Revenue surplus dummy	A dummy variable coded 1 = school district had a revenue surplus in 2009–10, 0 = school district had a revenue deficit in 2009–10 (source: NYSED, 2012)

the cross-sectional analysis of urban, suburban, and rural districts. A total of 13 independent variables were incorporated into the analysis. The independent variables were selected in reference to studies, including those cited by Nguyen-Hoang & Yinger (2011), which examine relationships between community demographics, school finance, student performance, and school district housing prices. A correlation matrix for the independent variables is displayed in the Appendix. Of the 13 independent variables used in this analysis, seven were drawn from the 2006–2010 ACS, two were based on measures from the CCD, and the remaining four came from NYSED databases.

The independent variables from the ACS included seven measures of community demographics: total school district population, student enrollment, school district poverty rates, racial composition, and owner-occupied housing in school districts. Some variables identified in Table 1 were not included in the fully specified regression models due to multicollinearity. Also, the squared terms for race and owner-occupied housing were included in the models, since the relationship between the dependent variable and these two independent variables were identified as nonlinear. The quadratic terms for these variables corrected for the nonlinear relationships in the models. In the case of race, tests for nonlinear relationships indicated that property values increased in school districts until the percent of the population that was black reached approximately 35%, and then property values began to decrease for each additional percent of the population that was black. In the case of homeownership rates, tests for nonlinear relationships indicated that housing values decreased in school districts until the percent of housing units that were owner occupied reached approximately 55%, and then housing values began to increase for each additional percent of housing units that were owner occupied.

Two independent variables used in Model 1 were based on data from the CCD. These variables were designed to control for the geographic location of school districts. Dummy variables were created for urban, suburban, and rural school districts. The dummy variables for urban and rural school districts were entered into Model 1 and the dummy variable for suburban districts was used as the excluded variable. This resulted in contrasts between urban and suburban districts, as well as rural and suburban districts in the analysis.

Finally, four independent variables were used in the analysis to measure school district characteristics. The first variable was a measure of the percent of high school seniors who graduated in 2010. This was used as a measure of school district performance, since high school graduation rates are well publicized and commonly used as general indicators of school district quality. High school graduation rates also encapsulate an overall assessment of the quality of a school district that individuals might reference when conducting a housing search. The remaining three variables were all measures of fiscal conditions in school districts. One of these was a school district's per-pupil expenditures. This served as a standardized measure of the level of budget

resources in a district. Another measure of fiscal conditions was the percent of local-source revenue in a school district's annual budget. This served as a measure of fiscal autonomy in a school district. Finally, a dummy variable was created to measure whether a school district had a budget surplus at the end of the 2009–2010 fiscal year. This served as a measure of fiscal stability.

Table 3 summarizes the results from the linear regression models examined in the analysis. Model 1 includes the results from the fully specified multivariate analysis of all school districts examined. Models 2–4 summarize the results from separate regression models for urban, suburban, and rural school districts. Together, these models highlight the nuances of the relationship between schools and property values. These findings provide education

TABLE 3 Linear Regression Models for the Effects of Independent Variables on the Natural Log of the Median Value of Owner-Occupied Housing.

