



# Do choice schools break the link between public schools and property values? Evidence from house prices in New York City<sup>☆</sup>



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## ABSTRACT

While school choice has attracted much attention from policymakers and researchers, virtually all of the research has focused on the relationship between school choice and student academic performance. There is, in contrast, little work examining whether additional choice schools weaken the link between residential property values and locally zoned schools – despite the well accepted theoretical (and empirical) link between schools and housing. As school choice becomes more important in reforming urban school systems, and improving public schools is critical for attracting and retaining middle class families in urban neighborhoods, it is important to understand how increasing school choice shapes the long-term economic health and viability of the country's central cities. In this paper, we examine how choice schools affect house prices, particularly the link between the quality of locally zoned schools and surrounding housing values. Our study utilizes rich data on New York City public elementary schools geo-coded and matched to data on property sales for a fifteen-year period beginning in 1988. To identify the impact of a choice school on the capitalization of school quality into housing values first we incorporate a boundary discontinuity approach to compare the capitalization of zoned school quality into housing prices of buildings that are close to one another but in different elementary school attendance zones. We rely on smaller and smaller distances from the boundary to test the stability of our results. Second, we compare housing units that are within 3000 ft of a choice school to housing units outside of these rings, which is traditionally considered the 'walk zone' around a school. Third, we take advantage of choice school openings to look at the capitalization rates before and after the choice school opens. We find that the proximity of alternative school choices does weaken the link between zoned schools and property values. The opening of a choice school reduces the capitalization of test scores from zoned schools into housing values by approximately one third.

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## 1. Introduction

Increasing school choice continues to attract more attention from policymakers and researchers. Currently the majority of research on choice schools has focused on the relationship between school choice and student academic performance (Belfield and Levin, 2002; Hoxby, 2004; Rouse and Barrow, 2009). There has been little empirical work, in contrast, examining how these choice schools are affecting housing markets, despite the well accepted theoretical (and empirical) link

between schools and housing values. As school choice continues to become a more central component in reforming urban school systems (including cities such as New York, Chicago, Boston and Washington DC), and improving public schools is critical for attracting and retaining middle class families in urban neighborhoods (Ladd, 2002), it is important to understand how increasing school choice shapes the long-term economic health and viability of the country's central cities. In this paper, we examine how choice schools affect house prices in New York City, particularly the link between the quality of locally zoned schools and surrounding housing values.

The existing work examining the relationship between schools and housing has focused almost exclusively on the extent to which the price of a house reflects the quality and characteristics of the local public school – more specifically, the school that children would attend based upon their location in the school's 'catchment area' or 'attendance zone' (hereafter 'zoned school'). A large body of literature explores the capitalization of zoned school quality into house prices to identify how much households are willing to pay for high performance public

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schools. Two recent reviews of this literature come to similar conclusions, that households are willing to pay between 3 and 5% more for a one standard deviation improvement in test scores (Machin, 2011; Nguyen-Hoang and Yinger, 2011). Our study builds on the innovations within this literature, employing a boundary discontinuity approach to compare housing units that are near one another, and therefore embedded in a similar neighborhood, but in different school zones (Black, 1999), as well as including longitudinal data on property sales to isolate the relationship between school quality and housing values (Dhar and Ross, 2012).

This literature, however, has paid relatively little attention to the impacts on property values of schools that admit students based upon other (not exclusively geographic) criteria – including magnet schools, alternative schools, and charter schools. Reback (2005) and Brunner et al. (2012) explore the effects of inter-district school choice on housing values. They find that school districts receiving additional students experience declines in housing values, and districts that send students to outside school districts experience increases in housing values. There are challenges, however, when looking across school district boundaries, as the underlying school finance structure between districts is often different, as are property tax rates. Importantly, and uniquely, New York City is a single tax district, meaning property tax rates are constant across school zones throughout the school district.<sup>1</sup> Therefore, any differences that we uncover will be more tightly linked to differences in school quality rather than taxes.

Machin and Salvanes (2010) and Chisesi (2012) study the adoption of an intra-district school choice program in Norway and Colorado, respectively, and find results in line with those of Reback (2005) and Brunner et al. (2012). Machin and Salvanes (2010) find that the valuations to school performance fall by over 50% after all high schools in the district become choice schools. Chisesi (2012) finds that once intra-district choices are available property values in initially low-quality school attendance zones increase, while property values in initially high-quality zones decline. Our study in contrast includes some schools that are choice schools, but others that remain zoned schools, allowing a comparison of the capitalization rates before and after nearby choice schools open.