	Model 1 All Districts ($N = 695$)	Model 2 Urban Districts ($n = 25$)	Model 3 Suburban Districts ($n = 259$)	Model 4 Rural Districts ($n = 411$)
Variable name	Coefficient (β)	Coefficient (β)	Coefficient (β)	Coefficient (β)
Total school district population	.000001 (.033)	−.000003 (−.316)	.000005** (.152)	.000002 (.022)
% enrolled in school	.024*** (.108)	.102* (.436)	.034*** (.189)	.010* (.059)
% below poverty	−.022*** (−.190)	−.031 (−.457)	−.032*** −.281)	−.026*** (−.263)
% black	.024*** (.261)	−.006 (−130)	.025*** (.415)	.024* (.149)
Black squared	.000** (−.109)	.000 (.218)	.000** (−.222)	−.001 (−.070)
Rural dummy	−.170*** (−.115)	—	—	—
Urban dummy	−.396*** (−.102)	—	—	—
% housing units owner occupied	−.060*** (−.944)	−.061 (−1.379)	−.067*** (−1.299)	−.031 (−.540)
Housing units owner occupied squared	.000*** (.839)	.000 (.539)	.000*** (1.275)	.000 (.479)
% high school seniors graduating	.002 (.024)	−.004 (−.065)	.000 (−.005)	.002 (.030)
Per-pupil expenditures	.000011** (.075)	.000027 (.126)	.000049*** (.420)	−.000009* (−.082)
% school district revenue from local sources	.023*** (.648)	.023* (.706)	.020*** (.520)	.022*** (.783)
Revenue surplus dummy	.012 (.006)	−.012 (−.007)	.108 (.056)	.001 (.001)
Constant	12.686***	12.845***	12.102***	12.253***
Adjusted-R^2	.838***	.759**	.841***	.768***

*$p < .05$, ** $p < .01$, ***$p < .001$.
The Greek symbol for beta (β) is used to identify the standardized coefficient that is reported in parentheses in the table.
Sources. NCED, n.d.; NYSED, 2012, n.d.; United States Census Bureau, n.d.

policymakers and urban planners with insights into how the geographic loca-
tion of a school district can guide the design of local school and housing
programs.

<small>SCHOOLS AND HOUSING ARE FOR THE BURBS</small>

Model 1 represents the fully specified regression analysis for all school dis-
tricts. This model includes urban, suburban, and rural districts in the analysis.
The most noticeable feature of this model is that 10 of the 13 independent
variables were significantly related to median housing values. Five variables
were correlated with higher median housing values: the percent of the total
population enrolled in public schools ($p < .001$), the percent of the popula-
tion black ($p < .001$), the squared percent of housing units owner occupied
($p < .001$), average per-pupil expenditures ($p < .01$), and the percent of local
source school district revenue ($p < .001$). In contrast, five variables were
correlated with lower median housing values: the percent of the population
below the poverty level (p $< .001$), the squared percent of the population
black ($p < .01$), the rural location of a school district ($p < .001$), the urban
location of a school district ($p < .001$), and the percent of owner-occupied
housing units ($p < .001$). These findings are consistent with characteristics
identified in the descriptive statistics summarized in Table 1. They also are
consistent with characteristics typically associated with suburban school dis-
tricts, where school performance and housing values tend to be rated at
high levels. In other words, this model predicts that higher housing values
are correlated with characteristics found in homogeneous, bedroom suburbs.
These communities are characterized by high rates of owner occupancy and
well-funded schools with high graduation rates. The adjusted-R^2 indicated
that 83.8% of the variance in the natural log of median housing values was
attributed to the variables used in Model 1.

The results from Model 1 were echoed in Model 3, which focused exclu-
sively on variables correlated with housing values in suburban districts. Nine
of the 11 independent variables in Model 3 were significantly correlated with
median housing values. Six variables were correlated with higher median
housing values: the total population in a school district ($p < .01$), the percent
of the total population enrolled in public schools ($p < .001$), the percent of
the population black ($p < .001$), the squared percent of housing units owner
occupied ($p < .001$), average per-pupil expenditures ($p < .001$), and the
percent of local source school district revenue ($p < .001$). In contrast, three
variables were correlated with lower median housing values: the percent of
the population below the poverty level (p $< .001$), the squared percent of
the population black ($p < .01$), and the percent of owner occupied housing
units ($p < .001$). Although there are some minor distinctions from Model 1,
these findings remained consistent with characteristics typically associated
with suburban school districts. The adjusted-R^2 indicated that 84.1% of the

variance in the natural log of median housing values was attributed to the variables used in Model 3.

HOUSING IN THE BLACKBOARD JUNGLE

Model 2, which focuses on urban school districts, presents a starkly different picture of factors correlated with housing values. Only two of the 11 independent variables in Model 2 were significantly related to median housing values. In this model the percent of the total population enrolled in public schools ($p < .05$) and the percent of local source school district revenue ($p < .05$) were correlated with higher median housing values after controlling for all of the other variables in the model. The adjusted-R^2 indicated that 75.9% of the variance in the natural log of median housing values was attributed to the variables used in Model 2. These results suggest that very different dynamics are driving the relationship between schools and housing values in older core cities. After taking other factors into consideration, rising housing values appear to only be correlated with increased school enrollment and additional local source revenue. For education reformers and urban planners, this highlights the dilemma faced by many urban schools districts. Larger populations of school-age children and a strong local tax base help to stabilize urban housing markets. However, demographic and fiscal trends are moving in the opposite direction in many urban centers. A revitalization strategy emphasizing middle-class homeownership may be swimming against the tides in core cities. In a context where the school-age population is declining and the local tax base is weakening, there is a need for greater focus on policies that expand state and federal funding levels for urban schools. Augmenting this type of revenue would promote school funding equity and maintain the quality of education for economically disadvantaged students.

LITTLE SCHOOLHOUSE ON THE PRAIRIE

Model 4, which focuses exclusively on variables correlated with housing values in rural districts, is also distinct. Four of the 11 independent variables in Model 4 were significantly related to median housing values. Two variables were correlated with higher median housing values: the percent of the total population enrolled in public schools ($p < .05$), and the percent of local-source school district revenue ($p < .001$). In contrast, two variables were correlated with lower median housing values: the percent of the population below the poverty level ($p < .001$) and per-pupil expenditures ($p < .05$). These results suggest that rural school districts with higher property values are larger, relatively affluent, and better financed. These school districts would resemble what Brower (2000) identifies as affluent rural hideaways. They can be contrasted with the entrenched poverty and isolation that characterizes declining rural towns. The adjusted-R^2 indicated that 76.8% of the

variance in the natural log of median housing values was attributed to the variables used in Model 4. Although this model identifies relatively unique factors influencing the relationship between schools and housing values in rural school districts, they appear to be on a similar trajectory to urban districts. Rural school districts are less advantaged than suburban districts in terms of funding and other socioeconomic factors that impact fiscal stability. For education reformers and urban planners, this indicates that efforts to stabilize housing markets in rural areas should be linked to promoting school funding equity and augmenting other state resources to ameliorate rural poverty.

CONCLUSIONS

The results from this analysis highlight how the relationship between school quality and housing values differs between urban, suburban, and rural areas. The analysis indicates that suburbs have a number of socioeconomic advantages which translate into higher median housing values in school districts. In contrast, the results suggest that a more discrete set of factors linked to relatively fewer school-age children and weakened local tax bases affect outcomes in urban and rural school districts. It is also noteworthy that school performance, measured in relation to high school graduation rates, was not a significant correlate to housing values in any of the models after controlling for other variables. In contrast, local-source revenue was a significant predictor in all the models, and it had one of the highest standardized coefficients (β) across the models. These finding suggest that housing choice is a much more dynamic process for the middle class than suggested by Varady and Raffel (1995). The middle class appears to consider a variety of amenities beyond school performance when making housing choices, and in the aggregate theses class-specific choice may translate into persistent patterns of segregation and housing price differentiation. In contrast, urban and rural communities appear to be at a disadvantage due to relatively small school-age populations and diminishing fiscal resources.

The identification of distinctions between urban, suburban, and rural districts suggests that local context matters when designing school reform policies. There is also reason to believe that school reform should have a different emphasis in urban areas, focusing on the empowerment of poor residents rather than enticing middle-class homeowners to move back to the city. Nonetheless, the results from this study are tentative and further analysis is warranted given the limitations of the data and research design. In particular, there is a need for more cross-sectional analysis focusing on the relationship between school finance, performance, and broader community outcomes. The distinctions identified in the preliminary analysis done in this article suggest that public policy should be tailored to community context.