In a more closely related study, Fack and Grenet (2010) look within the Paris school district, to investigate the impact of publicly funded, private middle schools on real estate. They find that an increase in the number of nearby private schools is linked to decreased capitalization of public school performance into residential property values. We build on this research by focusing on public schools within the United States.<sup>2</sup> We also take this research a step further by exploring whether and how the opening of a choice school and its quality affect property values.<sup>3</sup>

Our study utilizes rich data on New York City public elementary schools geo-coded and matched to data on property sales for a fifteen-

year period beginning in 1988. New York City provides an ideal site in which to conduct the research outlined above. In addition to being a single tax district, a significant number of choice schools have emerged in New York City during this time period. On their own these choice elementary schools would be among the 100 largest school districts in the country.<sup>4</sup> Additionally, we have rich detailed data on housing and schools, including information about the location and characteristics of property sales (address-specific), school location, performance and student characteristics.

To identify the impact of a new choice school on the capitalization of zoned school quality into housing values we rely on a series of empirical tools. First we incorporate a boundary discontinuity approach, following Black (1999), to compare the capitalization of school quality into prices of houses that are close to one another but in different elementary school attendance zones. Similar to Black (1999), we rely on smaller and smaller distances from the boundary to test the stability of our results. Second, we compare housing units that are within 3000 ft of a choice school to housing units outside of these rings. We believe that this is the appropriate distance, as New York City offers transportation assistance beyond this distance.<sup>5</sup> Third, we take advantage of choice school openings to look at the capitalization rates before and after the choice school opens.

We then address three supplemental research questions. First we examine school closures as well as school openings. Second we move away from the narrow view of schools seen only through pass rates and examine whether inclusion of student composition and school resources alters our primary results. Third we explore how the quality of the choice school factors into this relationship, by including a variety of measures of choice school quality.

We find that the proximity of alternative school choices does dampen the relationship between the zoned elementary school and property values. The opening of a choice school reduces the capitalization of pass rates from zoned schools into housing values by approximately one third. We also find that the opening of the choice school is positively capitalized into housing values, suggesting that choice schools in New York City are viewed as neighborhood amenities. When including characteristics of the choice school it appears that the quality of the choice school is also capitalized into housing values, but at a lower rate than is the quality of the zoned school.

This paper proceeds as follows. We begin with our theoretical approach, then describe the data we have assembled to answer this research question, and next describe our empirical strategies. We continue with our primary results, our results from supplementary research questions and then our concluding remarks.

## 2. Why should choice schools affect housing markets?

There is currently a growing policy interest among key decision makers and advocates to increase the school choices available to parents within their school district. A popular argument in favor of school choice is that increasing choice could further reduce the achievement gap by delinking school attendance from a household's residential address, enabling lower income students to attend higher performance schools that are often located in higher income neighborhoods (Rouse and Barrow, 2009).<sup>6</sup> The growing literature on the impacts of increased choice on student achievement finds some evidence to support these arguments

<sup>1</sup> As part of the larger NYC budget, the Department of Education is financed through a mix of city tax revenue and state and federal aid, which contrasts with other school districts nationwide that are primarily financed through property taxes. In 2009, for example, 40% of the NYC tax revenue came from property taxes, 21% came from personal income taxes, 13% came from general sales taxes and 8% came from corporation taxes (IBO, 2010). The remainder of the budget was funded through state and federal categorical grants. In 2010, 30% of the \$60 billion dollar NYC budget went to the Department of Education (IBO, 2010).

<sup>2</sup> New York City also has a large private elementary school market (<http://nces.ed.gov/ccd/elsi> 85 private elementary schools, including parochial schools, in 1999–2000 school year). The analysis of the impact of these schools however is beyond the scope of this paper. Given the high cost of private elementary schools in New York City, we believe that these schools may similarly dampen the relationship between housing values and zoned schools, but only in the highest value New York City neighborhoods.

<sup>3</sup> In another related study by Horowitz et al. (2007), they investigate the impact of the existence of charter schools on property values in Toledo, Ohio. They find no evidence that charter elementary schools impact surrounding property values. However, their sample includes a very small number of sales and charter schools.

<sup>4</sup> <http://nces.ed.gov/pubs2011/2011301.pdf>.

<sup>5</sup> <http://schools.nyc.gov/Offices/Transportation/ServicesandEligibility/BusTransportation/default.htm>.

<sup>6</sup> One argument often used against increasing school choice is that it will actually decrease the quality of schools available to lower income households as these are the households least likely to exercise their choice options. Therefore the last remaining households with resources in a neighborhood will attend the choice school leaving the neighborhood school with even greater levels of poverty concentration and perhaps even racial concentration (Ladd, 2002).

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