Although tentative, the results from this analysis lead to two distinct sets of recommendations. One involves extensions to the types of school reforms suggested by Varady and Raffel (1995). The other focuses on a renewed commitment to equity-based school reform and comprehensive community development strategies by urban planners.

Varady and Raffel (1995) recommend that in the long term, urban school reforms should entail regional school district consolidation and the creation of magnet schools in urban neighborhoods. Combined, these two reforms would level the playing field for urban schools and lower the barriers cities face when attempting to attract middle-class homebuyers to their jurisdictions. Varady and Raffel also recommend a number of tax incentives that could facilitate the marketing of homes in older core cities to the middle class. I do not contest the potential benefits of the reforms that Varady and Raffel recommend. However, the reforms they recommend merely scratch the surface and are not sufficient to address the magnitude of fiscal inequality and neighborhood decline experienced in many older cities. Both of these conditions have accelerated since Varady and Raffel developed their strategy for inner-city revitalization. The analysis in this article, coupled with over a decade of experimentation with regional approaches to school reform, suggests that the magnitude of fiscal inequality between school districts requires the consideration of more dramatic reforms.

The results from this research suggest that urban school districts are grossly underfunded, particularly when contrasted with suburban districts, and intervention at the state level is required to address this disparity. For decades, states have attempted to address the problem of underfunded urban schools with various forms of school funding equalization. Despite efforts to equalize funding across school districts, state governments have not been able to achieve equity in school funding. Achieving equity has been particularly problematic in urban schools, because low-income and minority students with greater educational needs are concentrated in school districts located in older core cities. This situation is a byproduct of housing segregation, which aggravates barriers to achieving equity in accessing educational resources.

In some cases, local property tax caps and other local tax relief measures have further reduced the effectiveness of state efforts to achieve school funding equalization and equity. Eom and Killeen (2007) provide an example of this in their analysis of the effects of New York's School Tax Relief (STAR) program on state school equalization funding. They found that local tax relief reduced the effects of school funding equalization policies. In other cases, efforts to augment school district resources through fundraising in the non-profit sector exacerbate inequities between urban, suburban, and rural areas (Brent, 2002). Baker, Sciarra, and Farrie (2010) examined school funding at the national level and concluded that increased effort is needed at the state level to achieve equity in school funding.

Policymakers and urban planners need to take cues from educational research and advocate for greater school funding equity (Johnston, 1998). One mechanism to achieve this goal would be to have states pool local school property tax revenues and redistribute them to school districts using needs-based formulas. Of course, it is reasonable to assume that a high degree of local opposition to this approach to school districts equalization would manifest itself. An alternative approach to achieving this goal would be for states to put lower caps on school property taxes and move toward financing public education almost exclusively with state sales and income taxes. Revenues from state sales and income taxation could then be redistributed to school districts using needs-based formulas. In 1994, Michigan adopted a state-financed school funding strategy that incorporated these elements (Arsen & Plank, 2003; Courant & Loeb, 1997; Roy, 2011). The Michigan model combines state school property, sales, and income taxation. Education reformers and urban planners, particularly those located in urban and rural school districts, should advocate for reforms that substantially augment levels of school funding equalization and equity by federal and state governments.

The results from this analysis also suggest that education reformers and urban planners need to shift their focus with respect to policies related to school reform and affordable housing. First and foremost, the findings from this analysis suggest that urban planners need to place less emphasis on attracting middle-class homeowners to older core cities. A more balanced approach to affordable housing policy is required at the local and regional level in order to promote school integration and neighborhood revitalization. In part, a balanced approach to school reform and affordable housing would entail that education reformers and urban planners embrace traditional equity goals embedded in education policy. Policy reform should be guided by the principle that race and class segregation is an underlying cause of social inequality. Based on this principle, school reformers and urban planners should advocate for expanded affordable housing development in neighborhoods and suburbs where high-quality schools and opportunities for upward mobility are present. This would include planning for scattered-site affordable housing and set asides for affordable housing in new developments. On a regional scale, the adoption of inclusionary zoning ordinances and regional fair share plans for affordable housing should also be mandated as components of school integration policy. In addition to these reforms, strategies based on comprehensive community development should be adopted in all school districts. The overarching goal of education reform should be to develop schools as neighborhood-based anchor institutions through which comprehensive community and social services are coordinated.

In essence, this cross-sectional analysis suggests that a new balance needs to be struck between education and housing policy. Greater consideration of local community contexts is needed in order to promote the revitalization of older core cities and stabilize school districts in rural and suburban

areas facing growing fiscal constraints. To achieve this balance it is incumbent upon education reformers and urban planners to advocate for expanded state funding to promote educational equity, and to prioritize linked policies that ameliorate race and class segregation in education and housing.

NOTES

1. The American Community Survey (ACS) is an annual survey of population and housing characteristics conducted by the U.S. Census Bureau. It is administered to 3 million households in the country each year. The ACS collects information previously collected in the long form of the decennial census. It is the largest survey, other than the decennial census, administered by the U.S. Census Bureau. The 2006–2010 ACS (United States Census Bureau, n.d.) represents estimates based on a rolling average for five years of sampling.

2. Although excluding NYC from the analysis removed the most obvious case of housing inelasticity when comparing urban, suburban, and rural areas, the ability to completely address this potential limitation of the analysis should be noted.

3. Although an analysis of the relationship between school performance and property values in NYC is of interest, it does not fit within the framework of this analysis. The NYC school district is an anomaly in the State of New York and the nation as a whole. Excluding NYC and its school district, the remainder of the State of New York is composed of medium-sized and small cities, traditional suburbs, and rural hamlets. An analysis of the single school district would require the use of different data sources collected at the sub-district level, which would be incompatible with the data used in this statewide analysis. Alternatively, a comparative analysis of school performance and property values in the NYC school district and other large school districts in the U.S. (e.g. Chicago, Los Angeles, Miami-Dade County) would be germane and methodologically sound. However, such an analysis is beyond the scope of this study. Some may argue that excluding NYC may make the results from this analysis less generalizable to a subgroup of states with major metropolitan areas comparable to NYC in scale and function. This is a recognized limitation of the methodology.

4. Median value of owner-occupied housing is a variable from United States Census Bureau (n.d.). The data for this variable was positively skewed for the 695 school district that were identified in the ACS for New York State. It had a skewness of 1.423 (*SE* of .094) and a kurtosis of 1.169 (*SE* of .188). Dues to this, the natural log of the median value of owner-occupied housing was used as the outcome variable in the multivariate analysis.

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APPENDIX: CORRELATION MATRIX FOR INDEPENDENT VARIABLES ($N = 695$)

	Total School District Population	% Enrolled in School	% Below Poverty	% Black	% Housing Units Owner Occupied	% High School Seniors Graduating	Per-Pupil Expenditures	% School District Revenue From Local Sources	Revenue Surplus Dummy
Total school district population	1								
% enrolled in school	−.072	1							
% below poverty	.060	−.197***	1						
% black	.446***	−.170***	.137***	1					
% housing units owner occupied	−.301***	.247**	−.548***	−.373***	1				
% high school seniors graduating	.058	.068	−.167***	.122**	.069	1			
Per-pupil expenditures	−.100**	−.154***	−.022	.101**	.032	.151***	1		
% school district revenue from local sources	.078*	−.079*	−.526***	.024	.165***	.251***	.515***	1	
Revenue surplus dummy	−.002	.091*	.015	−.025	.014	.029	−.143***	−.093*	1

* $p < .05$, ** $p < .01$, *** $p < .001$.
Sources. NCED, n.d.; NYSED, 2012, n.d.; United States Census Bureau, n.d.